

**Medicinal plants - Taxonomy,
chemical composition, antimicrobial
properties and uses**

By

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Ablemoschus manihot L.

Family: Malvaceae

Vern. name: Janglee bhindi

Botanical description : Perennial under shrub, up to 3 m high. Stems, petioles, pedicels and some times also the nerves of the leaves more or less densely covered with prickly hairs. Leaves sub orbicular in outline and palmately, 3-7 lobed. Flowers solitary, axillary, or recemed. Epicalyx lobes 4-6, ovate-oblong, 1-3 cm long. Calyx 2-3 cm long, tomentose. Corolla yellow with a purple throat, petals obovate, 5-8 cm long. Staminal column 2 cm long. Capsules ovoid-oblong, acuminate, 5-angled, 4-6 cm long, densely hairy; valves inside with long white hairs; seeds globose-reniform with concentric rings, brown or black.

Flowering & Fruiting: August-March.

Distribution: In mixed forests, along streams and cultivated fields i.e. Balaghat, Bhopal, Bilaspur, Narsimhapur, Raisen, Seoni and Sidhi districts.

Uses : Roots, seeds, barks and leaves are used for dropsy and emmenagogue. The flower are used in the treatment of chronic bronchitis and toothache. The leaves and wood exhibit significant wound healing activity.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*) properties (Tiwari *et al.* 2004, 2007). The plant shoot extract posses antibacterial properties against *Escherichia coli*, *Staphylococcus aureus*, *Bacillus subtilis*, *Klebsiella pncumoniae*, *Pseudomonas aeruginosa*, *Bacillus pumilis* and antifungal activities against *Candida albicans*, *Aspergillus niger*, *Fusarium monoliforme*, *Trichoderma viride*, *Phaneochaete chrysosporium* and *Pcilimyces sp.* (Pritam and Sanjay, 2011).

Propagation: Through seeds.

Abelmoschus moschatus Medic.

Family: Malvaceae

Vern. name: Muskdana, Kasturi bhindi

Botanical description : Shrub; Stem herbaceous, hispid with spreading hairs, 0.5 -2.5 m long, slender, tap root. Leaves extremely variable and having long petioles. Petioles are hispid with rigid hairs but otherwise glabrous, unequally and coarsely toothed, deeply 5-7 lobed; lobes all spreading, oblong or lanceolate, acuminate; pedicels partially pubescent, axillary, about as long as the petioles: involucent leaves 6-10, linear, hairy

some what persistent: capsule oblong, acuminate, hairy. Seed subglobose – reniform, 3 mm long, mostly glabrous.

Flowering & Fruiting : August – March.

Distribution : Species found in mixed forest and cultivated fields i.e. Bastar, Bilaspur, Mandala, Raigarh and Raipur districts.

Chemical Composition: Leaves, flowers and seeds contain β -sitosterol and its B-D-glucoside, myricetin and myricetin-3'-D-glucoside, campesterol, stigmasterol. Cholesterol, ergosterol, higher fatty acids, esters of acetic acid and ambretioic acid. An aromatic absolute from seeds known as *Ambrette seed oil*.

Uses : Fresh plant used as febrifuge, expectorant and poultice made of whole plant. Pulp applied to chest in bronchitis. Mucilage from plant is used in several diseases i.e. urinary discharges, painful menstruation and as aphrodisiac. Seeds used as diuretic, antiseptic, stimulant, cooling, tonic, carminative and demulcent. A decoction or tincture useful in nervous debility, hysterics and other nervous disorders. Seeds also used as insect repellent and in perfume industries as fixative oil. Seed and leaf extract possess significant antioxidant activity and serve as free radical inhibitors and scavenger. It exhibited antiproliferative activity against two human cancer cell line *Colorectal adenocarcinoma* and *C. retinoblastoma* (Gul et al., 2011).

Antimicrobial Properties: Seed have antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties while leaf extract inhibits *Staphylococcus aureus*, *Bacillus megaterium*, *Proteus vulgaris*, *Shigella flexneri*, *Proteus mirabilis* and *Carnebacterium diphtheriae* activities (Maheswari and Kumar, 2009).

Propagation: Through seeds.

Abroma augusta L.

Family: Sterculiaceae

Vern. name: Ulatkambal

Botanical description : A branched shrub or small tree with denticulate and smooth leaves of size 10-15 x 12 cm, pubescent beneath; flowers dark red, 5 cm diameter, fruit a capsule; 4 cm long, obpyramidal; seeds enveloped light cottony wool.

Flowering & Fruiting: August – January

Distribution : Planted in cultivated land and gardens as well as in forest nursery.

Chemical Composition : Stem-bark contains B-sitosterol and friedelin. Seeds contain fixed oil (20.2%) composed of linoleic, oleic, hexadecenoic, palmitic and stearic acids. Root contains a fixed oil, resins, an alkaloid in minute quantity and water soluble bases.

Uses: Root bark is as emmenagogue, abortifacient and uterine tonic. It is used in menstrual discharges and regulates the menstrual flow. Root powder act as an abortifacient and antifertility agent. The fresh viscid juice is useful in the congestive and neuralgic varieties of dysmenorrhoea. Leaf paste used against ringworms. Leaves use in treating uterine disorders, diabetes, rheumatic pains of joints and headache with sinusitis. Leaves and stem are demulcent and an infusion of fresh leaves and stems in cold water is very efficacious in gonorrhoea. Seeds oil is anti colesteremic and used in curing of artherosclerosis.

Antimicrobial Properties: Leave extract indicates strong antibacterial activities for gram positive *Bacillus subtilis*, *B. megaterium*, *Staphylococcus aureus*, and gram negative *Escherichia coli*, *Shigella dysenteriae*, *S. sonnei* and *Salmonella typhi*. Its also reported to inhibit *Candida albicans*, *Aspergillus niger*, *A. flavus*, *Rhizo oryzae* and *Aspergillus fumigatos* and cytotoxiciy against brine shrimp naupali (Saikot *et al.*, 2012).

Propagation : Through seeds.

Abrus precatorius L.

Family: Fabaceae

Vern. name: Ratti, Gunja

Botanical description: Perennial, deciduous, twinning shrub or under herb about 1.5 to 2m long. Leaves, pinnate, leaflets 10-20 pairs; flowers pink or pale-purple in axillary receme; calyx companulate; pod oblong turgid; seeds scarlet, black tipped with red, black or complete red in colour.

Flowering & Fruiting: July–December.

Dirtribution : Species found in forest area i.e. Bilaspur, Bastar, Indore, Jabalpur, Jashpur, Raigarh and Shivpuri districts.

Chemical Composition: Roots and leaves contain glycyrrhizin, Precol, abrol, abrasine and precasine from roots. Gallic acid, abrine, hypaphorine, alanine, serine, valine, choline, trigonelling precatorine and methyl ester, 5B-cholanic acid, abrin A and abrin B from seeds.

Uses : The plant is bitter, thermogenic, antihistaminic, antiseptic, aphrodisiac, emetic, tonic, abortifacient and vermifuge. Seeds are useful for hair, inflammation of gums, muscular pain, convulsion, mucus in urine gravel, diarrhoea and bone fracture in cattle, fever, dryness of mouth, giddiness, difficult to breathing, thirst and diseases of the eye like night blindness. It help to improve sexual vigour and similar parasites, alopecia and skin diseases. Seeds paste applied locally in sciatica, stiffness of shoulder joint and paralysis. Leaves found useful in biliousness, leucoderma, itching etc. Decoction of leaves widely used for cough, cold and colic. Roots diuretic used in gonorrhoea, jaundice and haemoglobinuric bile. Leaves are sweetish in taste and also used as a substitute for liquorice. Seeds are purgative, emetic, aphrodisiac used in nervous disorders; half boiled seeds taken as tonic. Poultice of seeds used as suppository to bring about abortion. It produces a violent conjunctival inflammation and is likely to destroy corneal structures. Powdered seeds disturb uterine functions and prevent conception in women. Roots and leaves are useful in urinary troubles and dysuria and fever. Roots are abortifacient. Leaves with milk is aphrodisiac and antifertility. *Antimicrobial Properties*: Root possess antifungal properties (*Sclerotium rolfsii*) while, leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The leaf, stem and seed oil found inhibitory action especially for treating superficial infection caused by *Staphylococcus aureus* (Adelowotan *et al.*, 2008). Ouattara *et al.* (2012) reported that the seed extract possess significant antimicrobial activities against *Scherichia coli*, *Staphylococcus aureus* and *Klebsiella pneumoniae* germs involved in gastroenteritis in human.

Propagation : Through seeds.

Abutilon indicum L.

Family: Malvaceae

Vern. name: Kanghi

Botanical description : Erect annual hairy herb or under shrub. Leaves simple, alternate, long petioled, broadly ovate-cordate, acuminate 2.5-8 x 2.7 cm, minutely stellate hairy above, glaucous beneath, margin cranate-dentate; calyx lobes 3 mm long; flowers yellow, axillary, solitary; staminal column,

stellate hairy at base; schizocarp globose, mericarp 14-20, densely stellate hairy. Seeds 2-3 mm across, ovoid or sub-orbicular, globose or hairy.

Flowering & Fruiting: October - April.

Distribution : Throughout central India as weed in wastelands, along roads, streams and ponds i.e. Bilaspur, Bastar, Damoh, Durg, Indore, Jabalpur, Jashpur, Raigarh and Indore districts.

Chemical Composition: Gossypetin-8 and 7- glucosides and cyaniding-3-rutinoside isolated. Aerial parts contain alkanol, β -sitosterol etc. Leaves yield, β -sitosterol and tocopherol oil. Mucilage, asparagin. Plant contains fructose, galactose, glucose, N-alkane mixture, an alkanol fraction, β -sitosterol, vanillic acid, p-coumaric acid, p-hydroxybenzoic acid, caffeic acid, fumaric acid, p-B-D-glycosyloxybenzoic acid, leucine, histidine, threonine, serine, glutamic acid, aspartic acid, and galacturonic acid, Leaves and stem contain vitamin C, 31.1 mg/100 gm. Seeds yield a pale yellow semi-drying oil.

Uses : The root is aphrodisiac, diuretic, tonic and cures cough, dysuria, diabetes fever, thirst, dysmenorrhoea, piles, diarrhoea and worms. Whole plant useful as febrifuge, anthelmintic, in urinary, uterine discharges and lumbago. Leaves used in piles. It is useful in gonorrhoea, inflammation of bladder and vaginal infections. It is a drug mostly used in Ayurvedic and Unani medicine. Juice is used as emollient to relieve soreness of nates in young children. Various plant parts are used in convulsions, cramps, colic, dysentery, consumption, bronchitis, menorrhagia, spermatorrhoea. Root is demulcent, diuretic and nervine tonic and is prescribed in fever, chest affections and urethritis. It is very useful in strangury, haematuria, stones in bladder and as wash in eye diseases. Infusion of roots is a good cooling remedy in fever and is also given in strangury and haematuria. Decoction of roots is given internally for stones in bladder and applied as a wash in eye diseases. It is also used for piles. Powder of roots is used in cough and leprosy mixed with honey, chaulmoogra oil and fresh paste of sandalwood, it is an efficacious treatment for leucoderma. Leaves are cooked and eaten in bleeding piles. Leaf extract is diuretic and as emollient given in diarrhea, decoction as mouth wash in toothache and also useful in gonorrhoea, inflammation of bladder; and as a wash for wound and ulcers and for enema and vaginal infection. Leaf paste applied in fever and headache. Flowers are applied to boils and ulcers. Their powder is eaten in ghee for blood vomiting and cough. Seeds are aphrodisiac, contain water soluble mucilage and are used as laxative in piles, demulcent and used in treating cough, are distinctly useful in gonorrhoea, gleet and chronic cystitis.

Antimicrobial Properties: Seed possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal properties (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) and root possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties. Ethanol and chloroform extract of the leaves exhibits antimicrobial properties against *Bacillus subtilis*, *Staphylococcus aureus*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa*, *Escherichia coli* and *Salmonella typhi* (Poonkothai, 2006).

Propagation : Through seeds.

Acacia catechu L.

Family : Mimosaceae

Vern. name: Kattha

Botanical description : Moderate sized tree with thorny branches, stipular spines in pairs, short and recurved. Bark rough, dark-grey or ash-coloured. Leaves alternate, bipinnate; rachis prickly and with 4-5 glands; leaflets 6-50 pairs, ligulate. Flowers pale-yellow or cream coloured, in lax axillary spike. Calyx with grey-tomentose; corolla two to three times longer than the calyx. Stamens numerous, much exerted, pod flat, dry, dark-brown, shining, 5-6 seeded. Seeds orbicular, flat dark-brown.

Flowering & Fruiting: July–January

Distribution : In dry deciduous forests of Balaghat, Bhopal, Bilaspur, Bastar, Chhatarpur, Damoh, Gwalior, Hoshangabad, Indore, Mandla, Morena, Raigarh, Raipur, Rajnada, Raisen, Rewa, Sagar, Satna, Shivpuri and Seoni districts.

Chemical Composition : Catechin, catechutannic acid, tannin. Wood contains α , β and γ catechin. I-epicatechin. Heartwood contains eight flavons. Quercetin and its derivatives. Seeds exhibited hypoglycemic activity in normal rates but not in diabetic rats.

Uses : It is an ayurvedic drug for leprosy. Various parts used in sore mouth, pain in chest, cancer, colic pain, gravel, dysentery, bronchitis, asthma, cough and diarrhoea. Bark is bitter astringent, cooling, anthelmintic, antidyenteric and antipyretic, useful in skin diseases, melancholic, conjunctivitis, haemoptysis. Bark juice with asafetida used in haemoptysis. Mixture of flower tops, cumin etc. given in gonorrhoea. It is cooling,

astringent and digestive. Used in relaxed conditions of throat, mouth gums and also used in masala industry.

Antimicrobial Properties: Hartwood has an antioxidant properties (Naik et al., 2003). The methanolic extract of this plant was found to have antimicrobial activity against six microorganism *Bacillus subtilis*, *Staphylococcus aureus*, *Salmonella typhi*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Candida albicans* (Negi and Dave 2010).

Propagation : Through seeds.

Acacia nilotica (L.) Willd. ex Delile.

Family : Mimosaceae

Vern. name: Babul

Botanical description : Medium sized tree with blackish-grey to brown fissured bark; stipular spines up to 5 cm long; smooth, whitish. Leaves bipinnate, 5-10 cm long; pinnae 2-10 pairs, 1.8 5 cm long, leaflets 7-25 pairs, glabrous. Flowers in axillary, peduncled, globose heads, bright-yellow. Calyx campanulate. Corolla twice the length of the calyx. Pods 7-15 cm long, persistently grey downy, constricted between the seeds; seeds 8-12.

Flowering & Fruiting: March-April

Distribution : In dry deciduous forests, roadsides, field bunds, wasteland throughout state i.e. Balaghat, Bastar, Bilaspur, Bhand, Bhopal, Chhatarpur, Damoh, Durg, Gwalior, Hoshangabad, Indore, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Raisen, Satna, Sagar, Seoni, Shivpuri, Sidhi, Surguja districts.

Chemical Composition : Bark contains 7-20% tannin; pods contain 12-19% tannin. Several polyphenols are present in pods. Quercetin, gallic acid, catechin, epicatechin, dicatechin, leucocyanidin, epigallocatechin, polyphenolic phlobaphenes consisting mainly of catechol and pyrogallol, from bark. Gum contains 2-O-B-L-arabinofuranosyl-L-arabinose and 3-O-B-L-arabinopyranosyl-L-arabi-nose. Leaves and fruits contain 32% tannin.

Uses : Bark is astringent, cooling, alexipharmic, anthelmintic and used in skin diseases, bleeding piles, asthma, bronchitis, leucorrhoea, diarrhoea, dysentery, biliousness, leucoderma and urinary complaints. Gum is used in sore throat, diarrhoea, dysentery, urinary and vaginal complaints and diabetes. Flowers, pods and gum resin are used as tonic in diarrhoea and dysentery. It is demulcent, and is used as an emulsifying, binding and suspending agent. Along with latex of *Calotropis procera* given to cure

asthma. Pods used in impotency and effective in urinogenital disorders. Bruised leaves are applied to eyes in children; eaten in throat infection and poultice used in sore eyes. Paste of burnt leaves effective ointment in itch. Various parts are used in hair-fall, earache, symphysis, dysentery, cholera, leprosy and rinderpest.

Antimicrobial Properties: Leaf possess antibacterial properties against *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas fluorescens*, *Staphylococcus aureus*, *Xanthomonas axonopodis* and antifungal properties *Aspergillus flavus*, *Fusarium verticillioides* and *Dreschlera turcica* (Mahesh and Satis, 2008). The bark extract also reported to poss antibacterial activities against *Bacillus subtilis* and *Shigella sonnei* (Banso, 2009).

Propagation : Through seeds.

Achyranthes aspera L.

Family: Amaranthaceae

Vern. name: Apamargah, Lat jira, Chir chita

Botanical description: Erect or decumbent herb; stem simple or branched, nodes more or less shrunken or drying, elongating, 8-30 cm long spikes. Leaves opposite, short petioled, exstipulate, obovate-orbicular or elliptic, obtuse or shortly acuminate, entire or slightly flexuous, up to 12 x 8 cm, soft-tomentose. Flowers small, greenish-white, sessile, deflexed on terminal spikes; bracts membranous, persistent; bracteoles 2, persistent, spinescent; perianth persistent, segments 5, spinous-tipped. Stamens 5 with filiform filaments and 2-celled anthers; ovary one-celled with a solitary pendulous ovule. Style 1-4 mm long, filiform, stigma captivate; fruit an ovoid utricle. Seeds smooth, filling uricels.

Flowering & Fruiting: October-January

Distribution : The plant is found throughout central India in plains. It is a troublesome weed of wasteland, roadsides, grasslands, etc. and found in Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Jabalpur, Narsimhapur, Panna, Raigarh, Raipur, Rajnadgaon, Rewa, Satna Seoni, Sidhi and Tikamgarh districts.

Chemical Composition: Seeds contain hentriacontane and saponin, oleanolic acid. Alkaloid Achyranthine identified as betaine lowers B.P. depresses heart, causes vasodilation, increased respiration, spasmodic on rectal muscle, has a diuretic and purgative action. Plant ash contains large amount of Potash. Root contains ecdysterone, ecdtone and inokosterone. Seed contain saponin A & B and amino acids.

Uses: Decoctions of the plant useful in pneumonia, cough, kidney stone. Ash given in hemorrhoids. Tablets made from herb paste with fruits of *Piper longum* reported to cure effects of bite of mad dog. Leaves useful in leprosy and extract for treating cataracts. Roots given in stomach pain, paste applied to remove opacity of cornea and in abdominal tumour. Decoction of root and paste used as antifertility agent. Extract used in menstrual disorder. Seed paste applied to insect bite. Powdered seeds soaked in buttermilk and given in biliousness. Flower paste mixed with curd and sugar given in menorrhagia.

It is bitter acrid, pungent, pectoral, purgative, cardiotoxic, astringent, carminative, diuretic, alleviative of kapha and vaata and is useful as an emetic. It cures hiccough, ascites, enlargement of cervical glands, piles and is used in dropsy and urinary diseases, boils skin eruptions pruritus anorexia colic and snakebite. Various parts of the herb are used in atrophy, cachexy, rheumatism, scabies, labor complaints and blindness of cattle. Decoction of herb is useful in pneumonia, cough kidney stone. In large doses acts as emetic. Toot is given in stomach pain and paste applied to remove opacity of cornea and to wounds as haemostatic. Used in abdominal tumor. In Tahiti, roots are used in mouth sores, toothache and syphilitic sores powder in leprosy decoction and paste as antifertility agent extract in menstrual disorders. Infusion of roots is astringent. Leaves are used as a cure for gonorrhoea and excessive perspiration. Leaf extract called "Achyrol" is used for leprosy and juice in eczema and leprosy. In Philippines it is used as diuretic and sap for treating cataract heated sap is valued in tetanus. In Tonga used in wounds juice as an antidote to insect bite, used in ear and eye trouble. Seeds paste applied to insectbite. Leaf seed and twigs used in bronchitis affections. Powdered seeds soaked in butter.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal properties against *Rhizoctonia solani*. Fresh leaves decreases diarrhea prevalence in piglets, and increases their growth rate (Hong-son *et al.*, 2003). The leaf extract strongly inhibits the *Aedes aegypti* and *Culex quinquefasciatus* (Diptera culicidae) and can be used in the treatment of dengue (Bagavan *et al.*, 2008). Stem extract possess strong antioxidant activities (Priya *et al.*, 2010). Both leaf and stem extracts does not responded against *Escherichia coli*, *Bacillus subtilis*, *Vibrio cholera*, *Salmonella typhi* and *Staphylococcus aureus* (Alam *et al.*, 2009).

Propagation : Through seeds.

Achyranthes bidenata Blume.

Family: Amaranthaceae

Vern. name: Apamargah

Botanical description: Perennial herb, erect or straggling. Stems much branched, nodes frequently much shrunken on drying. Leaves elliptic-oblong to broadly ovate, lanceolate. Flowers in initially dense, finally elongating up to 20 cm long spikes, bracts narrowly lanceolate, 3-5 mm long. Tepals 5, 4-7 mm long. Stamens 5, filaments 2-3 mm long, style 1-2 mm long, utricle 2-3 mm long. Seeds smooth, filling the utricles.

Flowering & Fruiting: October-January

Distribution : Rare, recorded on hill tops of Hosangabad district.

Uses : It cures high cough, ascites, enlargement of cervical glands, skin diseases, piles and other diseases. Roots given in stomach pain.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties.

Propagation : Through seeds.

Acorus calamus L.

Family: Araceae

Vern. name: Bach

Botanical description : Perennial, growing in extensive rhizomatic clumps, strongly aromatic, marshy herb. Leaves simple, alternate, distichous, closely arranged, 50-80 cm long; linear to narrowly ensiform, glossy bright green, acute at top and amplexicaul at base. Flowers pale green, acute at top and amplexicaul at base; fragrant, arranged compactly on a sessile, cylindrical, short, stumpy, spadix; perianth segment 6, scaly. Stamens 6; filaments linear, flat, anthers, reniform; ovary superior, conical 2-3 chambered, many ovuled; fruit 3-celled fleshy capsule, seeds obconical, 2 mm long.

Flowering & Fruiting: November–March.

Distribution: The plant is found throughout Central India in marshy places of forests i.e. Raipur, Jabalpur, Bhopal, Bilaspur, Raisen, Mandla and Indore districts. Species is under cultivation in some parts of Madhya Pradesh and Chhattisgarh states.

Chemical Composition: Essential oil from rhizome, calamus oil has B-asarone as major constituent together with calamen, calamenol and calameon. Dry rhizomes contain a yellow aromatic volatile oil. Glucoside acorin. Leaves contain oxalic acid and calcium. Asarone is a mild sedative, a

potent tranquillizer and like chlorphomazine a mild hypotensive and hypothermic substance.

Uses: The plant rhizomes are used in fever, cancer, dysentery, toothache, bronchitis, rheumatism, diarrhoea, dyspepsia and for flatulence. The drug has been found to be effective in the tonic preparation and improving appetite. It is capable of improving memory power and intellect. It is useful in digestion and clearing speech. It is also useful in infantile fever, cough, bronchitis and asthma. Root extract is one of the constituents of toothpaste. Rhizome is pungent, carminative, emetic, laxative, diuretic, anthelmintic. It is nauseant, expectorant, antiseptic and nervine sedative; useful in treating bronchitis and asthma, in headache, teeth strengthening and in intermittent fevers either by itself or in conjunction with other tonics. It is serviceable in flatulence, flatulent colic, in atonic dyspepsia. It is employed for the cure of ague. Beneficial in diarrhoea and dysentery of children. Powdered rhizome is insecticide, useful against bedbugs, moths, flies. Primitives use it as carminative, and for catarrh, haemorrhages and burns, also as nerve stimulant, bitter tonic and anthelmintic. One of the constituents of Ayurvedic drug "Myostal" useful in puerperal patients. Roots and rhizomes are used in various kinds of cancers. Aqueous extract and alcoholic extract of rhizome is hypothermic and hypotensive but not analgesic.

Antimicrobial Properties: Rhizome possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as strong antifungal properties against *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii* (Das *et al.*, 2010) while leaves shows antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. An extract possess antimicrobial properties against hyphal development of *Fusarium sp.*, *Alternaria sp.* and *Aspergillus niger* and the dermatophytes i.e. *Epidermophyton floccosum*, *Microsporus gypseum*, *Trichophyton mentagrophytes* and *T. rubrum* (Jatisatienr *et al.*, 1996). It also has antiproliferative and immunosuppressive potential and inhibits the growth of cell and tumour necrosis in rat and human (Mehrotra *et al.*, 2003). The rhizome powder protects the beetle (*Callosobruchus chinensis*) during storage of pulses (Shivanna *et al.*, 1994).

Propagation : Through rhizomes.

Adhatoda vasica P. Miller. Nees

Family : Acanthaceae

Vern. name: Adusa

Botanical description : Shrub, perennial, evergreen, 1-1.5 m high. Leaves elliptic-lanceolate or ovate - lanceolate, 6-18 x 2-7 cm, acuminate or acute at apex, cuneate or decurrent at base, glabrous when mature. Flowers

in leafy spikes; bracts foliaceous, elliptic-obovate to ovate, apiculate, ciliate. Corolla white or cream-coloured; upper lip curved, notched at apex; lower lip white with rose-purple lines and dots in the throat; throat villous. Capsules clavate, 2-3 cm long, dark brown, 4-seeded.

Flowering & Fruiting: December–April.

Distribution : Common in fields and wastelands of different parts of Madhya Pradesh and Chhattisgarh i.e. Bhand, Bilaspur, Bastar, Chhatarpur, Damoh, Hoshangabad, Indore, Raigarh, Raipur, Rewa, Sagar, Satna and Seoni districts.

Chemical Composition : *A. vasica* is a source of quinoxaline alkaloids – vasicolin adhatodine, vasicoinine and anisotine. It contains betaine, vasicinone and new alkaloid vasicine (1%) In addition B- sitosterol and tritriacontane in different parts. Leaves vasicine (0.79%) and flowering tops, 0.47 % Peganine (vasinine)- the chief active principle in quinoxaline alkaloids yield from different leaf samples from India. 0.54 to 1.11 % dry wt. basis while in foreign samples it is high as 2.18 % adhatodic acid.

Uses : It cures vomiting, thirst, dermatosis, jaundice, fever, haematemesis, constipation, rheumatism and tuberculosis. Roots, leaves and flowers are referred for the treatment of cough, bronchitis asthma and other respiratory disorders while, only leaves are considered as antipyretic, antifungal, antibacterial and insect repellent. Alcoholic extract of leaves is useful as hypotensive, bronchodilator, respiratory stimulant, hypoglycemic and roots is active against Tubercule bacilli Essential oil from leaves is bronchodilator, also vasicinone and ephedrine, potentiates; anti-insect and juvenile hormone mimicking activity.

Adusa is a reputed remedy for all sorts of cough and cold, bronchitis and other respiratory disorders due to its expectorant action. It is the main constituent of cough syrup “*Adulsa* syrup” Plant is bitter, astringent diuretic, antispasmodic, expectorant and alterative. It cures vomiting thirst, dermatosis jaundice, fever, phthisis and haematemesis. It is particularly useful in fevers associated with bilious and respiratory troubles and also in piles. Roots are expectorant and mild bronchial antiseptic : given in intermittent fever, pulmonary and catarrhal affections. Leaves and roots are hypoglycemic. Juice of leaves relieves cough by its soothing action on nerves and by liquefying sputum. Fresh leaf juice is beneficial in haemotysis and menorrhagia. Leaves are useful against Ranikhet disease virus. In haemoptysis it is a grand remedy. Leaf and wood ashes mixed with honey are used for cough and asthma. Juice of leaves mixed with juice of *Feronia limonica* cures nose bleeding . A preparation of leaves in clarified butter is used for glandular tumors. Crude extract is more useful for respiratory ailments. Flowers and roots with ginger are given in ague, rheumatism,

constipation, asthma, chronic bronchitis and other chest affections. Shoots are used in liver enlargement. It is one of the constituents of drug "Geriforte" used against senile pruritus and as antifatigue.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties. Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Rhizoctonia solani*) while flowers shows antifungal (*Rhizoctonia solani*) properties. Leaf extract also shows strong antifungal properties against *Fusarium spp.*, *Aspergillus niger*, *Sclerotium rolfsii*, *Penicillium spp.* and *Botrytis cinerea* (Thippeswamy *et al.*, 2003). Sadek (2003) reported antifungal and toxic properties of leaf against *Spodoptera littoralis* (Lep. Noctuidae).

Propagation : Through seeds and cuttings.

Adiantum philippense L.

Family: Polypodiaceae

Vern. name: Mameera, Hansavati

Botanical description : A small, rhizomatous herb or short creeping, rhizome covered with persistent leaf base and scales. Fronds simple pinnate, black, 5 to 18 cm long; pinnae 10-15, stalked, ovate to lunate, minutely 5-8 lobed on the upper margin, each lobe bearing a transversely elongated sours when fertile.

Distribution: A small fern growing near rock boulders, along streams in hilly regions or under heavy rock boulders. Commonly found in wet, shaded hilly and rocky forest areas of Amarantak (Shahdol), Bilaspur, Hoshangabad and Sarguja districts.

Chemical Composition : Chlorophyll-degradation products and higher carotenoids.

Uses: Used in atrophy, emaciation, diarrhoea, Jaundice and rabies. Roots used in fever. Whole plant used in ulcers, febrile affections, blood disease, burning sensation, epileptic fits, dysentery, muscular pain, throat infection, leprosy, chronic gouty, swellings and chronic tumors along with *Asparagus racemosus* in gonorrhoea. is pungent and alexiteric. Plant is used in blood diseases, burning sensation, epileptic fits, dysentery, febrile affections and ulcers. Also useful in atrophy, muscular pain, emaciation or cachexy, diarrhoea and rabies and as cooling lotion in cases of erysipelas. With *Asparagus racemosus* it is used in gonorrhoea. Root used in fever and erysipelas. Rhizome is prescribed for strangury and fever due to elephantiasis. Rhizome is prescribed for strangury and fever due to elephantiasis. A decoction of rhizome is given in throat affections and used

for febrile conditions of children. The fronds and fruits are used in leprosy, fever and erysipelas. The fronds, made into plaster are applied to chronic gouty and other swellings and also in chronic tumours.

Antimicrobial Properties: The whole plant possess anti bacterial properties against *Staphylococcus aureus*, *Niesseria gonorrhoeae*, *Pseuromonas aeruginosa*, *Escherichia coli*, *Streptococcus pyogene* and *Bacillus subtilis* (Malvia *et al.*, 2012). Ethanolic and aqueous extract of plant found in lowering the hypoglycemic effect in diabetic rats (Paul *et al.*, 2012).

Propagation : Vegetatively propagated.

Aegle marmelos L.

Family : Rutaceae

Vern. name : Bel

Botanical description : A medium sized, deciduous, spiny tree; spines 2-3 cm long, leaflets usually 3, ovate, lanceolate, rounded at base; lateral sessile, terminate, stalked. Flowers 5-merous, greenish-white, sweet scented; peduncles 3-5 cm long; pedicels auriculate, pubescent. Filaments fascicled, ovary glabrous. Berry 8-16 cm, globose, oblong or pyriform; rind grey or yellow; pulp orange, sweet, edible.

Flowering & Fruiting: April–August

Distribution : Common through out the states on roadsides, banks of drains, vicinity of temples, rivers, fields, villages and some times in forests i.e. Balaghat, Bilaspur, Damoh, Dhar, Durg, Hoshangabd, Panna, Raigarh, Raipur, Sconi, Surguja and Tikamgarh districts.

Chemical Composition : Umbelliferon, skimmianine, marmin, B-sitosterol, lupeol and γ -sitosterol from immature bark and roots. Fruit contains psoralen and tannic acid; aegelinol, furocoumarins, furanocoumarin, marmelosin, marmelide. Ripe fruit, xanthotoxol, marmesin etc.

Uses: It is astringent, carminative, cooling, restorative, laxative, febrifuge, stomachic and used in colitis, colic, dysentery, diarrhea, flatulence, difficult menstruation, fever and vomiting. Root bark is used in intermittent fever and is useful in hypochondriasis, melancholia and palpitation of heart. Alcoholic extract of fruit or root is hypoglycemic and spasmogenic. Leaf juice is applied externally in abscess. Unripe or half ripe fruit is astringent, digestive, stomachic and used in diarrhoea. Pulp of ripe fruit is aromatic, cooling and laxative. Seed oil is antibacterial. Ash is used to kill worms and wounds caused by animals. Various parts of “Bel” are used in thirst, stomach

pain, constipation, dysentery, cholera, night fever, postnatal complication, breast pain and snake bite.

Antimicrobial Properties: Ethanol extract of the unripe fruits decrease the ulcer index and lipid peroxidation. It has antidiarrhoeal and ulcer protective activity by scavenging the reactive oxygen species on the cold restraint stress induced gastric damage (Rao *et al.*, 2003). Ethanol and chloroform extract of the leaves exhibits antimicrobial properties against *Bacillus subtilis*, *Staphylococcus aureus*, *Klebsiella pneumonia*, *Proteus mirabilis*, *Pseudomonas aeruginosa*, *Escherichia coli* and *Salmonella paratyphi* (Poonkothai, 2008, Kothari *et al.*, 2011).

Propagation : Through seeds.

Aerva lanata (L.) Juss.

Family : Amaranthaceae

Vern. name : Gorakhganja

Botanical description : An erect or prostrate, hoary-tomentose perennial herb. Leaves simple, alternate, short petiole, ovate to orbicular, gradually smaller toward apices. Flowers minute, sessile, bisexual, greenish, hairy white in axillary, 4-15 mm long. Fruits greenish, compressed. Seeds reniform, 0.8 mm long, black and shining.

Flowering & Fruiting: July–April.

Distribution : Common as weed along road side, waste land and forest borders i.e. Balaghat, Betul, Bilaspur, Bastar, Chhatarpur, Damoh, Dhar, Durg, Hoshangabad, Indore, Mandla, Panna, Raigarh, Raipur, Ratlam, Rewa, Sagar, Satna and Seoni and Tikamgarh districts.

Uses : Gorakhganja is cooling, diuretic, lithontriptic and is used in haemetemesis, diabetes and lithiasis. Root is diuretic and demulcent. Inflammation of kidney is ameliorated by a decoction of roots and urination is increased hence, it is used for kidney stone. It is used as painkiller in the treatment of headache and for cough. Dry leaves and flowers are smoked during asthma. It is used as an anthelmintic and diabetes. It is also used against swellings and cutaneous affections; in white urine, diarrhea, cholera, dysentery and snake bite. Flowers are used in kidney stone and gonorrhoea.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds.

Ageratum conyzoides L.

Family : Asteraceae

Vern. name : Gandhella, Osari

Botanical description : Erect annual herb. Stems often decumbent rooting at the base, hairy on the nodes and young parts. Leaves broadly ovate to triangular, subcordate, rounded or truncate at base, serrate-dentate, thinly long hairy, Heads white or violet in corymbs, 50-80 flowered. Involucral bracts linear, sharply acute-acuminate, sparingly hairy, corolla infundibuliform. Achenes glabrous or thinly hairy, 2 cm, long.

Flowering & Fruiting: December-March.

Distribution: Common weed of moist places along the field bunds, irrigation channels and streams i.e. Balaghat, Betul, Bilaspur, Bastar, Chhatarpur, Damoh, Dhar, Durg, Hoshangabad, Indore, Mandla, Panna, Raigarh, Raipur, Rewa, Sagar and Satna districts.

Chemical Composition: Phenol, essential oil. Essential oil contains eugenol and powerful nauseating odour. Ageratochromene, caryophyllene, y-cadinene, and 6-demethoxyageratochromene.

Uses : Fresh leaf extract is used as a blood coagulant and to heal the wound rapidly. Water extracts of roots are antilithic (dissolve stones) and wormicidal. Its roots are tide on hand to control intermittent fever. Root extracts is given in rectum pain and facilitating smooth motion. Steam bath of leaves and stem is given to control skin diseases and leprosy.

It is used internally as a stimulant and tonic. Juice is a good remedy in prolapsus ani. Boiled with oil, applied externally in rheumatism. Decoction or infusion used in diarrhoea and dysentery. Also for colic, rheumatism and fever. Roots are acrid bitter, digestive, appetiser and ophthalmic and are used in dyspepsia, anorexia and purulent ophthalmia, renal and vesical calculi. Leaves are styptic and antidyenteric and are commonly used for haemorrhoids, boils, wounds, sores and in ague. They are said to prevent titanus Juice of leaves is antilithic. Flower buds cure cancerous growths.

Antimicrobial Properties: The methanolic extract inhibit the growth of *Staphylococcus aureus*, weakly active against *Escherichia coli* and had no inhibitory activity at all against *Pseudomonas aeruginosa* (Dayie *et al.*, 2008).

Propagation : Through seeds.

Alangium trifolium L.F.

Family: Alangiaceae

Vern. name: Ankol

Botanical description: Tree; leaves alternate, petiole, oblong or elliptic-lanceolate, 5-14 x 2-2.25 cm, chartaceous, 3-5 nerved at base, glabrous above, glabrescent or puberulous below, base oblique, margin entire, apex acuminate, petiole up to 1 cm, tomentose. Flowers white, scented, in axillary clusters, 2.5 cm long, pubescent outside. Calyx tube cupular, adnate to the ovary, tomentose. Petals 10, linearly oblong, deflexed, stamen, 20. Fruits ovoid, 2-2.5 cm long, rusty tomentose. Seeds ovate to orbicular.

Flowering & Fruiting: October-March

Distribution: The plant is distributed in waste land of dry regions of Madhya Pradesh and Chhattisgarh i.e. Bilaspur, Bastar, Damoh, Durg, Mandla, Raigarh and Raipur districts.

Chemical Composition : The plant contains amorphous alkaloid alangine A and B, alangicine, marckine and marckidine; emetin, demethycephaeline, cepaeline, tubulosine, and phychotrine. In small doses alkaloid reduces blood pressure temporarily, depresses the heart and produces irregular respiration, increases peristaltic movement of the intestines. Alkaloid extract of leaves is mild adrenolytic, antispasmodic, hypotensive and anticholinesterase activity. Total alkaloids of seeds show a sustained and prolonged hypertensive effect at lower and hypertensive effect at higher doses.

Uses: It is used in preparation of reputed medicine and powdered root bark used externally and internally for the treatment of rabies and as an antidote for other poisons bites including snake bites. Root paste or decoction cures skin diseases and cancer. Bark extract taken orally for lowering of blood pressure. Extract of flowers and fruits used externally to cure eye sores. Seeds used in treatment of hemorrhage and as cure for boil. It is useful in enlargement of spleen, dropsy, colic pain, stomachache, diarrhoea, simple continued fevers, worms, skin diseases, syphilis and as tonic. The fruit is laxative, anti-phlegmatic, tonic and useful in burning sensations. It is preventive and cure for eye ailments.

It is a reputed single drug for the treatment of rabies. Various parts are used in enlargement of spleen, dropsy, anasarca, colic pain, stomach-ache, prolapsus ani and fistula ani. Cholera, phthisis, bronchitis and snakebite. Root is astringent, emollient, anthelmintic, diuretic and purgative, useful in fever and skin diseases. Root paste or decoction cures skin diseases. Root bark is administered internally and externally in cases of rabid dog- bites, also as an antidote for other poisonous bites. Bark extract is taken orally for lowering B.P. It is useful in diarrhea, simple continued fevers, worms, colic,

hemopathy and inflammations and is a reputed remedy for leprosy and other skin diseases and syphilis. Oil of the root-bark is a useful external application in acute rheumatism. Leaves are used as poultice in rheumatic pains. Fruits is laxative, antiphlegmatic.

Antimicrobial Properties: Root possess antifungal (*Rhizoctonia solani*) while, leaves possess both antibacterial (*Xanthomonas campestris* pv. *Campestris*) and antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The growth of *Trichothecium roseum* was inhibited by leaf extract (Thippeswamy *et al.*, 2003).

Propagation : Through seeds and cuttings.

Aloe vera L.

Family: Liliaceae

Vern. name: Ganwarpatha, Ghritkumari

Botanical description: Dwarf, succulent herb. Leaves in radical rosettes, ensiform, 40-60 x 2-8 cm, succulent, base truncate, margin spiny, apex gradually tapering, spine-tipped. Flowers orange in terminal racemes on axillary scapes; perianth tube somewhat curved, lobes 6, oblong, 3-nerved. Stamens 3+3; ovary 3-celled, ovules many on axile placentae. Capsule ellipsoid-oblong, to 1.5X1cm.

Flowering & Fruiting: November -March.

Distribution: Cultivated in gardens, throughout central India, some times wild in dry localities. Cultivation of this species started in many districts of Madhya Pradesh and Chhattisgarh.

Chemical Composition: Aloin, emodin, gum, resin, emodin, chrysophanic acid, oxidase, catalase and sugars. Aloesin and aloesone; citric, malic and tartaric acid from leaves; jelly from leaves composed of four partially acetylated glucomannans. Contains glycoside barbaloin. Plant extract inhibited ovulation in rabbits.

Uses: It is bitter, cooling, anthelmintic, aphordisiac, hepatic stimulant, purgative and emmenagogue. Aloe is eaten to alleviate colds, keep blood pressure in normal and used as pain killer. Fresh juice of leaves is cathartic and refrigerent, used in liver and spleen ailments and for eye troubles, x-ray burns, dermatitis, cutaneous leishmainasis and other skin disorders. Leaves and flower stalks pickled. A dye is prepared from this plant. Gel extracted from leaves is used as skin toner, saving cream, shampoo, hair oil and sun screen. The life long ingestion of leaf extract does not cause any obvious harmful and deleterious side effects and also be beneficial for the prevention

of age related pathology (Ikeno et al., 2002). It is a reputed remedy for intestinal worms in children. It is bitter, cooling, aphrodisiac, hepatic stimulant, stomachic, anthelmintic, emmenagogue and purgative, acts particularly on the lower bowels. It is used in haemophilia, skin and uterine disorders, liver and spleen enlargement, chronic ulcers. Given to nursing mothers it causes purging in the sucking infant. Used in dyspepsia, constipation, rectal fissures, piles, suppression of menses. Dried juice is cathartic, given in constipation. Fresh juice is cathartic and cooling, useful in fevers. Pulp is used in menstrual suppression and root in colic.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The gel shows the anti-inflammatory actions against inflammatory bowel disease (Langmead *et al.*, 2004) and also found to decrease infection caused by coagulase negative *staphylococci* and also help to prevent new infection of mastitis in dairy cows (Leon *et al.*, 2003).

Propagation : Through suckers.

Alpinia galanga Burm. f.

Family: Zingiberaceae

Vern. name: Bendrakela

Botanical description: Herb, robust, 1.5 m high. Leaves narrowly lanceolate, 50-65 x 9-11 cm, acuminate at apex, usually pubescent beneath or along the margin and midrib; ligules 1 cm long, hairy, coriaceous, entire; petioles pubescent. Flowers in erect or slightly curved panicles, shortly pedicellate; bracteoles white, caducous with the opening of flower. Calyx white. Corolla pinkish - white, labellum yellow-orange with scarlet lines, with 2 fleshy swellings at base; tube glabrous. Lateral staminodes subulate. Capsules orange-red, globose.

Flowering & Fruiting: April–May

Distribution: The species has been noticed in Bastar forest division of Chhattisgarh state.

Uses: Rhizome is used in rheumatism, respiratory complaints, bronchial catarrh, intermittent fever, dyspepsis, cough, asthma and cancer. It is also used as a tonic and deodorant. It stimulates digestion, purifies blood and improves voice.

Antimicrobial Properties: Leaves and Rhizome possess both antifungal (*Rhizoctonia solani*) and antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties.

Propagation : Through rhizomes.

Amorphophallus campanulatus (Roxb.) Blume.

Family : Araceae

Vern. name: Suranna

Botanical description : A tuberous, stout herb, perennial up to 1 m high. Leaves large, radical, twice 2-fid, petioles dark green, spathes campanulate, light red to pink, appendages globose, amorphous. Male inflorescence turbinate. Anthers pale yellow. Female inflorescence sessile on the ground. Ovaries crowded and dark red.

Distribution: Commonly cultivated in private compounds for the corns, which are cooked and eaten.

Flowering & Fruiting: July–October.

Uses : Corns are used to cure piles, colic, abdominal tumours, intestinal worms, obesity, asthma, bronchitis, vomiting and Elephantiasis. It improved actions of liver and constipation and is useful in leucorrhoea, piles and dysentery. When fresh acts as an acrid stimulant and expectorant and much used in acute rheumatism. Corns are also used in diarrhoea, cholera, haemorrhages, earache, pain intercostal neuralgia, pleurisy, pneumonia, perpueral fever, swelling of throat, difficulty in breathing, enlarged spleen, pimples, septicemia, rinderpest and kala-azar.

Antimicrobial Properties: The extract of Rhizome shows antibacterial activities against four gram-positive bacteria (*Bacillus subtilis*, *Bacillus megaterium*, *Staphylococcus aureus*, *Streptococcus β -haemolyticus*) and six gram-negative bacteria (*Escherichia coli*, *Shigella dysenteriae*, *Shigella sonnei*, *Shigella flexneri*, *Pseudomonas aeruginosa*, *Salmonella typhi*). The MIC values against these bacteria ranged from 16 to 128 μ g/ml. The antifungal activity reported weak against *Aspergillus flavus*, *Aspergillus niger*, *Candida albicans* and *Rhizopus oryzae* (Khan *et al.*, 2007).

Propagation : Through rhizomes & seeds.

Amorphophallus sylvalicus (Roxb.) Kunth.

Family : Araceae

Vern. name: Van Suran

Botanical description : Bulbiferous herb. Tubers up to 8 cm across. Leaves solitary, up to 30 cm across, leaflets lanceolate, 10-20 cm long.

Spathes 12-15 cm long, green out side, with purple blotch in side. Male part brown, 5 cm long. Female part 3 cm long, stigma yellow. Neuter part 2 cm long, flesh coloured, appendages brown, cylindrical, 12 cm long.

Flowering & Fruiting: April-June.

Distribution : As an undergrowth in mixed forest of Bastar, Raipur and Bilaspur districts.

Chemical Composition: Corms contain protein 1.2; oxalic acid, 1.3 and mineral 0.8% Calcium 50.0; phoshorus, 34; iron, 0.6; thiamine; 0.06; riboflavin, 0.07; niacin, 0.7 mg/100 g. carotene 260 ug/100g; vitamin A, 434 I.U. The corms are irritant due the presence of calcium oxalate. Tubers contain protease inhibitors, trypsin and chymotripsin. Corms, triacorance, luupeol, betulinic acid, stigmasterol, triacontane, B-sitosterol and its palmitate and glucose, rhamnase and xylose.

Uses : Vanasurana is an itching variety. It is suspected to be poisonous to human being and livestock. Bark of corms is cut into pieces dried and woven into a string and sold as "Madanmasta". Seeds use cure for toothache, gland enlargement and against tumours. Flour of tuber mixed with milk and sugar is used as aphrodisiac. It stimulates urinary tract, causes itching of penis with erections.

Antimicrobial Properties: Rhizome possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) while fruit pulp possess both antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through rhizomes & seeds.

Ampelocissus latifolia Roxb.

Family: Vitaceae

Vern. name: Panibel

Botanical description: Tendril climber, stem glaucous. Leaves orbicular-cordate, 3-5 lobed or angled, serrate, glabrous; tendrils forked; flowers small in axillary peduncled umbellate inflorescence. Calyx cuplar, teeth obscure; petals 4-5, recurved in flower. Stamens 4-5, inserted without the disk short, thick, 5-furrowed; ovary 2-celled, immersed more or less in the disk. Fruit is succulent berry; seed oblong, crenate on the margin.

Flowering & Fruiting: August-November

Distribution: Species found in forests of Balaghat, Bilaspur, Bastar, Damoh, Dhar, Hoshangabad, Jashpur, Mandla, Raigarh, Raipur, Rewa, Sagar, Sarguja, Seoni, Shahdol and Shivpuri districts.

Uses: Used in muscular pains, sores, pneumonia, snake bite and bone fracture. Root decoction used in chronic dysentery. Stem bark used in stomach pains.

Antimicrobial Properties: Tuber possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Sclerotium rolfsii*) while, fruits have only antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Andrographis paniculata Burm.f.

Family: Acanthaceae

Vern. name: Kalmegh, Kadu Chiretta, Bhui Neem

Botanical description : Much branched herb, erect, glabrous, 40-90 cm long high. Leaves simple, opposite, short-petioled, glabrous, elliptic to lanceolate, narrowed at both ends, 10.5 x 2.5 cm. Flowers small, white with purplish blotches in terminal and axillary panicles. Calyx 5-partite, glandular-pubescent. Corolla bilabiate, hairy outside, filaments hairy, anthers 2-celled, connate, deep purple. Fruit a linear compressed capsule; seeds 8-10 on retinacula, brown yellow.

Chemical Composition: Pigments, andrographin and panicolin from roots. Leaves, B-sitosterol glucoside and unknown compounds. Andrographolide, panicolide, polyphenols, caffeic and chlorogenic acids. Roots, flavones andrographin and panicolin and a-sitosterol. Plant, diterpene glucoside, neoandrographolide. This plant better known as Kalmegha from the bitter substance Kalmeghin

Flowering & Fruiting: September–March.

Distribution: The plant is found wild as an undergrowth throughout forest area of Balaghat, Bastar, Bilaspur, Bhopal, Chhattarpur, Damoh, Durg, Hoshangabad, Jashpur, Narsinghpur, Mandla, Raigarh, Raipur, Rajnandagaon, Sarguja, Sidhi and Shahdol districts.

Uses: This is a reputed remedy for all types of fevers, difficulty in breathing, burning sensation, cough, oedema, thirst, skin diseases, malarial fever, ulcer, worms, acidity, syphilitic cachexia, foul syphilitic ulcers, dysentery, weakness, gas formation in stomach, obstruction in intestine, liver and digestive complaints of children. It is used as antityphoid, antibiotic;

stomachic, feverfuge, anthelmintic, tonic, hepatitis, inflammation and snake venom poisoning.

The plant is considered to be useful for children and not so much for older persons. It is a specific for all types of fevers especially intermittent fevers and overcomes Sannipaata type of fever. It is laxative dry cooling, bitter, light, tonic and anthelmintic. It is useful in constipation, colic, dysentery and dyspepsia, strangulation of intestine, in spleen complaints and debility. It is a domestic medicine for flatulence and diarrhea or children. Used in torpidity of liver, neuralgia and convalescence after fever and in advanced stages of dysentery. Powdered plant mixed with sarsoo oil applied in itching is the chief constituent of an Ayurvedic drug "SG-1 Seitraadilepa" for dermatological diseases. Roots and leaves are tonic, stomachic, antipyretic alterative anthelmintic, febrifuge and cholagogue. Root combined with pepper and aloes is a tonic, stimulant and gentle aperient and valuable as a remedy in the treatment of several forms of dyspepsia and in torpidity of alimentary canal. Used as curative or preventive in snake venom poisoning.

Antimicrobial Properties: Seed scalp, leaves and whole plant possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) properties. It shows anti-inflammatory activity and inhibits dye leakage in acetic acid induced vascular permeability (Madav *et al.*, 1996).

Propagation : Through seeds.

Antidesma diandrum Roxb.

Family : Euphorbiaceae

Vern. name: Amta, Amti, Khatua

Botanical description : Small tree, deciduous, 4-8 m high. Leaves obovate-elliptic to oblong, 4-12 x 3-7 cm, acute or acuminate at apex, rounded or cuneate at base, glabrous, hairy on nerves beneath. Flowers in spikes, terminating the branchlets, up to 8 cm long; bracts ovate, acute. Male flowers 0.7 mm across, pedicellate. Tepals 5, ovate, 1.5 mm long, acute, basally connate. Stamens 2, pistillodes absent. Female flowers 0.7 mm across. Ovary obovoid, glabrous. Drupes ovoid or subglobose, 4-5 mm across, red.

Flowering & Fruiting: June-October

Distribution : Common in dry mixed deciduous forests i.e. Balaghat, Bastar, Bilaspur, Damoh, Durg, Hoshangabad, Narsimhapur, Panna, Raigarh, Raipur, Rajnandgaon, Seoni, Sidhi and Surguja districts.

Uses : Leaves are consumed as vegetables while, fruits are edible. Seed oil is used as cooking medium. Leaves are having antibacterial properties.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties.

Propagation : Through seeds & cuttings.

***Ardisia solanacea* Roxb.**

Family : Myrsinaceae

Vern. name: Raktaphad

Botanical description: Shrub, 2-3 m high. Leaves alternate, sometimes crowded towards the tip of branchlets, obovate-oblong or oblanceolate. 12-18 x 5-7 cm. Acute-acuminate at apex. Flowers in axillary, corymbose racemes, 1.5-2 cm across. Calyx-segments almost free up to base, coriaceous, persistent. Corolla pink, gland-dotted, lobes ovate. Stamens exerted, connivent around style. Drupes depressed globose, 1-1.5 cm across, green, purple-black on maturity, long stalked.

Flowering & Fruiting: June-October.

Distribution : Common in evergreen forests or on hill slopes. Sometimes near rocky streams i.e. Bastar, Bilaspur, Jashpur, Raigarh, Raipur, Sahahdol and Surguja districts.

Uses : Latex of the plant used in the treatment of blood clots.

Antimicrobial Properties: Seed and leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds & cuttings.

***Argemone mexicana* L.**

Vern. name: Satyanasi, Kaate Dhotraa

Family : Papaveraceae

Botanical description : An erect, prickly annual herb, 30 cm to 1.2 m high, erect, glaucous, prickly. Leaves alternate, upper ones sessile 9-11 cm

long, oblong or obovate, sinuately pinnatifid, margin spinulose, pale green variegated with white. Flowers yellow, solitary terminal; sepals 3, cohering in a cup; petal 6, elliptic-obtuse or ovules many, stigma subsessile, 5-lobed; capsule ovoid or oblong, spinous. Seeds many, pitted.

Flowering & Fruiting: January–December

Distribution: Commonly found in cultivated fields, wasteland and out side forest area throughout both states.

Chemical Composition : Protopine nitrate, berberine nitrate, ceryl alcohol, β -sitosterol, succinic, citric, tartaric and maleic acids, glucose and fructose. Argemone oil. Myristic, palmitic, oleic and linoleic acids and hydroxyl and keto fatty acids in seed oil. Prolonged use of oil produces toxic effects resembling those of epidemic dropsy.

Uses: Plant is used as anthelmintic, antileprotic, tonic, diuretic and as antidote. Roots are used in chronic skin diseases, syphilltic infections and tapeworms. Roots is burnt to provide heat in treatment of piles; given in pain for severe stomachache. Seeds are laxative, emetic, narcotic, expectorant and demulcent used in abdominal colic, diarrhoea and dysentery and are poisonous in large quantity. Ground seeds mixed with Brassica oil is used for itch. Yellow juice of plant used for dropsy, jaundice and cutaneous affections. Latex of plant is used for treatment of warts, tumors, cancer, syphilis, skin diseases, dysentery and diarrhoea. Its main uses lie as narcotic, sedative, anodyne, antispasmodic, hypnotic and sudorific. It is used as a paregogic in controlling dysentery and diarrhoea.

Antimicrobial Properties: Roots possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties.

Propagation : Through seeds.

Argyreia nervosa Sweet

Family : Convolvulaceae

Vern. name: Samander-ka-pat

Botanical description : Climber; stems densely pubescent or glab rescent when young. Leaves broadly ovate, 8-15 cm long, acute or obtuse at apex, cordate at base, glabrous above, densely silvery-white pubescent beneath. Flowers in cymes; peduncles 20-26 cm long, white tomentose. Sepals ovate, 2 cm long, white tomentose. Corolla lavender with darker throat, 6-7 cm long. Pubescent outside on tube and interpliae. Berries dry, subglobose, 1-1.5 cm long. Seeds light or dark brown, glabrous.

Flowering & Fruiting: April–September

Distribution : Rare. Found in Bastar and Hoshangabad forests.

Uses : Leaves are used as poultice for wounds and skin diseases.

Antimicrobial Properties: Root and leaves possess antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds & cuttings.

Argyreia speciosa Burm.F.

Family: Convolvulaceae

Vern. name: Vidhara, Samudraphalak

Botanical description : Very large, extensively spreading, silky pubescent climber. Leaves 22 x 23 cm, simple, alternate, long-petioled, broadly ovate-cordate, apiculate at tip. Flowers rose-purple in axillary, many-flowered, bracteate cymes borne on stout peduncles, bracts ovate, lanceolate, acuminate, 3-4 cm long; sepals persistent, densely white tomentose outside. Corolla woolly outside; stamens 5, included, filaments enlarged and villous at base; ovary globose, 4-ovuled, style filiform, stigma biglobose. Fruit globose, indehiscent berry.

Flowering & Fruiting: April–September

Distribution: The plant grows on river banks, medicinal gardens, edges of lakes and as an undergrowth in semideciduous forests climbing over bushes, throughout most parts of India.

Uses: Used in gleet, gonorrhoea, strangary rheumatism and chronic ulcers. Leaves eaten as a vegetable.

Antimicrobial Properties: Leaves and fruit possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds & cuttings.

Argyrea strigosa (Roth.) Roberty.

Family : Convolvulaceae

Vern. name: Bagh-Chaura, Baghcood

Botanical description : Large climber. Leaves ovates, 6-14 x 4-13 cm, acute or acuminate at apex, cordate at base, glabrous above, appressed, hairy beneath. Floweres in lax, corymbose cymes; peduncles 12-20 cm long bracts ovate, obtuse, persistent, appressedly strigose. Sepals ovate to elliptic, longer than bracts, glabrous inside, densely appressed hairy outside. Corolla mauve, densely setose. Berries 5x7 cm.

Flowering & Fruiting : November–February

Distribution : In mixed and sal forests of Bastar, Bilaspur, Khandwa, Khargon, Indore, Raigarh, Raipur, Seoni and Sarguja districts.

Uses : Plant is used in digestion, eye and skin diseases. The root is used to gain strength.

Antimicrobial Properties: The root possess antimicrobial agents against *Rhizoctonia solani* and *Sclerotium rolfsii*.

Propagation : Through seeds & cuttings.

Arisaema tortuosum (Wallich.) Schott.

Family : Araceae

Vern. name: Amari

Botanical description : Herb or Shrub. Corms up to 5 cm across. Leaflets 7-19, pedatisect, 12x4 cm; petioles greenish with purplish spots, up to 40 cm long, sheathing to about basal 3/4th length. Peduncles usually longer than the petioles, up to 45 cm long. Spathes up to 12 cm long, basal portion convolute, tubular, upper portion expanded, horizontally bent, ovate, acuminate, greenish, sometimes with purplish tinge. Spadix usually monoecious, rarely dioecious; appendage sigmoid at the base, purple, tapering up to 25 cm long tail. Fertile portion 2.5-6.5 cm long, lowest 1-2 cm pistillate and upper 2-5 cm staminate.

Flowering & Fruiting: June–November

Distribution : In shady places of the forests, cultivated in fields, sometimes in forest clearings i.e. Bilaspur, Hoshangabad, Indore and Raipur districts.

Uses : It is stated to have poisonous characters. Seeds are to be given with salt for the control of colic in sheep. The roots are used to kill the worms which infest cattle in the rain.

Antimicrobial Properties: Root, leaves and seeds possess antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Aristolochia indica L.

Family: Aristolochiaceae

Vern. name: Iswaramul

Botanical description: Perennial twiner with long, slightly tuberous roots. Leaves simple, alternate, short petioled, ovate-lanceolate, acute, entire 10 x 4 cm. Flowers greenish purple in axillary cymes; perianth monochlamydous and gamophyllous, pitcher-shaped, up to 3.8 cm long, basal part swollen or inflated, the middle part contracted to form a narrowly funnel-shaped tube and the distal part expanded into an obliquely two lipped limb; stamens 6, adnate to the short stylar column; ovary inferior, elongate, grooved and six-celled, many ovules on parietal placentae, capsule 5-6 cm long, 6 valved, truncate below. Seeds many with papery wings.

Flowering & Fruiting: July-February

Distribution: In mixed forests of Bastar, Chhatarpur, Damoh, Raipur, Rajnandgaon districts. It is usually found scrambling over hedges and bushes in forest area.

Chemical Composition: Aristolochic acid aristolochine a tetracyclic sesquiterpene, ishwarane and aristolochene. Essential oil containing carbonyl compounds.

Uses: It is an important drug for neutralising or resisting snake poison and useful in skin diseases. It is an appetizer, aphrodisiac, anthelmintic and relieves burning sensation. Chiefly the root and occasionally the leaves are used in medicine. Fresh juice of the leaves is very good antidote to snake poison. It is also used in leprosy, dropsy, fever, cholera, diarrhea and intermittent fevers. Decoction of root and stem is stimulant, febrifuge and used in impotency. Root and rhizome are tonic and used as gastric stimulant, emetic and emmenagogue. In combination with black pepper and ginger it is given in bowel complaints of children and in intermittent fever. In powder form it is given in honey for leucoderma and used in snake-bite. Juice of fresh leaves is used in treating cough of children by inducing vomiting without depression. Seeds are useful in treating inflammations, biliousness and dry cough.

Antimicrobial Properties: Roots and leaves possess antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) whereas fruit possess antibacterial (*Xanthomonas campestris* pv.

Campestris) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds & cuttings.

Asparagus racemosus Willd.

Family: Liliaceae

Vern. name: Satawar

Botanical description: Extensively branched, rambling, spiny shrub, bearing numerous, long, fusiform, tuberous roots. Leaves reduced to minute spinescent structures subtending the leaflike cladodes which are falcate, slightly compressed and channelled beneath, borne in axillary clusters of 2-6. Flowers white, strong-scented in solitary or fascicled racemes; pedicels slender; bracts scarious; perianth six-partite, segments, oblong, reflexed and connivent below. Stamens 6, filaments free, opposite to the perianth segments, anthers 2-celled; ovary trigonous, three chambered, style short, columnar ending in three recurved stigmatic lobes. Fruits globose berries, dark black in colour at maturity.

Flowering & Fruiting: October–January

Distribution : The plant is found throughout forest area of Chhattisagr and Madhya Pradesh.

Chemical Composition: Fresh leaves yield diosgenin. Plant yield shatavarin I to IV. Fruits and flower contain glycosides of quercetin, rutin and hyperoside; sitosterol, stigmasterol and their glucosides. Root extract caused intital increase in force and rate of amphibian heart at lower dose and cardiac arrest at higher dose.

Uses: Herb tonic, diuretic and galactagogue. Fresh root juice is mixed with honey and given for dyspepsia. Roots form a constituent of medicinal oil which is used for nervous and rheumatic complaints. It is capable of improving memory power, physical strength, maintaining youthfulness, increase sexual vigour, cures swelling, diarrhea, uterine disorders, diabetes, jaundice and fever.

Antimicrobial Properties: Tubers and leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) (Das *et al.*, 2012) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) whereas fruit possess only antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) properties. The extract of rhizome increases the mucosal defensive factors such as mucus

secretion, cellular mucus, life span of cell and also possess antioxidant effect during gastroduodenal ulcer (Sairam *et al.*, 2003).

Propagation : Through seeds & tubers.

Athyrium falcatum Bedd.

Family : Athyraceae

Vern. name: Hatthajodi

Botanical description : Rhizomous fern, rhizome shori, erect, clothed with linear-lanceolate golden scales, fronds not much close; stipes 3 –10 cm long, erect, scaly at the base; lamina bipinnatifid, 15-25 x 3-5 cm, lanceolate, narrow at both ends, a few scales present on rachis, pinnae 10-30 on each side, sessile, alternate falcate-ovate, auriculate at the base on both sides, obtuse to acuminate at apex, deflexed, cut down into 8-10 pairs of pinnules with crenate margins, herbaceous in texture, hairy; veins free, 1-2 times forked. Sori indusiate on each side of costa.

Distribution : In moist places among exposed rocks along stream sides i.e. Balaghat, Bastar, Bilaspur, Chhindwara, Hoshangabad, Sarguja and Shahdol districts.

Uses : Used as analgesic, choleric, diuretic, lactagogue, vermifuge conjunctiviosis, enterosis, fever, gastrosis, childbirth, cancer, worms, uterosis, water retention and wounds.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties.

Propagation : Through rhizomes.

Azadirachta indica A. Juss.

Family : Meliaceae

Vern. name : Neem

Botanical description : Large evergreen tree with straight, stout trunk and branches glaucous. Leaves pinnate, 20-30 cm long, crowded near the ends of the branches, leaflets subopposite, 9-17, bright green shining both sides. Flowers white, scented. Drupe avoid-oblong, smooth. 1-seeded, dark purple when ripe.

Flowering & Fruiting: April–June.

Distribution : Common throughout the region and rare in forests. Usually planted along the roadsides; parks, and even in building premises.

Chemical Composition: Nimbin, nimbidin and nimidol from margosa oil; a paraffin alcohol-sugiol and oxyphenol nimbiol, nimbosterol nimbolin A and nimbolin B from trunk bark. Epoxyazadiradione, azadiradione and azadirone also meliantriol and meldenin from seed oil. Nimbolide, quercetin and B-sitosterol from leaves. Deaetylnimbin from seed and bark. Nimbidinin from bitter principle.

Uses : Almost every part of the plant is bitter and is attributed with numerous medicinal properties in indigenous system of medicine. The bark is a good bitter tonic and also considered useful in skin diseases. The leaves are applied to boils in the form of poultice and a decoction is recommended in ulcers and eczema. Flowers tonic and stomachic. Berries purgative and emollient. Dried leaves placed in books for keeping away the moths. Odour of burning leaves kills insects. Seeds yield a non drying oil used for skin affection. Neem oil may be mixed with other oil and fats for the manufacture of washing soaps, medicated soap with the colour of neem oil are available. Nimbidine is the chief bitter principle of the oil. Neem toddy is occasionally obtained as an exudation from the upper part of some trees, used as a tonic. Fresh tender twigs used to clean teeth particularly in pyorrhoeas. The tender leaves has anti-inflammatory, immunomodulatory and adaptogenic properties.

Antimicrobial Properties: Cake shows moderate effective in root-knot nematode *Meloidogyne incognita* (1000 J2 larvae/pot) and the root-rot fungus *Rhizoctonia solani*. (Kumar *et al.* 2003). The aqueous leaf extract reports highly effective in suppressing the disease caused by *Cercospora sp* (Aage *et al.*, 2003). Leaves are effective against haemonchosis disease in sheep (Tariq *et al.*, 2003) while the cake found very effective for *Aeromonas hydrophila* infection in fishes (Harikrishnan *et al.*, 2003). Leaf also possess antimycoflora properties as well as an enhancement of seed germination (Khan and Shah, 1992).

Propagation : Through seeds.

Bacopa monnieri (L.) Wettst.

Family : Scrophulariaceae

Vern. name: Braamhee, Brahmi

Botanical description : A small, creeping glabrous or succulent annual herb. It spreads on ground; stems and small leaves are fleshy. Roots arise on the nodes. Flowers arise on the axils of the leaves and are borne on sort pedicels. One of the sepals is larger than other. The corolla is white in color and about 1 cm across.

Flowering & Fruiting: September–April.

Distribution : Throughout in moist, shady, wet, damp and marshy places in forests of Bilaspur, Chhindwara, Damoh, Dhar, Durg, Gwalior, Mandla, Panna, Rewa, Shivpuri, Sidhi and Khandwa and Khargoon districts.

Chemical Compostion : Alkaloid brahmine; its therapeutic action resembles strychnine, but is less toxic. Three bases isolated, B1 oxalate, B2 oxalate, B3 chloroplatinate and a sterol. Contains alkaloid herpestine. Plant saponins, bacoside A & B; monniern, hersaponin, betulic acid, d-mannitol, stigmasterol, β -sitosterol and stigmastanol, Hersaponin possesses cardiotoxic, sedative and spasmodic properties.

Uses : It is astringent, bitter, cooling, pungent, heating, emetic, laxative and improves intellect, bed ulcers, tumours, ascites and enlargement of spleen. It is a potent nerve tonic, cardionic, diuretic and anxiety neurosis. It is an anti-anxiety agent having adaptogenic effect. It is aphrodisiac and aperient; used in the treatment of asthma, hoarseness, insanity and epilepsy. It is indicated against dermatosis, anaemia, diabetes, cough, dropsy, fever, arthritis, anorexia, dyspepsia and emaciation. The entire plant constitutes the well-known drug Brahmi. Stems and leaves are brain tonic which sharpens dull memory and catarrhal complaints. Leaves are used as diuretic and aperient. The juice of leaves is given to children for relief in bronchitis and diarrhoea. Paste of leaves is used as a remedy for rheumatism. Decoction of leaves used in cough, rheumatism. It is also capable of imparting youthful vitality and longevity. It forms an important ingredient of Ayurvedic preparations, such as Brahmigrihitam, Brahmirasaynam, etc.

Antimicrobial Properties: Whole plant possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. It has potent antileishmanial agent that induces apoptosis by targeting DNA topoisomerases (Chowdhury *et al.*, 2003). The leaves used for memory enhancing, epilepsy and as a mild sedative and also prevent neurological diseases (Russo *et al.*, 2003). It is also found broncho-vasodilatory activity to inhibition of calcium ions in anaesthetized rats (Shabana-channa *et al.*, 2003).

Propagation : Through suckers.

Baliospermum montanum (Willd.) Muell.

Family : Euphorbiaceae

Vern. name: Jamalgota, Chitavar

Botanical description: Short shrub. Leaves simple, alternate, with two glands at the base, variable in size and shape, lower one long-petioled, petiole

upto 17-18 cm, blade 3-5 lobed, or coarsely toothed, to 23x20 cm, upper ones smaller, ovate or lanceolate, acuminate, sub entire, seabrous. Flowers unisexual, small, greenish, in axillary monoecious fascicles; male flowers: perianth of 5 orbicular-concave lobes; stamens numerous on a central receptacle. Female flowers: calyx lobes 5, lanceolate, accrescent in fruit; ovary hairy outside, 3-celled, 3-ovuled, styles 3, each 2-fid. Fruit capsule separating into 3 cocci.

Flowering & Fruiting: October-March.

Distribution: Species commonly found in shady places and along the banks of drains in mixed forests i.e Bilaspur, Damoh, Hoshangabad, Narsinghpur, Mandla, Raigarh, Raipur, Panna, Rajnandagaon, Satna, Seoni, Sarguja, Sidhi and Shajdol districts.

Indian : Jamal Gota, Dantee.

Chemical Composition: Roots yield 5 new phorbol esters belonging to diterpene hydrocarbon, tiglane skeleton viz. montain, balliospermin etc. Leaves contain β -sitosterol, B-glucoside and hexacosanol.

Uses: The root is purgative, anthelmintic, carminative, rubefacient and anodyne. It is used also in abdominal pain, constipations, general anasarca, piles, dropsy, jaundice, leprosy, fever, asthma, helminthic manifestations, scabbies, skin disorders and diseases caused by the morbidity of kapha and pitta. Root paste is applied to painful swellings and piles. Leaves cure abdominal tumours and cancer. Latex used in rheumatism. It is reported to use in leuckamia. Seeds are purgative and used as fish poisoning.

Root is acrid, cathartic, digestive, diuretic, diaphoretic, febrifuge, anthelmintic, rubefacient and tonic, used in dropsy, anasarca flatulence, constipation, haemorrhoid, jaundice, skin diseases, leprosy, fever, vesical calculi, stangury and wounds. Leaves are purgative and also used for dropsy and for poulticing wounds. Decoction or infusion of leaves is given in asthma. Seeds are drastic purgative, rubifacient, hydrogogue and stimulant are used in inflammation and flatulence. Oil from seeds is hydrogogue cathartic, external application in rheumatism.

Antimicrobial Properties: Root and leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) properties against plant pathogens.

Propagation : Through seeds and cuttings.

Barleria cristata L.

Family : Acanthaceae

Vern. name : Tadrulu

Botanical description : Herb, perennial, erect, 1 m high: stems 4 angled. Appressed pubescent. Leaves elliptic or oblong-lanceolate, 4-14 x 1-3 cm. Acute-acuminate at apex, tomentose. Flowers in terminal and axillary, short, capituliform spikes, branch: bracts 10-15 mm long, acute, membranous. Calyx divided nearby up to base: two outer segments white, large, ovate-oblong, membranous, bristle-tipped on margin: two inner narrower, lanceolate, ciliate. Corolla deep purple or pinkish, pubescent outside: lobes ovate-oblong, 8 mm long. Capsules ellipsoid, up to 2 cm long, glabrous, 4-seeded. Seed brown, silky hairy.

Flowering & Fruiting: Throughout year

Distribution : Common along roadsides and forest clearings i.e Balghat, Bastar, Betul, Bhopal, Bilaspur, Chhatarpur, Durg, Hoshangabad, Indore, Mandla, Pann, Raigarh, Raipur, Rajnandagaon, Sagar, Satna, Seoni, Shahdol, Sidhi and Surguja districts.

Uses: Leaves and roots are used in cough, dropsy and inflammation.

Antimicrobial Properties: Leaf extract possess saponin which significantly inhibites fungal growth of *Klebsiella pneumoniae*, *Staphylococcus aureus*, *E. coli* and *Aspergillus parasites* (Amutha and Doss, 2012).

Propagation : Through seeds.

Barleria prionitis L.

Family : Acanthaceae

Vern. name : Katsareya

Botanical description : Armed sub-shrub, 1 m high, with sharp axillary spines, entire, 4-10 x 2-6 cm. Leaves elliptic or ovate, 6-11 x 2-5 cm. Flowers yellow, solitary in lower axils, spicate above; bracts 2, lanceolate, spine-tipped; calyx lobes 4, spine-tipped; corolla tube ovoid 2-seeded. Capsules ovoid, 1 cm long, beaked. Seeds hairy.

Chemical Composition: Plant contains B-sitosterol. Flowers, scutellarein-7-rhamno-sylglucoside. Leaves and stems showed the presence of five iridoid glucosides: three of them are iridoids, barlerin & Ac-barlerin.

Flowering & Fruiting: September- April.

Distribution : Common as undergrowth in mixed forests and wasteland i.e. Bastar, Bhopal, Bilaspur, Chhattarpur, Damoh, Gwalior, Hoshangabad, Indore, Jabalpur, Morena, Panna, Raigarh, Raipur, Raisen, Rewa, Sagar, Seoni, Shivpuri, Sidhi and Tikamgarh districts.

Uses: Juice of the leaves given with honey in catarrhal affections of children. Root febrifuge and paste of its applied to boils and glandular swellings. Leaves chewed to relieve toothache. It has antiseptic properties and used in dropsy, tuberculosis, abscess, grandular swelling, wounds and whooping cough.

Antimicrobial Properties: Leaves possess antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Colletotrichum capsici* and *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Bauhinia variegata L.

Family : Caesalpiniaceae

Vern. name : Kachnar

Botanical description : Small to medium sized tree. Leaves ovate, 5-10 x 6-11 cm, leaflets connate for about two thirds, thin-coriaceous, 10-12 nerved, glabrous above, puberulous along nerves below, base deeply cordate, margin entire, apex obtuse, mucronate at the cleft. Flowers light pink in terminal panicles, bracts ovate; buds ovoid, apex, beaked; calyx tube irregularly lobed, 2.5 x 1.5 cm. Petals light pink, odd one dark, variegated; stamens 3. Pods oblong 20x15 cm, distinctly reticulate, base and apex narrow, horned. Seeds 10-15.

Flowering & Fruiting: November-February

Distribution : In mixed forests, road sides, gardens, villages of Balaghat, Bastar, Bilaspur, Bhopal, Chhindwara, Khandwa, Khargon, Indore, Jabalpur, Mandla, Raigarh, Sagar, Seoni, Shivpuri, Shahdol and Sarguja districts.

Chemical Composition: Quercitroside, isoquercitroside and rutoside from plant, Myricetol glycosides in seeds and kaempferol glycosides in flowers. Tree yield gum; bark, tannin; seeds fatty oil.

Uses : Bark is light, cool, astringent, anthelmintic; acrid and over comes vitiated pitta and kapha. It cures ulcers, swellings, leprosy, cough, menstrual disorders, glandular diseases and as an antidote to poison and prolapse of rectum. The drug is also reported to be useful in dysentery, diarrhoea, piles and worms. Flower bud is reported to be useful in tumours and as laxative.

Root is carminative and is used in dyspepsia and flatulence. Decoction of root of rootbark is used for lessening fatness and against tumors. Bark is alterative, and tonic, useful in skin diseases, ulcers and in scrofula. Dried buds are used as laxative in dysentery, piles diarrhoea and worms and against tumors. A decoction of buds is given in coughs, piles, haematuria and menorrhagia.

Antimicrobial Properties: It is most active against mammalian viruses (*Herpes simplex virus*, *Sindbis virus* and *Poliovirus*) (Taylor et al., 1996).

Propagation : Through seeds.

Bixa orellana L.

Family : Bixaceae.

Vern. name: Shendri, Sinduri

Botanical description : A shrub or evergreen small handsome tree. Leaves cordate, acuminate, 10-20 cm long, glabrous and somewhat shining; petioles slender, 5-7 cm long. Flowers white or rose, 2.5-5 cm in diameter, in terminal panicles. Ovary 1-celled. Ovules on 2 parietal placentae. Capsules 4 cm long, ovoid, softly echinate.

Flowering & Fruiting: July–January.

Distribution : Planted and often found as an escape and cultivated to a small extent in Chhattisgarh and Madhya Pradesh. Grown in gardens of Bastar and Bilaspur divisions.

Uses : The plant is recommended for leprosy, eczema and elephantiasis. Root bark is antiperiodic and antipyretic. Leaves are used in jaundice and for snake bite. Decoction of leaves used as gargle for sore throat, infusion in dysentery and is a popular febrifuge. Pounded leaves on maceration in water yield a gummy substance used in gonorrhoea and as diuretic. Twigs used in liver diseases and as emollient. Poulitice applied to cuts and gashes as scar-preventive. Bixa paste is considered to be aphrodisiac. Fruit is astringent and purgative. Seeds are good remedy for gonorrhoea, antiperiodic and antipyretic and seeds pulp helps in digestion as well as prescribed in epilepsy, leprosy, skin diseases and kidney diseases. Fresh pulp applied to buns to prevent blisters and scars. Aqueous extract of seeds is antispasmodic

and hypotensive. Used as a meat flavouring, impart a saffron-like taste and color.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. Leaf extracts completely inhibit the conidial germination of *Drechslera oryzae* the cause of a brown leaf spotting in rice (Ganesan, 1994).

Propagation : Through seeds and cuttings.

Boerhavia diffusa L.

Family : Nyctaginaceae

Vern. name: Punarnava

Botanical description : Herb, perennial, diffuse, straggling; stems woody below; branches usually pinkish. Leaves ovate-oblong, unequal, 1-4x0.3-3.5 cm, puberulous, whitish beneath. Flowers in terminal, diffuse panicles, much exceeding the foliage, 3 mm long, pinkish mauve, sessile; bracts and bracteoles ovate, 1.5-2 mm long, acuminate, puberulous. Anthocarps fusiform, 3 mm long. Fruits clavate, ribbed, glandular and one seeded.

Flowering & Fruiting: October-April.

Distribution : Common weed along roadsides, river banks, cultivated field bunds and in wastelands. Recorded from Bastar, Bilaspur, Chhatarpur, Damoh, Durg, Indore, Khandwa, Khargon, Raigarh, Raipur, Rajnandgaon, Seoni, Surguja and Tikamgarh districts.

Chemical Composition : Hentricontane, β -sitosterol, ursolic acid, punarnavine-1 & -2, myricylacohol, myristic acide, oxalic acide and alkaloids. Polysaccharide consisting of glucose, xylose, glucuronic acid, galctose, L-arabinose and L-rhamnose; and a glycoprotein. An injection of alkaloids in cats produced a distinct and persistant rise of blood pressure and marked diuresis.

Uses : It is pungent, bitter, astringent, hot, laxative, cooling, stomachic, diuretic, diaphoretic, expectorant, antipyretic and cardio tonic. It stimulates function of heart and kidney and is a specific for jaundice, diabetes, general debility and oedema. It is used in epilepsy, pain in abdomen due to congestion of blood, proleptis and dysentery. The whole plant, fresh or dried is the source of drug "Punarnava". Root is diuretic, laxative, anthelmintic and febrifuge, used in oedema, anaemia, jaundice, ascites, ansarca, scanty urine and internal inflammation. Root is useful for restoration of virility in man. Its poultice mixed with palm oil is applied to boils. It is an antidote to snake venom. Roots and leaves are diuretic and anti-inflammatory than stems and whole plant. Leaf ash and roots are taken to cure night blindness. Leaves are used in ophthalmia, eye wounds, muscular pain, dropsy, gonorrhoea, purify blood and hasten delivery. Paste of leaves taken orally to check bleeding after delivery. Dry and powdered leaves mixed with Brassica oil used for external application on itch and eczema. Boiled with rice, garlic and water rubbed on body to cure rheumatism. Combination of diuretic and anti-inflammatory activities make punarnava a very useful drug for the treatment of inflammatory renal diseases and common clinical problems like nephrotic

syndrome. It is effective in cases of oedema and ascites resulting from early cirrhosis of the liver and chronic peritonitis. It is useful in abdominal tumours and cancer.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds.

Brassica sp. L.

Family : Brassicaceae

Vern. name: Janglee Sarson

Botanical description : A much-branched annual herb. Leaves pinnatifid, sepals gibbous at base. Petals with long claws, yellow, rarely white. Pods with seedless indehiscent beak, some times 3 -4 valved. Seeds globose, cotyledons, incumbent.

Flowering & Fruiting: December–March

Distribution : Species found as escapes in low-lying hills of mixed and sal dominated forests i.e. Bastar, Bilaspur, Jabalpur, Jashpur, Raipur, Satna and Sidhi districts.

Uses : It is useful in inflammatory conditions of lungs, liver, bronchii etc. Whole plant possesses bitter, aperient and tonic properties. Seeds are acrid, bitter, carminative, anthelmintic, aperient, digestive, sudorific and tonic. They are useful in dengue fever, dyspepsia, abdominal colic and worms.

Propagation : Through seeds.

Butea monosperma (Lam.) Taub.

Family : Papilionaceae

Vern. name : Palasah

Botanical description: Middle sized, deciduous tree; branchlets tomentose; leaves alternate; trifoliolate, leaflets large, 14-22 x 12-20 cm, coriaceous, obovate-obtuse; entire, glabrous above, sericeous below. Flowers large, bright red, clustered on the trunk and older branches, calyx tube velvety, corolla red, papilionaceous, standard lanceolate, silky outside, wings falcate, keel semicircular, beaked; stamens diadelphous, staminal sheath thick curved, ovary silky pubescent. Fruit an indehiscent, flat, thin pod, up to 16x 5 cm, rounded at base, one seeded at apex.

Flowering & Fruiting: December-May.

Distribution : In sal and mixed forests, road sides and wastelands in districts i.e Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Damoh, Durg, Hoshangabad, Indore, Jabalpur, Khandwa, Mandla, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Sagar, Seoni, Shahdol, Shivpuri, Sidhi and Surguja districts.

Chemical Composition:- α -amyrin, β -sitosterol, its glucoside and sucrose. Glycerides of palmitic, stearic, linoceric, oleic and linoleic acids from seed oil. Anitrogenous acidic compound along with palasonin, butrin, isbutrin, coreopsin, isocorepsin and sulforeion. Flowers contain butrin, butein and butin.

Uses : Leaves used throughout the country for making plates, cups etc. and dried leaves used as beedi wrappers. Bark astringent used for piles, tumours and menstrual disorders. Tree yields a gum called Butea gum or bengal kino which is, astringent and used in diarrhoea. However, yield a brilliant but very fugitive yellow colouring matter. When the seeds are pounded with lemon juice, they act as a powerful rubefacient and have been successfully used as a cure for a form of hares called Dhobie's sitch.

Palasa is efficaceous in the treatment of vaginal diseases, helminthic manifestations and haemorrhages. Root cures night blindness and other defects of sight and is useful in elephantiasis.. Roots cause temporary sterility in women . Root bark is aphrodisiac and is used as analgesic and anthelmintic. Externally applied in sprue, piles, ulcers, tumors and dropsy. Leaves are astringent, tonic, diuretic and aphrodisiac and used to cure boils, pimples, tumors and haemorrhages; given in flatulent colic, worms and piles. Juice of leaves mixed with curds and *Curcuma aromatica* is beneficial in heat eruption in children. Flowers are astringent, diuretic, depurative and aphrodisiac; are used as emmenagogue and as poultice in orchitis and to reduce swellings, in bruises and sprains. Lotion prepared from flowers is used for certain eye diseases. Decoction of flowers is given in diarrhoea and to puerperal women. Flowers alongwith *Hygrophillia auriculata* leaves and roots taken with milk to cure leucorrhoea. Juice given to women to induce sterility. Dried flowers are used for preventing sunstroke; effective in leprosy and gout. Seeds are acrid, bitter, aperient, sedative , rubefacient; used as a vermifuge and in snake bite. Decoction of seeds is given in gravel. Paste of powder with lemon is applied as a cure for ringworm and herpes for its cooling effect. Seeds are anthelmintic but not safe as they may cause nephrotoxicity. Extracts of seeds, flowers and leaves is reputed to have contraceptive properties. Bark is bitter, acrid, hot oily, astringent, appetizer, anthelmintic, aphrodisiac and alterative. It is useful in abdominal tumours, colic, intestinal worms, bleeding piles, ulcers, haemorrhages, amenorrhoea and dysmenorrhoea. It lessens inflammation and biliousness and is useful in fracture of bonds, diseases of anus, dysentery, bleeding piles and hydrocele. It cures ulcers and tumors. Decoction af back is given in cold, cough, fever,

haemorrhage and menstrual disorders. Gum is astringent and is used in diarrhea and dysentery. Fresh gum from bark is applied to ulcers and sore throat and is given in phthisis, haemorrhages of stomach and bladder. Infusion is used as local application in leucorrhoea. Solution of gum is applied to bruises, erysipelatous inflammations and ringworm and also to check conception.

Antimicrobial Properties: Whole plant possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The root bark extract shows inhibitory activity on acetylcholinesterase used in treatment of Alzheimer's disease (Lingkaninan *et al.*, 2003)

Propagation : Through seeds.

Caesalpinia bonducella (L.) Roxb. Flemming

Family : Caesalpinaceae

Vern. name: Gataran, Latakaranja

Botanical description : Scandent or climbing shrub, branches hairy armed with straight prickles. Leaves bipinnate, 30-40 cm long, rachis brown pubescent and bearing recurved spines; pinnae 5-10 pairs, opposite, 5-15 cm long; leaflets 10-24 pairs, opposite elliptic-oblong, mucronate; stipules pinnately compound, consisting of 3-5 ovate-rhomboid foliaceous lobes. Flowers yellow, in pedunculate, supra axillary and terminal, 15-30 cm long racemes. Bracts about 1 cm long, lanceolate. Calyx rusty tomentose. Petals yellow, sometimes spotted with red. Filaments silky hairy. Pods 5-7.5X3.8-5 cm, covered with sharp wiry prickles. Seeds 2, dark grey.

Flowering & Fruiting: July-December

Distribution : Species found on forest edges, cultivated fields as hedge and roadsides, districts i.e. Bastar, Bilaspur, Damoh, Indore, Jabalpur, Mandla, Rajnandgaon, Ratlam, Rewa, Seoni, Shivpuri, Sidhi and Tikamgarh districts.

Chemical Composition: A bitter substance, bonducin, seeds contain bitter substance phytosterinin, bonducin, saponin, fatty oil, starch, sucrose, two phytosterols. Seeds contain three bitter compounds, α -, b-, y-, and d-caesalpin.

Uses : It is bitter, germicidal, antipyretic, febrifuge and emmeanagogue. Decoction of root is useful to cure leucorrhoea. Tender leaves are used in

disorders of liver. Leaves and seeds are used in external applications for dispersing inflammatory swellings. Seeds are digestive, stomachic, liver tonic, antipyretic, antiperiodic, febrifuge, aphrodisiac and anthelmintic, promote digestive power, heal ulcers, cure vomiting, hicough, diabetes, leprosy, piles, asthma and snake bite. Bean meat is useful as laxative, blood purifier and in congestion of blood. Seed kernel is extensively used for intestinal worms, hydrocele, anasarca, liver, spleen diseases, malarial fever and mental disorders. Fruit is piscicidal. Oil from seeds is used for stopping discharge from ear. It is also useful in paralysis.

Antimicrobial Properties: Leaves possess antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Calotropis gigantea L.

Family : Asclepiadaceae

Vern. name : Safed Aak, Madar

Botanical description : Under shrub or shrub, 2-3 m high, with white cottony pubescence. Leaves simple, opposite decussate; subsesile, obovate-oblong, obtuse, slightly cordate and auricled at base, to 9-15 x 4-9 cm. Pale green above, white tawny beneath. Flowers lilac or dull white in lateral or terminal panicles of umbelate cymes, calyx lobes 5, corolla lobes 5, spreading, corona lobes 5, compressed, adnate with the staminal column; ovary of 2 distinct carpels; follicles large, unflated, 8 x 4 cm, the apex surrounded in a coma of long slender white silky hairs. Seeds broadly ovoid, 6 mm long, flat.

Flowering & Fruiting: March-May

Distribution : It is very common in wastelands and along buds of cultivated fields in the districts i.e Bilaspur, Chhatarpur, Damoh, Durg, Hosangabad, Mandla, Raigarh, Raipur, Seoni and Sarguja districts.

Chemical Composition: A proteolytic enzyme, somewhat similar to papain has been isolated from milky juice.

Uses : The term arkah meaning 'sun' possibly refers to the caustic nature of the plant especially of its milky latex. It can be used in small pox, dropsy, leg and chest pain, skin diseases, prurientus, poison, hemiplegia, tongue paralysis, tetanus, strangulation of intestine, convulsion, in case of enlarged abdominal viscera, piles, worms, post natal complaints, scabies, syphilis, carbuncles cholera, dysentery, neuralgia, pneumonia, bite of dog or jackal, rabies and hemorrhage.

It is purgative alexipharmic anthelmintic, cures leprosy, leucoderma, ulcers, tumours, piles, diseases of spleen, liver and abdomen. Juice is anthelmintic and laxative; cures piles and kapha. Dried and powdered plant is taken with milk acts as a good tonic. Action is similar to digitalis on the heart. Root bark and juice have emetic, diaphoretic, alterative and purgative properties. It is used in dysentery and as a substitute for Ipecacuantha. It is regarded as a great remedy in syphilitic affections and is called “vegetable mercury” in intermittent fever it is used as antiperiodic and diaphoretic. It cures asthma and syphilis. In form of paste applied to elephantiasis. Tincture of leaves used in intermittent fevers. Latex is bitter, heating oleaginous and irritant used in combination with *Euphorbia neriifolia* as purgative, stomachic tonic, anthelmintic, analgesic, astringent; cure inflammations, tumours, kapha and are good in ascites.

Antimicrobial Properties: Roots and flowers possess antifungal (*Alternaria solani*) properties. The root extract possess most toxic agent against seed borne fungi *Colletotrichum graminicola*, *Drechslera sorokiniana*, *Fusarium solani*, *Macrophomina phaseolina* and *Phomopsis sojae* Nor-Afandy *et al.*, 2002).

Propagation : Through seeds and cuttings.

Calotropis procera (Aiton.) R.

Family : Asclepiadaceae

Vern. name: Aak, Akvan, Madar

Botanical description: Undershrub or shrub up to 1.5 m high, smaller than *C. gigantea*. Leaves simple, opposite, decussate, subsessile, oblong and acute. Flowers pink spotted with purple, in long peduncled umbels; corona scales equal to or longer than the staminal column, glabrous on the back, the apex bifid without auricles; follicles recurved, seeds ovoid.

Flowering & Fruiting: December–May

Distribution: Common in wastelands, along bunds of cultivated fields and road sides i.e Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Damoh, Durg, Hosangabad, Jabalpur, Panna, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Sagar, Seoni, Shahdol, Shivpuri, Sidhi and Surguja districts.

Chemical Composition: Leaves and stalks contain calotropin and calotropangenin. Latex contains usharin, calotixin and calactin. Flowers contain evandin 3-rhamnoglucoside.

Uses: It is used in spleen complaints, rheumatism, epilepsy, sores and small pox. Extracts has antifungal and anticancerous activity. Leaves used

against guinea worms. Root bark useful for treating chronic cases of dyspepsia, flatulence, constipation, loss of appetite, indigestion, diarrhoea, dysentery and mucus in stool. Terminal leaves found effective in treatment of migraine. Extract from roots of the plant has been found useful in fertility control. Flowers useful in asthma and cholera. Latex used in irritation and inflammation of eyes and rabies.

Antimicrobial Properties: Roots and flowers possess antifungal (*Alternaria solani*) properties. The leaf extract shows inhibitory properties to egg and larvae of *Culex pipiens* (mosquito) provide safe method for control of mosquito populations (Al-Doghairi and Elhag, 2002). The leaf extract is most toxic against seed borne fungi, *Colletotrichum graminicola*, *Drechslera sorokiniana*, *Fusarium solani*, *Macrophomina phaseolina* and *Phomopsis sojae* (Nor-Afandy *et al.*, 2002). Leaf shows inhibitory properties against the growth of the bacteria (*Erwinia carotovora*, *E. chrysanthemi*) the casual organism of potato soft rot (Pal, *et al.*, 1993).

Propagation : Through seeds.

Canavalia gladiata (Jacq.) DC.

Family : Fabaceae

Vern. name: Bansem, Janglee sem

Botanical description: Large perennial, shrubby climber with terete glabrous branches. Leaves pinnately 3-foliolate, stipulate; petioles 8-13 cm long; leaflets ovate to rhomboid-elliptic, abruptly acuminate, rounded at base, 5-15 x 3.5-10 cm, glabrous, lateral ones oblique. Flowers 4 cm long, in axillary 10-10 cm long racemes. Calyx 15 mm long, bilabiate, upper lip notched, lower 3-toothed. Corolla purple or white tinged with purple, 2-5 cm long; standard sub orbicular, reflexed, auricled at base. Pods linear or oblong, compressed, 15-40 x 2-4 cm, thickened along both the sutures. Seeds 8-15, pinkish brown.

Flowering & Fruiting: October-February

Distribution: On roadside bushes, home gardens, often cultivated for edible pods i.e Bilaspur, Bastar, Chhatarpur, Gwalior, Indore, Khandwa, Mandla and Satna districts.

Uses : The fruits are sweet, astringent, cooling, appetizer, digestive and vulnerary. They are useful in burning sensation, hyperdipsia, anoraxia, dyspepsia, wounds, ulcers and vitiated conditions of cough and pitta.

Antimicrobial Properties: Leaves and fruit scalp possess antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) whereas seeds possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as

antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*)
properties.

Propagation : Through seeds.

Cardiospermum helicacabum L.

Family: Sapindaceae

Vern. name: Kanphuti, Attakattu

Botanical description : Annual scrambling shrub climbing by means of tendrillar hooks; stem and branches wiry and furrowed. Leaves alternate, exstipulate, leaflets deeply dentate or lobed, acute at tip up to 6 x 3 cm, glabrous. Flowers small, white, polygamous on axillary long peduncles; sepals 4, greenish, rounded, the outer pair smaller, the inner larger, petals 4, free, rounded or oblong, slightly tapering towards the base, the upper pair partially adnate to the sepals and provided with an emarginate suprabasal scale, the lower pairs smaller, each furnished with small glandular yellow scale. Stamens 8, filaments unequal; pistil tricarpeal, syncarpous; ovary three angular, 3-chambered with one ovule in each, style very short, 3-fid; fruit an inflated trigonous 3-valved capsule. Seeds globose, black.

Flowering & Fruiting: Almost throughout the year.

Distribution: Climbing on bushes and hedges along roadsides, forest clearings, grasslands and in dry deciduous forests. It is a very common plant of waste places and cultivated fields i.e Balaghat, Bastar, Betul, Bhopal, Bilaspur, Chhatarpur, Damoh, Durg, Guna, Hosangabad, Indore, Jabalpur, Jhabua, Khandwa, Gwalior, Mandla, Panna, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Sagar, Seoni, Shahdol, Shivpuri, Sidhi and Surguja districts.

Chemical Composition : Seeds, cyanogenic glycoside; seed oil ester. Essential oil from seeds.

Uses: The plant as a whole has sedative properties. In Indian herbal medicine, root is used to bring on delayed menstruation and to relieve backache and arthritic. Roots and leaves are good for hair growth and useful in rheumatism, nervous diseases, piles, chronic bronchitis, fevers, healing wounds, snake bite, hydrocele, amenorrhoea, sprains and oedema. Juice is used for earaches. The plant also show sedative effect on central nervous system, significant analgesic and antispasmodic effects. The leaves stimulates local circulation and are applied to painful joints to help speed the clearing of toxins. The seeds are also used in the treatment of arthritis. It is suggested that do not take this drug during pregnancy.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties.

Propagation : Through seeds.

Carissa opaca Stapf ex Hains.

Family : Apocynaceae

Vern. name: Janglee Karaunda

Botanical description : Shrub, bushy; sap milky; spines simple or forked, straight. 1-3 cm long. Leaves ovate to elliptic, 2-5 x 1.5-3 cm, acute at apex and base, entire, coriaceous, shining. Flowers in terminal or axillary, few-flowered cymes. Calyx-lobes 1.5 mm long. Corolla white. Berries subglobose or somewhat ellipsoid, 6-8 mm long, green to purple. 2-seeded.

Flowering & Fruiting: March–August

Distribution : Species found in mixed and scrub forests i.e Bilaspur, Bastar, Damoh, Chhatarpur, Indore, Jashpur, Shahdol, Rajnandgaon, Panna, Satna, Shahdol, Sidhi, and Surguja districts.

Uses : The roots are purgative and digestive.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. It is most active against mammalian viruses (*Herpes simplex virus*, *Sindbis virus* and *Poliovirus*) (Taylor *et al.*, 1996).

Propagation : Through seeds.

Cassia alata L.

Family : Caesalpiaceae

Vern. name: Chakramarda, Hinglaj

Botanical description : Tall shrub with pubescent branches. Leaves sessile, 3-60 cm long, with no glands but with persistent auricled stipules at base. Leaflets 8-14 pairs, 3-15 x 2-7 cm long. Flowers bright yellow, in 15-30 cm long, bracts 2-3 cm long, enclosing the buds. Sepals 1.5 -2 cm long, 4-6 mm wide. Petals 1.5-2 cm long, corolla 1 cm wide. Stamens 9-10, all perfect, sub equal. Pods 10-20 cm long, straight compressed with two longitudinal wings, seeds 40-55.

Flowering & Fruiting: October-April.

Distribution : Species found in waste land, road side, commonly planted in gardens and parks as an ornamental in some districts of Chhattishgarh and Madhya Pradesh.

Chemical Composition: Plant contains chrysophanic acid ; chrysophenol, emodin, rhein and aloe-emodi, Leaves, kaempferol and aloe-emodin and a volatile oil (sesquiterpene and phenolic compounds. Roots quinine pigments. Seeds yield galactomannan; emodin, aloe-emodin, B-sitosterol.

Uses : Leaves cure *vaata* and are antiparasitic. Decoction is astringent; tincture and extract are purgative. Leaves cure herpes, skin diseases, venereal affections, poisonous insect bites, ringworm, snake bites, poultice and purgative. Extract of leaves antifungal and used against eczema. Decoction of leaves and flowers used internally in bronchitis and asthma and for washing eczematous patches. Bark used to treat skin diseases. Extract of aerial parts is diuretic and anti-inflammatory.

Antimicrobial Properties: Roots and leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) properties.

Propagation : Through seeds.

Cassia angustifolia Vahl.

Family : Caesalpiniaceae

Vern. name: Sonaamukhi, Sanaya

Botanical description : A small perennial erect, under shrub, 1 to 1.5 m in height. Leaves and fruits of this plant are cathartic. Flower is in yellow color, spike raceme. Fruits flat legumes, greenish brown to dark brown, 3.5-7 cm long. Seeds 5-7 per pod, dark brown nearly smooth.

Flowering & Fruiting: August–December

Distribution : Cultivated in different parts of Chhattishgarh and Madhya Pradesh.

Chemical Composition: Sennesides A,B,C and D, chrysophanol, emodin and physcion; aloe-emodin, rhein and rheum-emodin, glucoside, kampferin, anthraquinone, essential oil, isorhamnetin, Ca-oxalate. Oxymethyl-anthraquinone in fruit.

Uses : It is useful in constipation, loss of appetite, liver complaints, splenic enlargements, dyspepsia, typhoid, jaundice, anaemia, leprosy, tumours and leucoderma. It is extensively used as a brisk and safe purgative. It is well adapted for children, elderly persons and delicate females. In traditional medicine, an infusion of leaves in the form of tea is used as laxative. Plant is used in the form of calcium sennoside tablets as a laxative. Leaves are astringent, bitter, sweet, acrid, thermogenic, anthelmintic and febrifuge. Fruits are laxative and purgative.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Alternaria solan*) properties.

Propagation : Through seeds.

Cassia auriculata L.

Family : Caesalpiniaceae

Vern. name: Amoli, Chhoti.

Botanical description : Tall shrub or small tree, 2-4 m high, with hairy branches. Leaves almost sessile, 5-10 cm long; stipules leafy, rotund to reniform long apiculate on both sides; leaflets 8-12 pairs 1.5-2.5 cm long, 5-12 mm wide, elliptic, obtuse, mucronate. Flowers yellow, in terminal and axillary corymbose racemes. Sepals 5, unequal. Petals 1.2-2 cm long, veined with orange. Stamens 10, 7 perfect and 3 reduced to staminodes. Pods 7.5-12.5 x 1.2-1.5 cm, pilose, flat, obtuse at each end. Seeds 6-10.

Flowering & Fruiting: July – December

Distribution : The plant found in waste land, open places of Bastar, Gwalior, Hoshangabad, Indore, Khandwa, Khargon and Shivpuri districts.

Chemical Composition: Bark contains tannin. β -sitosterol and kaempferol form flowers. Three saturated higher fatty ketoalcohols and emodin from leaves. Goratensidine; Auriculacacidin.

Uses : The roots are astringent, cooling, alterative, depurative and alexeteric. Plant is useful in skin diseases, leprosy, tumours, asthma and urethrorrhoea. A decoction of bark is used as anemas and gargals. The leaves are depurative and anthelmintic and are recommended for leprosy, skin diseases and ulcers. The flowers are used in diabetes, urethrorrhoea, nocturnal emissions and pheryngopathy. The seeds are astringent, sore, cooling, constipating, depurative, aphrodisise, anthalmintic, stomatic and alexeteric and are useful in diabetes, ophthalmia, dysentery, diarrhoea, swellings, abdominal disorders, leprosy, skin diseases, worm infestations, chronic purulent and conjunctivitis.

Root is useful in urinary discharges; cures tumours, skin diseases and asthma. Tea of leaves is used in chronic fever. Leaves and fruits anthelmintic. Powder of bark is used for fixing teeth and decoction for chronic dysentery. Twigs are used as tooth-brush. Decorticated seeds in fine powder or paste are valued local applications to purulent ophthalmia and conjunctivitis. Seeds as also tea of leaves or powder of all parts of plant or powder of seeds are taken internally in diabetes. It decreases thirst and

frequency of urination. Used for turbid urine or chylous urine. Flowers are used for spermatorrhoea.

Antimicrobial Properties: The extract shows inhibition against *Candida* spp. (Muthukumaran *et al.*, 2011) and *Vibrio cholerae* and *Staphylococcus aureus* (Anushia *et al.*, 2009).

Propagation : Through seeds.

Cassia fistula L.

Family : Caesalpiniaceae

Vern. name : Amaltas

Botanical description: A medium sized deciduous tree. Leaves alternate, paripinnate, stipulate; leaflets 3-8 pairs, large, ovate-lanceolate, acute or acuminate, to 16x 6 cm, glabrous green above, pale beneath. Flowers bright yellow, fragrant, in long axillary pendulous racemes, long- pedicelled; sepals 5, green, pubescent, ovate or oblong obtuse, curved. Corolla of 5, free subequal, shortly clawed, reddish-veined petals: stamens 10, unequal; ovary stalked, ovules many, style long and curved, ending in a smooth, conic stigma; pods up to 80 cm long, cylindrical pendulous. Seeds immersed in a pulp.

Flowering & Fruiting: April-February

Distribution : In sal and mixed forests and on road sides, also planted in gardens and parks i.e. Balaghat, Bastar, Bhopal, Bilasur, Chhindwara, Damoh, Durg, Chhatarpur, Hosangabad, Indore, Jabalpur, Khandwa, Khargon, Mandla, Panna, Rajnandgaon, Raigarh, Raipur, Raisen, Satna, Sagar, Shahdol, Shivpuri, Sidhi and Surguja districts.

Chemical Composition: Leaves contain anthraquinone derivatives and very little tannin. Ceryl alcohol, fistulin, leucopelargonidin tetramer, kaempferol, rhein and glucoside in flowers. Rootbark, tannin, phlobaphenes and oxy-anthraquinone substance. Pulp contains rhein, glucose, sucrose and fructose volatile oil, three waxy substances and resinous substance. Fistulic acid from pods. Fistucacidin, form bark.

Uses : It is used in the treatment of skin diseases and fracture. The stem bark is the main medicinal part. It is used in haematemesis, prurientus, leucoderma and diabetes. Extract of pod and stem bark, hypoglycaemic, antiviral and anti-cancerous. It is used in epilepsy, convulsion, pimples, fever, eczema, ascites, dysuria, arthritis, and carbiac disorder. It promotes digestion and appetite. Leaves of tree bring down kapha and medas and are specially indicated in various kind of fevers. Root cures arthritis and ringworm. Fruit

abortifacient, fruit pulp applied in chest and heart diseases, liver disorder. Seeds are used in jaundice. Bark paste given internally in blindness.

Aragvadhah is a reputed drug used in the treatment of skin diseases. it is found to be effective in the treatment of pyoderma. Root is astringent, tonic, febrifuge and purgative and is useful in skin diseases, tuberculous glands, syphilis. It cures burning sensation. Root bark, seeds and leaves are laxative. Juice of leave is useful in skin diseases. Pulp is used for inflammations. Flowers are cooling, astringent, cathartic, cure kapha and biliousness. Fruit cures leprosy, diseases of heart and is applied externally in rheumatism and snake bite. Seeds are emetic.

Antimicrobial Properties: The leaf extract possess antimicrobial activities against gram-positive-*Staphylococcus aureus*, *Streptococcus pyogenes*; two Gram-negative-*Escherichia coli*, *Pseudomonas aeruginosa* human pathogenic bacteria; and three fungal strains- *Aspergillus niger*, *Aspergillus clavatus*, *Candida albicans* (Nayan *et al.*, 2011) and Awal *et al.*, (2010) also reported similar results against gram positive and gram negative microorganism especially against *Shigella Dysenteriae*. The root extract also possess similar properties but shows low effectiveness as compared to leave extract.

Propagation : Through seeds.

Cassia glauca Lamk.

Family : Caesalpiniaceae

Vern. name : Agaltara

Botanical description : Tall shrub or small tree with glabrous cylindrical branches. Leaves 22-27 cm long with clavate glands between lower pair of leaflets; leaflets 4-6 pairs, 2.5-7.5 cm long, pale green, elliptic, lanceolate, subacute at apex, truncate at base. Flowers yellow, in axillary. Speals orbicular, 3 outer smaller than inner two. Petals 1.5 – 2.7 cm long, oblong, obtuse, slightly clawed. Stamens 10, nearly equal. Pods 15- 20 x 1.2 – 1.5 cm, straight, flat and thin.

Flowering & Fruiting: November – February.

Distribution : In forests of Bastar, Bhopal, Jashpur, Jabalpur and Sarguja districts. Also planted as hedge in gardens.

Uses: Leaves and seeds are medicinal having antimicrobial activity against *Escheria coli*. Plant has anti HIV Pproperties. Leaves and seed are used as laxative.

Antimicrobial Properties: Leaves and fruit possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Cassia hirsuta L.

Family : Caesalpiaceae

Vern. name : Janglee Kasaundi

Botanical description : Erect herb, 2–3 m high. Leaves simple, green, alternate, pinnate and stipulate, leaflets 3-5 pairs, opposite, short-petioled, ovate-acuminate, 9 x 3.5 cm, base somewhat oblique, glabrous. Flowers yellow in axillary or terminal racemes. Calyx 5-partite, segments creamy yellow; petals 5, free, subequal. Stamens 10, unequal; fruit a linear-falcate, flat, glabrous/hairy pod. Seeds many, 1-seriate.

Flowering & Fruiting: August –April

Distribution : It is found in Bastar forest area.

Uses: This plant is useful in the treatment of respiratory ailments. The plant is diuretic, tonic, purgative and stimulant. It is used for the treatment of hysteria, skin diseases, snake bite, swelling and scabies.

Antimicrobial Properties: Leaves and seeds possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Cassia occidentalis L.

Family : Caesalpiaceae

Vern. name : Kasaundi

Botanical description : Woody herb; stem purplish or green. Leaves alternate, pinnate, stipulate with a sessile dark brown gland near the base of the petiole; leaflets 6-9 pairs, opposite, short-petioled, ovate-acuminate, 6x2 cm, glabrous above. Flowers yellow in axillary; calyx 5-partite, segments creamy yellow; petals 5, free, sub equal; stamens 10, unequal. Fruit a linear, glabrous pod; seeds many, 1-seriate.

Flowering & Fruiting: July–November and March-April.

Distribution : In waste land, open forest, forest borders, bunds of cultivated fields, sal and mixed forests and on road sides, also planted in

gardens and parks. Species found in districts i.e. Bastar, Bhopal, Bilaspur, Durg, Gwalior, Hosangabad, Indore, Jabalpur, Khandwa, Khargon, Mandla, Panna, Rajnandgaon, Raigarh, Raipur, Raisen, Satna, Sagar, Shahdol, Shivpuri, Sidhi and Surguja districts.

Uses: It is useful in the treatment of cough, asthma and other respiratory ailments. The plant is febrifuge, diuretic, tonic, purgative, stimulant, lactagogue. It is used for the treatment of hysteria, skin diseases, snake bite, swelling, scabies and improve milking. 5 gm root made into paste with 31 black pepper and given to nursing mother.

Antimicrobial Properties: Seeds possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Collectotrichum capsici*) properties.

Propagation : Through seeds.

Cassia tora L.

Family : Caesalpiniaceae

Vern. name: Charota, Chakunda

Botanical description : Weedy annual herb; branchlets glabrous. Leaves 6-foliolate, leaflets in three opposite pairs, obovate-obtuse, cuneate below, to 4 x 2.5 cm, thinly coriaceous, glabrous above, fine-pubescent below. Flowers bright yellow in axillary, few-flowered clusters; calyx 5-partite; petals yellow, sub-equal; stamens 10, unequal, upper 3 reduced to staminodes; ovary sessile, linear, style curved, stigma terminal. Pods long narrowly cylindrical, up to 15 cm long, seeds oblong, many.

Flowering & Fruiting: August –March.

Distribution : The plant is a common weed found in waste places, open forest and road side forest area, fallow ground and as forest undergrowth during the rainy season i.e. Balaghat, Bastar, Betul, Bhopal, Bilaspur, Chhatarpur, Damoh, Durg, Guna, Hosangabad, Indore, Jabalpur, Jhabua, Khandwa, Mandla, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Sagar, Shahdol, Shivpuri, Surguja and Tikamgarh districts.

Chemical Composition: Obtusin, chrysoobtusin, aurantioobtusin form seeds, Content of rhein-like aglycones in seeds; anthraquinone glucosides, glucoobtustifolin and glucoaurantioobtusin; glucoside cassiaside; robrofusarin glycoside; yellow pigment, torachryson, polysaccharide; chrysophanol-B-gentiobioside; chrysophanic acid-9-anthrone. Seed oil,

emodin, glucoside chrysophanic aci. Seed sennosides. Leaves and stems contain d-mannitol, myricyl alcohol and β -sitosterol.

Uses: It is used for all type of skin diseases, sweet, bitter, acrid, carminative, laxative and vermifuge, cures eczema, dermatosis, itching, ulcers, cough, dyspepsia and other respiratory problems. It also used in constipation, gastro intestinal disease, obesity, and paste of root in lime juice applied for snake bite and ringworm and other skin diseases. Leaf decoction for skin diseases, paste applied in crusts and eczema. Leaves with egg albumin applied for bone fracture. It helps to overcome diseases due to impurity of blood, gives good complexion to skin and remove obstructs of urine. Seeds used for the cure of arthritis, poisonous affection and hemicrania, Leaves purgative, used in ringworm and other skin troubles. Seeds used as a substitute for coffee.

Plant extract is antiviral, spasmolytic and diuretic, used against epilepsy, scabies and sores. Root rubbed into paste with lime juice is a specific for ringworm. Leaves are internally gentle aperient, externally germicide and antiparasitic. They have also aturant and anodyne action. Leaves pounded and applied on cuts, act like tincture iodine; applied against eczema. Tender taken internally to prevent skin diseases; infusion, vermicial. Seeds are used externally and internally for all sorts of eye diseases and are recommended for arthritis and hemicrania. Power of seeds is given in abnormal delivery.

Antimicrobial Properties: Leaves possess antifungal (*Alternaria solani*, *Collectotrichum capsici*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Catharanthus pusillus (Murr.) G.

Family : Apocynaceae

Vern. name : Sadabahar, Baramasi

Botanical description : An erect annual or perennial herb, much branched, glabrous, 50-70 cm high with glossy opposite leaves. Stems and branches 4 angled. Leaves lanceolate, 4-7 cm long, acute or acuminate at apex, alternate at base. Flowers in 1-2 flowered cyme, pedicels very short. Calyx 5 mm long. Corolla white, lobes obovate, 3 mm long.

Flowering & Fruiting: October-April

Distribution: Common in sandy waste land, along road side, in gardens, parks, water streams, home gardens as an ornamental plant in districts i.e. Balaghat, Bastar, Betul, Bhopal, Bilaspur, Chhatarpur, Damoh, Durg,

Hosangabad, Indore, Jabalpur, Jhabua, Khandwa, Mandla, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Sagar, Shahdol and Surguja districts.

Uses: Used in diabetes and hypotension. Infusion of leaves used in menorrhagia. Juice applied for pain due to wasp stings. About 15 alkaloids have been isolated from the roots. They possess hypotensive, sedative and tranquillizing properties. Extract of the plants have shown growth inhibitory effects in certain human tumors.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds and cuttings

Catharanthus roseus (L.) G.

Family : Apocynaceae

Vern. name : Sadabahar, Baramasi

Botanical description : An erect annual or perennial herb, much branched, glabrous, 70–80 cm high. Leaves elliptic to obovate, 3-8 cm long, rounded, acute at base with glossy and shining appearance. Stems and branches 4 angled. Flowers in 1-4 lowered cymes, pedicels very short. Calyx segments, subulate. Corolla mostly rosy but some times pink or white with combination of these colours.

Flowering & Fruiting: August -March

Distribution: Species found in gardens, parks, water streams, home gardens and escape in villages as an ornamental plant in different districts i.e. Balaghat, Bastar, Betul, Bhopal, Bilaspur, Chhatarpur, Damoh, Durg, Hosangabad, Indore, Jabalpur, Jhabua, Khandwa, Mandla, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Sagar, Shahdol and Surguja.

Uses: Used in diabetes. Infusion of leaves used in menorrhagia, juice applied for pain due to wasp stings. Root contains 3 alkaloids of Rauwolfia group: ajmalicine, serpentine and reserpine. The concentration of the first two alkaloids being greater in the roots of *C. roseus* than in the roots of *Rauwolfia serpentina*. In all about 15 alkaloids have been isolated from the roots of *C. roseus*, they possess hypotensive, sedative and tranquillizing properties. An extract from the plants have shown growth inhibitory effects in certain human tumors. The vincristine alkaloid obtained from this plant is useful in some kinds of leukemia.

Antimicrobial Properties: Flowers possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings

Celastrus paniculatus Willd.

Family : Celastraceae

Vern. name: Malkangni, Jyotishmati

Botanical description : Climbing shrub, branches pendulous, covered with pale lenticular barks. Leaves alternate, ovate, elliptic, crenate-serrate glabrous. Flowers yellowish or greenish white, unisexual in long terminal pyramidal panicles. Capsules subglobose, bright yellow when ripe, 3-celled, 3-valved, transversely wrinkled, opening down the middle. Seeds enclosed in red fleshy aril.

Flowering & Fruiting: March–August

Distribution : Species found in mixed and sal dominated mixed forests i.e. Balaghat, Bastar, Bilaspur, Damoh, Durg, Hoshangabad, Jashpur, Panna, Raigarh, Raipur, Rajnandgaon, Satna, Seoni, Shivpuri, Sidhi and Surguja districts.

Chemical Composition: Acetic, benzoic, formic, linoleic, linolenic, palmatic and stearic acids. Celapagine, celapanigine, celapanine, celastrol, celastrine etc. from seeds. Polyhydric alcohol, milkanguniol; and four related alcohols. Seeds triterpenes paniculatadiol, malkanguniol along with poluests, β -amyrin and β -sitosterol. Malkangunin, a new sesquiterpenoid tetra esters.

Uses: Seeds bitter, laxative, emetic, stimulant, aphrodisiac and used in rheumatism, leprosy, various types of fevers and paralysis. Roots and leaves used for headache, fruits used for scabies other skin diseases, dysentery Bark used for wounds cough and cold. Seeds and oil are used as stimulant, intellect and sharpen memory.

Various parts of jyotismati are used in sore throat, anaemia, colic, syphilis, carbuncle. Leaves are emmenagogue. Decoction of bark used in bronchitis. Seeds are bitter, emetic, alterative, laxative, stimulant, nervine and aphrodisiac. Oil from seeds is powerful stimulant, rubefacient and useful in beriberi. One part of oil and 8 parts of butter is known as Magzsudhi (Brain cleaner) is applied to head and believed to promote intelligence. Crude oil shows sedative and tranquillizing effect and drug combination containing *C. paniculata* is useful as depressent especially in hysteria.

Antimicrobial Properties: Root and oil cake possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) whereas leaves and seeds possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Collectotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and root cuttings.

Centella asiatica (L.) Urb.

Family : Apiaceae

Vern. name: Mandukaparni, Brahma-manduki

Botanical description : Stoloniferous, creeping herb, rooting at nodes. Leaves simple, orbicular-reniform, base cordate with angular sinus, margin crenate-dentate, apex round, 2-4.5 x 3-6.6 cm, 5-7 nerved, etioles long, 2.5-25 cm, fascicled at the nodes. Flowers small, brownish in axillary few flowered numbers. Calyx truncate, fused with the ovary, 5-toothed; petals 5, minute, ovate-actue, red; stamens 5, epigynous, filaments incurved; ovary inferior, bicarpellary with a single ovule in each, styles 2, stigmas capitate. Fruit of two, compressed prominently ridge, mericarps.

Flowering & Fruiting: May-January

Distribution : The plant is found in forest area of all districts in wet places, banks of streams and ponds i.e. Balaghat, Bastar, Bilaspur, Hoshangabad, Indore, Jashpur, Raigarh, Raipur, Rajnandgaon, Sahahdol, Sidhi and Surguja districts.

Chemical Compostion : Fresh leaves contain a glucoside asiaticoside and asiatic acid Vellarine, pectic acid and resin present in roots and leaves. Asiaticoside is active in treatment of leprosy. Asiaticoside and oxyasiaticoside employed in treatment of certain types of tuberculosis. The plant also cotains ascorbic acid in a concentration of 13.8 mg. per 100 g.

Uses: It is diuretic and tonic. It is used in maintaining youthful vigour, strength, improving memory, anaemia, cough, dyponia, dermatosis, tonic, syphilis, skin diseases, cholera, fever, diarrhea, leprosy and headache. A glycoside, asiaticoside, shown to be active in the treatment of leprosy.

It is a nervine and cardio-tonic, astringent and diuretic. It is useful in dermatosis, anaemia, diabetes, cough, dysponea, emaciation and insanity. Etherial extract of plant is antiprotozoal and spasmolytic. Plant tablets administered orally to mentally retarded children for 12 weeks showed very significant increase in both general ability and behavioural pattern. Leaves are taken as tonic and for improving memory Useful in syphilitic skin diseases both internally and externally. Juice of leaves is useful in cataract

and other eye troubles, also given in fevers in diarrhea among children. Leaves are used to cure severe headache.

Antimicrobial Properties: Whole plant possesses antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The aqueous extract is effective in preventing the cognitive deficit as well as the oxidative stress caused by intracerebroventricular streptozotocin (Kumar and Gupta, 2003).

Propagation : Through cuttings and suckers.

Centratherum anthelminticum (L.) Kuntze.

Family : Asteraceae

Vern. name: Vanjeera

Botanical description : Erect, simple or branched annual, aromatic herb. Stems terete, glandular pubescent covered with minute hairs. Leaves elliptic, obovate or ovate, acute or acuminate, narrowed into petiole, their margins toothed, base tapering into a petiole, 6-10 cm long. Heads 1.5 cm across, leaf-opposed, on 1-2.5 cm long peduncles, combined in to a terminal leafy corymb. Involucral bracts in 4-5 series; outer ones lanceolate, with a spatulate leafy top, inner ones, lanceolate. Corolla purple 1.3 cm long lobes glandular hairy at apex. Achenes teret, 10 ribbed, hairy, pappus hairs 2-seriate. Outer ones brown, inner ones white plumose.

Flowering & Fruiting: October –December.

Distribution: Species found in open forest area and forest borders of mixed and sal dominated forests i.e. Bastar, Bilaspur, Hoshangabad, Jashpur, Raigarh, Raipur, Rajnandgaon, Satna, and Surguja districts. Species has been observed in higher concentration in hilly forest area of Bilaspur and Hosanghabad districts.

Uses: The drug comprises fresh dried seeds of the plant. As the scientific name of the plant indicates, it is a valuable medicine as anthelmintic, that is to destroy worms. Its utility in thread worm infections has been confirmed in trials in hospitals. In old literature, the plant has been reported to be useful also as a stimulant, antiseptic and for promoting urination. Seeds anthelmintic, tonic, stomachic, diuretic and used in destroying pediculi and in scorpion sting. Seeds also used for asthma, syphilis, leucoderma, constipation and cholera. Leaves used for phlegmatic discharge from nostrils.

Antimicrobial Properties: Leaves possess antifungal (*Collectotrichum capsici*) whereas seed possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) (Tiwari *et al.*, 2004) as well as antifungal (*Collectotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Chlorophytum arundinaceum Baker.

Family: Liliaceae

Vern. name: Safed musli

Botanical description : Perennial herb, root tuberous. Leaves oblanceolate, 15-75X 2.5-6 cm obtuse or acute to acuminate at apex, narrowed in to a petiole, outer distinctly petiolate, inner some times sessile. Flowers in dense racemes, scape as long as the leaves, often branching at apex. Perianth white. Anthers about twice as long as the filaments. Capsules globose, 8 mm across, emarginated at both ends. Seeds, 3 mm across orbicular, black

Flowering & Fruiting: July-November

Distribution: Abundant amongst rock boundaries, in sal dominated mixed forests and hill tops i.e Balaghat, Bastar, Bilaspur, Hoshangabad, Raigarh, Raipur, Rajnandgaon, Seoni, Shivpuri, Sidhi and Surguja districts.

Uses: It improves memory, maintains youthful vigour and strength. It is useful in certain diseases like renal calculus and leucorrhoea. Tubers are tonic, lactating, blood purifying and energetic to body.

Antimicrobial Properties: The root possess moderate antimicrobial properties against *Bacillus subtilis*, *E. coli*, *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Shigella sonnei* and *Staphylococcus aureus* and fungal species *Aspergillus niger*, *Candida albicans* and *Trichophyton rubrum* (Valya et al., 2009).

Propagation : Through tuber discs and seeds.

Chlorophytum tuberosum Sant. Et.

Family: Liliaceae

Vern. name: Safed musli

Botanical description : Scapigerous herbs, root tuberous. Leaves radical, crowded at the base, usually ensiform, falcately recurved, 15-60 x 1.5-4 cm, sessile. Flowers in simple or shortly, branched racemes, scape 15-90 cm long. Perianth white, segments elliptic, 12-15 mm long. Anthers about as long as the filaments, recurved, finally revolute. Capsules oblong, 1 cm long, 2-lobed at apex. Seeds irregularly, flat, 3 mm across orbicular.

Flowering & Fruiting: June-October

Distribution: In sal forests, mixed forests, rocks boulders and in open places among grasses i.e. Balaghat, Bastar, Bilaspur, Hoshangabad, Jashpur, Shahdol and Surguja districts.

Uses: It improves memory, maintains youthful vigour and strength. It is useful in certain diseases like renal calculus and leucorrhoea. Tubers are tonic, lactating, blood purifying and energetic to body.

Antimicrobial Properties: Tuber and leaves antifungal (*Collectotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through tuber discs and seeds.

Chorozophora rotteri (Geiseler.) Adr.

Family: Euphorbiaceae

Vern. name : Apapodella

Botanical description : Annual herb up to 60 cm high. Leaves alternate, broadly ovate or suborbicular, 4-8 x 3-7 cm, obtuse, rounded at apex, stellately hairy. Flowers in axillary or terminal racemes, 3 mm long. Male outer tepals ovate, 2.5 –3 .0 mm long, inner tepals yellow. Female outer tepals deltoid, 2 mm long, acute, hairy. Seeds globose, 3 mm across and ash coloured.

Flowering & Fruiting: March-May

Distribution: Common in wasteland, dry places, road sides, river banks and along railway tracts i.e. Bastar, Bilaspur, Chhatarpur, Damoh, Durg, Jashpur, Khandwa, Khargone, Mandla, Rajnandgaon and Rewa districts.

Uses: Roots and seeds are medicinal. Ash of the root has been used for curing cough. Seeds are used as purgative.

Antimicrobial Properties: Root and leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) while stem and fruit possess antifungal (*Rhizoctonia solani* and *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Cissampelos pareira L.

Family : Menispermaceae

Vern. name: Akandi, Patha

Botanical description : Plant is slender, twining, softly tomentose, perennial, herbaceous climbing shrub. The leaves are ovate to orbicular, apiculate, peltate-cordate at base, 2.5–5.5 x 2.5- 4.0 cm. Female inflorescence longer than the male. Flowers greenish to white. Drupes ovoid-sub globose, red with sub basal persistent.

Flowering & Fruiting: November-January

Distribution : Along road sides and in the forests. Common throughout the states.

Chemical Composition: Hayatin, hayatinin, L-curine and isochondrodendrine from roots and vines, all having curare-like activity. Cycleanine,(-) bebeerines, from leaves. Hayatine salts preparations, hayatine methiodide are muscular relaxant.

Uses : It is mild stomachic, bitter tonic, diuretic and antilithic. Root is bitter tonic, antiperiodic, diuretic, purgative, stomachic and used in dyspepsia, diarrhoea, dropsy, cough and urinary troubles like cystitis, kidney diseases, relieving urinary irritation and in chronic inflammation of bladder and various urinary diseases. Pills prepared from root, pepper, ginger and mixed with honey are found useful in indigestion and colic. Leaves are applied externally in scabies and peptic ulcers and leaf extract for external application for itch, sores and sinuses.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*) properties. Leaf and root both reduces the damage of stored grain caused by *Sitophilus oryzae* and *Prostephanus truncates* (Niber, 1994).

Propagation : Through seeds.

Cissus quadrangularis L.

Family : Vitaceae

Vern. name : Hadjora, Hathjod

Botanical description : A rambling shrub, climbing over bushes; stem thick, fleshy, quadrangular, glabrous, constricted at the nodes, leaves simple, alternate, thick, coriaceous, broadly ovate to sub orbicular, obtuse, margin serrate, 6.5 x 8 cm, tendrils leaf-opposed. Flowers small, in leaf-opposed umbellate cymes, calyx cup-shaped, obscurely lobed; petal greenish yellow, red tipped, berry globose.

Flowering & Fruiting: May–June.

Distribution : The plant is grown as an ornamental in gardens and parks. It is common in the drier regions of both states.

Chemical Composition : Plant contains proteins, 12.8; fat and wax, 1.0; fibre. 15.6; carbohydrates, 36.6; mucilages and pectins, 1.2% dry basis. A yellow wax and tartaric acid and the acid potassium salt are present. The plant is remarkably rich in vitamin C. Calcium oxalate crystals account for the irritating action of fresh stems.

Uses: Juice prescribed in scurvy and powdered root considered specific for fraction particular bone fraction and swellings. Young shoots are used in

curries, in the preparation of papads and used in digestive troubles, burns, wounds and asthma. It is light, sweet, hot, alterative, carminative, anthelmintic, aphrodisiac and stomachic. Infusion of plant is purgative. A paste of the stem is plastered over the fracture and swellings. It is also applied in cases of otorrhoea and epistaxis and used as alterative.

Antimicrobial Properties: Whole plant possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through cuttings.

Citrullus colocynthis (L.) Schrader.

Family : Cucurbitaceae

Vern. name : Indrayan

Botanical description: Trailing scabrid herb; branchlets hirsute. Leaves ovate or narrowly triangular, 6-10 x 4-7 cm, deeply 3-5 lobed, lobes sometimes pinnatifid, densely villous hirsute below; flowers yellow, axillary, solitary, unisexual, male: Calyx campanulate, 5-lobed, hirsute without; petals ovate, hirsute; stamens 3. Female: Calyx and corolla as in male. Fruit globose, 5-7 cm in diameter, striped green and white when young, yellow and red when ripe. Seeds ovoid.

Flowering & Fruiting: July-October

Distribution : The species has been recorded from Bastar forest division.

Chemical Composition: Bitter oil 'citbittol', colocythin, colocynthetin. Roots contain a-elaterin, hentriacontanin, and saponins. Seeds contain fixed oil, a phytosterolin, 2 phytosterols, 2 hydro-carbons, a saponin, alkaloid, glycoside, tannin. Pulp contains a-elaterin, hentriacontane, citrullol, a phytosterol and a mixture of fatty acids. Pulp also contains an anticancer glycoside- a-elaterin-2-D-glucopyranoside. Fixed oil of seed contain myristic, palmitic, stearic, myristoleic, palmitoleic, oleic and linoleic acids.

Uses: It is bitter, hot, abortifacient, purgative, blood purifier and cathartic. The fruit is useful in ascites, biliousness, jaundice, cerebral conjunction, colic, constipation dropsy, fever, worms and sciatica. Root is given in case of abdominal enlargement, cough, asthma, inflammation of the breast, ulcers, urinary diseases and rheumatism. Seed oil is used for poisonous bites, bowel complaints, epilepsy and also for blackening of hair.

Root is purgative, and is used in ascites, jaundice, urinary diseases and rheumatism. For inflammation of joints etc. awaleha or powder of root mixed with ginger and jaggery is used. Fruit is light, bitter, pungent, cooling,

abortifacient, blood purifier, purgative, anthelmintic, antipyretic, cathartic and carminative; cures tumours, ascites, jaundice, enlargement of spleen. In moderate doses it is drastic hydrogogue, cathartic and diuretic. In large doses, emetic and gastrointestinal irritant. Useful in abnormal presentation of foetus and in atrophy of foetus. Useful for inflammation of breasts, puerperal disorders, pain in joints. Externally used in ophthalmia and uterine pains. Fruit and root antidote to snake poison. Oil from seed, useful in hair growth and maintaining them black, sterility (maladu).

Antimicrobial Properties: Root possess antifungal (*Sclerotium rolfsii*) while, leaves possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Clematis smilacifolia Wall.

Family : Ranunculaceae

Vern. name: Morawela, Ranjani, Murhari

Botanical description : Extensive glabrous climber. Leaves simple, ovate, oblong-ovate, cordate or rounded at base, subacute or mucronate at apex, 6-8 x 8-10 cm. Petioles 8-10 cm long, flattened at base, tendrillar above. Inflorescence 3 or more-flowered in 3-chotomous panicles. Bracts foliaceous, elliptic lanceolate, 1.5 x 0.5 cm. Flowers purplish – brown, 3.5 cm across. Sepals tomentose, purple within. Achenes flat, elliptic-ovate, very hairy, 1.0 x 0.3 cm, with thick margins and 6-7 cm long feathery styles, hairs often golden.

Flowering & Fruiting: October-May.

Distribution: Climbing on trees in sal forests of Bastar, Bilaspur and Shahdol districts.

Uses : Plant is applied to boils, itch, leprosy, blood diseases, snakebite and fevers. Leaves are alterative, acrid and sedative. Infusion of leaves is used in blood-diseases such as syphilis, scrofula, leprosy and in chronic fevers. Leaf juice mixed with that of *Holarrhena antidysenterica* is a remedy for conjunctivitis.

Antimicrobial Properties: Root, stem and flowers antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Cleome viscosa L.

Family : Ranunculaceae

Vern. name: Hur-hur

Botanical description : Annual, erect herb, 25-100 cm tall. Stems glandular, hairy leaves digitately 3 to 5 foliolate, leaflets, sub-sessile, elliptic-obovate to oblong, acute or obtuse apex. Flowers yellow; in terminal bractecate racemes. Radicles 1-3 cm long, stamens 20-25. Fruit lengths unequal, slightly dilated at the top. Capsule cylindric, glandular-pubescent, 6-12 cm long. Seeds reddish.

Flowering & Fruiting: June- October.

Distribution : The species is a common weed of waste places, open forest, road side forest area, fallow ground and as forest undergrowth i.e. Balaghat, Bilaspur, Dhar, Durg, Hoshangabad, Indore, Jabalpur, Mandla, Raipur, Rajnandgaon, Rewa, Sidhi and Tikamgarh districts.

Chemical Composition: Eriodicotyl-5-rhamnoside from whole plant. kaempferide-3-glucuronide from roots. Seed oil in linoleic acid. Seeds contain 0.1% viscosic acid, 0.04% viscosin.

Uses : Leaves useful in fever, paratyphoid, dysentery, gonorrhoea etc. Juice put in ear for removing puss, infusion used in nostrils as cure for headache. Seeds are used in piles and for removing worms, internally fever and diarrhoea. Leaves of Ajagandha are rubifacient, vesicant, sudorific and are used for external application for wounds and ulcers. Juice of leaves relieves earache. Bark is irritant and acrid. Externally it is earache. Externally it is rubefacient and vesicant. Seeds are carminative, vesicant, rubefacient, anthelmintic and antiseptic like mustard. They are a remedy for infantile convulsions. Polution of paste of seeds is useful in chronic painful joint and in the form of extract used to kill maggots in unhealthy sores.

Antimicrobial Properties: Seed possess antibacterial (*Xanthomonas campestris* pv. *Campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani* and *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Clerodendrum indicum (L.) Kuntze.

Family: Verbenaceae

Vern. name: Bharangi

Botanical description : Woody erect perennial herb. Leaves lanceolate to oblong, 6-19 x 2-4 cm, acute or subacuminate at apex, acute at base. Flowers in axillary, 3-7 flowered cymes; pedicels 2 cm long. Calyx 5-lobed, 1.5 cm long, glandular punctate; lobes ovate-deltoid, apiculate. Corolla white; lobes oblong obtuse, 2 cm long. Drupes 4-lobed, green, turning reddish black. Fruiting calyx accrescent, red, fleshy.

Flowering & Fruiting: September–December

Distribution : The plant has been recorded on sandy soil and river beds from the forest area i.e. Balaghat, Bastar, Bhopal, Chhatarpur, Raipur, Sahadhol, Surguja and Jashpur forest divisions.

Uses : Plants are sometimes used as substitute for opium and also smoked with tobacco. Resin is used to treat syphilitic rheumatism. Plant

extract is used with rectified butter (ghee) for skin diseases while pounded root for asthma. It considered as a specific remedy for all respiratory diseases. The plant is used in fever, dropsy, rheumatism, hemiplegia, sores, cholera. Roots are the main medicinal parts of the plant, which is reported to be antispasmodic, carminative, expectorant, febrifuge, tonic and useful in anasarca, coryza, cough, dyspnoea, catarrhal affections, epilepsy, febrile conditions, simulating malaria. Fruits are used in antifertility drug preparation. It is an integral drug of Dashmularishta.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*) while, fruit possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through cuttings and seeds.

Clerodendrum serratum (L.) Moon.

Family : Verbenaceae

Vern. name: Bharang

Botanical description : Shrub; stem 4-angled. Leaves simple, in whorls of 3, subsessile, obovate-oblong, shortly acuminate, base cuneate, coarsely serrate, thick, coriaceous, 25-32 x 10-12 cm. Flowers blue, showy in terminal bracteate thyroid panicle, calyx subtruncate, lobes short; corolla tube 1 cm, lobes 5, unequal, oblong, obtuse or orbicular; stamens 4, didynamous, long exerted, filaments incurved in bud; ovary globose, 4-celled, 4-ovuled, style filiform, stigma bifid; drupe obovoid, purple, partly enclosed in the persistent calyx.

Flowering & Fruiting: August –December.

Distribution: Species found in sal and mixed forests of Balaghat, Bastar, Bilaspur, Damoh, Dhar, Durg, Hoshangabad, Indore, Jashpur, Mandla, Raigarh, Raipur, Rajnandgaon, Seoni and Sarguja districts.

Chemical Composition : Plant contains saponin and mannitol. Root – bark yields saponin, manitol and stigmasterol.

Uses: As the name bharangi indicates, the drug dispels kapha and is hence considered as a specific remedy for all respiratory diseases that are caused by morbidity of kapha. The plant is used in fever, dropsy, rheumatism, hemiplegia, sores and cholera. Root decoction as appetizer. Root bark extract antihistaminic, useful as hypotensive and broncho-constrictor. It is used as antihistaminic, useful as hypotensive and broncho-constrictor. It is used as antihistaminic and anti-allergic drug. Roots are the main medicinal

parts of the plant, which is reported to be antispasmodic, carminative, expectorant, febrifuge, tonic and useful in anasarca, coryza, cough, dyspnoea, catarrhal affections, epilepsy, febrile conditions, simulating malaria. It is an integral drug of Dashmularishta. D- manitol is obtained from root bark.

Antimicrobial Properties: Roots possess antifungal (*Sclerotium rolfsii*) ; leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) and fruit possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through root cuttings and seeds.

Clitoria ternatea L.

Family : Papilionaceae

Vern. name: Aparajita

Botanical description : Twining shrub with slender, terete, appressed tomentose branches and branchlets. Leaves alternate; stipulate, imparipinnate; leaflets 5-7, ovate or elliptic-obtuse, entire, up to 5.6x3.7 cm, glabrous. Flowers large, conch-shell shaped, blue or white, axillary, solitary; bracts small, persistent; bracteoles large, foliaceous, roundish, persistent; corolla papilionaceous; stamens diadelphous; ovary monocarpellary, stipitate, many ovuled, style elongate, incurved, bearded along the inner side; pod linear-oblong, flat, 10.5 x 1 cm, sharply beaked, appressed hairy. Seeds 6-10, compressed.

Flowering & Fruiting: July -March

Distribution : The plant is found wild growing over hedges and thickets, also cultivated in gardens as an ornamental throughout both the states.

Chemical Composition: Taraxerol and taraxerone from roots. Cinnamic acid, flavonol glucosides, hexacosanol, β -sitosterol and an an-thoxanthin glucoside from seeds. Aparajitin, sitosterol, stearic, palmitic, oleic, linoleic and linolenic acid, and glucosides of kaempferol, stigmast-4 ene-3,6-dione from leaves.

Uses: Roots are bitter, emetic, cathartic, purgative and diuretic, useful in ascites and fevers; used by tribals to cause abortion. Root bark is powerful diuretic and laxative. Infusion of root- bark is useful in irritation of bladder and urethra. In Konkan, root-juice is given in cold milk to remove phlegm in chronic bronchitis. Flowers yield a blue dye. Seeds contain a fixed oil. Seeds and root bark contain tannin. It is a substitute of *Shankhapushpy* and used as brain tonic in south India. Seeds are purgative and aperient. Seeds roasted

and powdered are given in ascites and enlargement of abdominal viscera. Plant is used in snake bite.

Antimicrobial Properties: Seeds possess antibacterial (*Xanthomonas campestris* pv. *campestris*) (Tiwari *et al.*, 2004) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Coleus forskohlii Briq.

Family : Lamiaceae

Vern. name: Pashanbhed, Patherchor

Botanical description : Herb, perennial; stems generally decumbent, subsucculent, densely hirsute, dotted with reddish orange oil globules in between hairs. Leaves ovate-oblong, 2-8 x 1.5-4.5 cm, obtuse at apex, narrowed at base, crenate, petioles 0.5-2.5 cm long. Verticillasters in 15-30 cm long, 6-10-fid, 3 cm apart, spiciform racemes; rhachis stout, densely hairy and glandular; bracts 2.5 cm long, caducous. Fruiting calyx 0.8 cm long, hairy and glandular outside and with a ring of hairs inside; upper lip slightly longer than the lower; lower lip with 4 teeth. Corolla bluish, 2 cm long, with red glands outside; upper lip short, 4-lobed; lower lip boat-shaped; tube geniculate. Nutlets dark brown, smooth.

Flowering & Fruiting: November–February.

Distribution : In central India, it is found on fields or grazing land i.e. Bastar and Indore districts.

Uses: The plant is given to relieve abdominal discomfort. It is an important heart, fractures, headache, epilepsy, kidney stone and circulatory tonic. Coleus is used to treat congestive heart failure and poor coronary blood flow. It also improves circulation of blood to the brain. Its antispasmodic action makes Coleus valuable for respiratory complaints, including asthma and bronchitis. It is used topically in treatments to relieve “glaucoma”. Coleus may be of use in combination with other herbs in helping to reduce high blood pressure.

Antimicrobial Properties: Roots possess antifungal (*Colletotrichum capsici*) while, leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through cuttings and seeds.

Colocasia esculenta L.

Family : Araceae

Vern. Name: Kachu, Janglee Kochai

Botanical description : Perennial herbs, with short tuberous root stock in wild plants and a horizontal, tuberous rhizome in cultivars. Leaves on 15-60 cm long, purple bloched petioles, rounded or orbicular, apiculate, with a shallowly retuse or trangular basal sinus, subentire to sinuate, white margined, glabrous, 15-30 cm across. Spathe yellowish, lanceolate-oblong with a convolute, cylindric, 5-7 cm long tube. Limb yellow erect, lanceolate, narrowed into a long acuminate point. Spadix with female flowers at base, neutral flowers in middle, male flowers at the top, narrowed into a sterile appendage; female flowers: ovary ovoid, stigma subsessile, discoid. Male flowers: obpyramidal in shape. Stamens 7-8 with flat tops.

Flowering & Fruiting: August-September

Distribution : Wild on banks of rivers, streams; in marshes and moist shady places of forests i.e. Balaghat, Bastar, Bilaspur, Khandwa, Khargon, Mandla and Rajnandgaon districts.

Uses : Juice of petioles styptic, stimulant and rubifacient. Juice of rhizomes used in cases of alopecia and in scorpion sting and applied on fungal abscesses of animals.

Antimicrobial Properties: Leaves possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*) properties.

Propagation : Through rhizomes.

Convolvulus prostrates Forssk.

Family : Convolvulaceae

Vern. name: Shankhpshpi

Botanical description : Herb, perennial, prostrate. Leaves linear to ob long, 1-3 x 0.5-0.8 cm, subacute to obtuse at apex, villous, sessile. Flowers 1-5, in axillary heads, sessile to subsessile; bracts linear to oblanceolate, acute; bracteoles filiform. Sepals ovate-lanceolate to lanceolate, 4-7 mm long, acuminate, villous; outer sepals long; inner short. Corolla 10-12 mm long. Capsules subglobose, glabrous, 4-seeded. Seeds brown-black, sparsely to densely white pubescent.

Flowering & Fruiting: December-February

Distribution : Common in open fields, sandy and rocky places i.e. Bastar, Bilaspur Chhatarpur, Gwalior, Indore, Mandla, Morena, Rewa, Seoni, Sidhi and Surguja districts.

Uses : The plant is used to brain and referred to improve memory. It yields an alkaloid "Shankhpushpine".

Antimicrobial Properties: Whole plant possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through cuttings and seeds.

Costus speciosus (J. Koenig.) Sm.

Family : Zingiberaceae

Vern. name: Keokand

Botanical description : Succulent herb with tuberous rhizomes, stem spirally twisted; leaves spiral, oblong to oblanceolate, caudate-acauminate, 20 x 8 cm, glabrous above, silky pubescent beneath. Flowers large, white, in dense terminal spikes, bracts ovate, reddish brown; calyx tubular, base puberulous, 3-lobed; corolla tube 0.5-0.7 cm long; lobes 4.5-5x1.5-2 cm, obovate, oblanceolate, lip obovate-suborbicular, cuneate, 3.5 cm long, white with median yellow band. Capsule 1.5-2 cm long, trigonous, bright red. Seeds 2-3 mm long, globose black.

Flowering & Fruiting: August –March.

Distribution : The plant is seen in moist localities, fields bunds, along streams, rivers or drains, shady places, sometimes in sal forests or deforested lands i.e. Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Gwalior, Hoshangabad, Indore, Jashpur, Khandwa, Khargon, Raigarh, Raipur, Rajnandgaon, Rewa, Shahdol, Sidhi and Surguja districts.

Chemical Composition : Rhizomes and stems yield diosgenin and tigogenin.

Uses: Rhizomes are bitter, astringent, purgative, depurative, stimulant, tonic antispasmodic, diuretic, depressant on central nervous system, constipation and mixed with *Asparagus racemosus* in sugar candy is given to relieve thirst and fever. Extract of rhizome is applied on body and taken orally to relieve continued fever. The steroidal compound present in the rhizome have antifertility, anti-inflammatory, antiarthritic activity. The juice of rhizome with *Acorus calamus* relieves headache. Root extract is given in cold, cough, body pain, fever and discharge of recoloured urine. Leaves are given in stomach disorders and scabies. Root used as a tonic and anthelmintic.

Antimicrobial Properties: Rhizome possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties (Das *et al*, 2010) . The shoot extract shows antinematode (*Meloidogyne incognita*) properties (Pandey, 2002).

Propagation : Through seeds & rhizomes.

Crinum asiaticum L.

Family : Liliaceae

Vern. name : Sudarsana, Kanwal

Botanical description : Herb, perennial, stout, stoloniferous. Bulbs ovoid, 5-7 cm across; neck covered with old leaf sheaths. Leaves clustered, linear-lanceolate, 30-100 cm long, coriaceous, flat, with green sheathing base. Flowers white, in 15-20-flowered umbels, fragrant at night; pedicels 0.5-2.5 cm long; bracts greenish, ovate-lanceolate, 6 cm long. Perianth hypocrateriform; lobes linear, 7 cm long, reflexed, tube 8-10 cm long, stamens red. Fruits 2-2.5 cm across, 1-2-seeded.

Flowering & Fruiting: May–October

Distribution : Occurs throughout tropical India, along streams, in dry forest floors, wild or cultivated in gardens and parks i.e. Bastar, Bilaspur, Raipur and Rajnandgaon districts.

Uses : It is useful in early stages of inflammation of bronchii and can be safely administered to children for vomiting of cough. Tuber is pungent, bitter, vulnerary, laxative, aphrodisiac and useful in bronchitis, diseases of chest, lungs, gonorrhoea, defective vision, diseases of spleen, urinary concretions, lumbago, anuria, biliousness, stringer and other urinary troubles. Fresh root is emetic, nauseant, diaphoretic. Leaves are used as external application on swellings after applying castor oil to them. Swelling is quickly removed, arrests formation of pus. Useful in whitlow and other skin diseases. Leaves as expectorant, applied to skin diseases and to reduce inflammation. Juice of leaves is used for earache. Seeds are used as tonic, purgative, diuretic and emmenagogue. It is used treat fevers, lumbago, head aches and swelling.

Vomiting is immigate yet without fatigue after it or without any side effects such as tenesmus or diarrhea. Bulb is bitter used as tonic, laxative, expectorant. Useful in biliousness, strangury emetic nauseant, diaphoretic. Leaves are used as external application on swellings after applying castor oil to them. Swelling is quickly removed, arrests formation of pus. Useful in whitlow and other skin diseases.

Antimicrobial Properties: Bulbs possess antibacterial (*Xanthomonas campestris* pv. *campestris*) while leaves possess antifungal (*Sclerotium rolfsii*) properties. Leaves extract exhibited activity against murine D1 cells and inhibit the formation of potato disc crown gall tumours (Ahmad, 1996).

Propagation : Through seeds & bulbs.

Crinum defixum Ker-Gawl.

Family : Liliaceae

Vern. name: Vishamandala

Botanical description : Herb, perennial, erect, stout, stoloniferous. Bulbs ovoid, 5 cm across; neck covered with leaf-scars. Leaves clustered at tip of short caudex, linear-oblong or linear-lanceolate, 40-90 cm long, concave or channeled above, obtuse or acute at apex. Flowers white, in 6-12 flowered umbels. Perianth hypocrateriform; lobes linear, 7-10 cm long, spreading; tube 8-12 cm long. Stamens scarlet. Fruits 2.5 cm across.

Flowering & Fruiting: July-October.

Distribution : Common in water-logged stony places, marshy and muddy places, along streams and roadside ditches, river sides of the forest area of Bhopal, Bilaspur, Jashpur, Raipur and Rajnandgaon districts.

Chemical Composition: Bulb contains a toxic principle, Leaves devoid of toxic principle, Lycorine from bulbs and seed.

Uses : Leaves and roots are a good substitute for ipecacuanha. Bulb is nauseant, emollient, emetic, diaphoretic; used for the treatment of burns, whitlow and carbuncle. Bulbs are diaphoretic, emollient and useful in burns but poisonous to cattles. They act without griping, purging or any other distressing symptoms. Medicinal properties and uses are the same as *C. asiaticum* Linn. Anti- T.B. activity of lycorine in this variety is established.

Antimicrobial Properties: Bulbs possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*) properties.

Propagation : Through seeds & bulbs.

Crinum latifolium L.

Family : Liliaceae

Vern. name: Madhoparnika

Botanical description : Large herb, bulbs globose, 12-15 cm across. Leaves numerous, broadly oblong, lorate, 15-30 cm long, bright green, obtuse at apex, glabrous. Coriaceous. Flowers white with pinkish tinge, fragrant, in 8-10, rarely 20 – flowered umbels, on 15-20 cm long stalk. Perianth infundibuliform; lobes oblong-lanceolate, up to 10 cm long, tube 7-10 cm long. Fruits 4.5 cm across.

Flowering & Fruiting: April–December.

Distribution : Along streams in open places, also introduced in the gardens and parks i.e. Bastar, Bilaspur, Mandla, Raipur and Rajnandgaon districts.

Uses : Bulbs are useful in rheumatic troubles while extract of leaves in earache.

Antimicrobial Properties: Bulbs possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties. An alkaloidal extract of bulbs has inhibition of acetylcholinesterase, an activity exploited therapeutically to raise the depressed levels of acetylcholine in the brain associated with Alzheimer's disease (Haughton *et al.*, 2004)

Propagation : Through seeds & bulbs.

Crotalaria sericea Roth.

Family : Papilionaceae

Vern. name : Jhunghunia, Jangli san

Botanical description : Erect, glabrous, annual herb, 1.0–2.0 m high. Leaves sessile, obovate, cuneate or lanceolate, oblong, especially the upper ones obtuse or rounded, mucronate at apex, glabrous above and hairy beneath, 6-20 x 1.5-10 cm. Stipules ovate, acuminate, with cordate base. Flowers 30-40 in lax racemes of 15-60 cm long. Bracts 1-2 cm long, ovate cordate. Corolla 2.5 cm long; standard sub orbicular-rounded, retuse, purplish, streaked at the base. Pods sub sessile or short-stalked 5-6 cm long. 20-30 seeded.

Flowering & Fruiting: November–June.

Distribution : In forest openings, field bunds, wastelands and along streams i.e. Balaghat, Bhopal, Bastar, Bilaspur, Chhatarpur, Gwalior, Hoshangabad, Indore, Jabalpur, Jashpur, Mandla, Raigarh, Raipur, Raisen, Rajnandgaon, Sagar, Satna, Seoni, Sahadol, Sidhi and Sarguja districts.

Uses : Plants used in scabies and impetigo. It is poisonous to livestock. It is used in lowering blood pressure.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) while seeds possess antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds.

Cryptolepis buchananii Roen. & Schult.

Family : Asclepiadaceae

Vern. name : Karanta, Nagbel

Botanical description : Glabrous twining shrub. Leaves elliptic-oblong, shortly acuminate, 18 x 6.5 cm, lateral veins close and parallel, green above, glaucous beneath. Flowers greenish-yellow, in short paniculate cymes; calyx lobes 5, lanceolate; corona sepals 5, elavate; pollen masses in pairs, granular, follicles in 2 pairs, opposite, rigid, narrowed to the tip, divaricate.

Flowering & Fruiting: April-February.

Distribution : It is distributed in open forest area, road side, hedges, in side the forest and field bunds in throughout the states i.e. Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Durg, Hoshangabad, Indore, Jashpur, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Rewa, Satna, Seoni and Sahahdol districts.

Uses : Used for the treatment of snake bite and rickets. It improves the milk deficiency in women. Yields fibre used by the tribal for cordage and for making a kind of cloth.

Antimicrobial Properties: Roots possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) while leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through cuttings and seeds.

Curculigo orchioides Gaertn.

Family : Hypoxidaceae

Vern. name: Kali musali

Botanical description : A herb, root stocks tuberous, elongate, covered with fleshy roots and remains of old leaves. Leaves very variable, linear or linear-lanceolate, 10-40 x 1-3 cm, thin but firm in texture, subsessile to petiolate; sheaths persistent, fibrous. Flowers appear almost at the ground level, bisexual, 1-3 opening at a time, yellow, on a beak-like hypanthodium. Perianth 6-lobed; lobes oblong-elliptic, outer ones hairy outside, inner ones sparsely hairy along nerves. Stamens 6. Fruits subulate to ovoid. Seed many, globose.

Flowering & Fruiting: May-September

Distribution : In sal and mixed forests of Chhattisgarh and Madhya Pradesh forests specially hilly area.

Uses : It is a bitter, aromatic tonic, viriligenic, roborant, easily digestive, diuretic and restorative. Roots are alterative and tonic. Rhizome is prescribed

in piles, jaundice, asthma, dysuric, diarrhoea, gonorrhoea, menorrhagia, leucorrhoea and menstrual derangement. It is used as poultice for itch and skin diseases. It is pounded and applied on cuts and wounds. It is pounded with ajwain and its decoction given to unconscious children. Powder used externally to heal wounds.

Antimicrobial Properties: Tuber possess antifungal (*Alternaria solani*, *Rhizoctonia solani*) properties.

Propagation : Through rhizomes and seeds.

Curcuma amada Roxb.

Family : Zingiberaceae

Vern. name: Amahaldi, Mango Ginger

Botanical description : Whole plant 60-65 cm, high; bearing scape from the centre of the leafy tuft, root stock thick, cylindrical or ellipsoid. Leaves long petiolate, in tufts, oblong-elliptic or oblong, oblanceolate, acute or acuminate, narrowed to the base, glabrous and green on both side; petioles as long as the leaf blade. Flowers in spikes 7-15 by 4-5 cm, in the centre of the tuft of leaves, peduncle 15 cm long or more; flowering bracts 2.5 cm long, greenish white. Calyx obtusely 3-toothed. Corolla white or very pale yellow, tube about 2.5 cm long; lobes oblong, acute. Filament short broad oblong, anther redinate, declinate spurs and a slight knee above base of the spurs in front, connective behind with a minute ridge. Ovary villous.

Flowering & Fruiting: July–October

Distribution : In moist places between rock boulders or near streams i.e. Balaghat, Bastar, Bhopal, Bilaspur, Hoshangabad, Indore, Khandwa, Khargon, Raipur, Rajnandgaon, Satna and Surgjua districts..

Chemical Composition : Essential oil, resin, sugar, gum, starch, albuminoids and organic acids. Clinical trials prove that it reduces serum cholesterol level considerably in hypercholesterolemic rats. Dried ginger is effective in treatment of grahaniroga.

Uses : Rhizome is bitter, appetizer, alexitonic, antipyretic, aphrodisiac, laxative, and causes vaata. Useful in biliousness, all kinds of itching and skin diseases, bronchitis, asthma, cough, fever and anaemia. Rhizome has a bitter sharp taste, diuretic, maturant, emollient, expectorant and useful in inflammatio, troubles in mouth and ear, gleet, ulcer on penis, scabies, lumbago, stomatitis. Rhizomes are astringent and useful in diarrhoea. The drug significantly improved body weight, appetite and haemoglobin percentage and controlled number of motions. It promotes digestive power,

cleans throat and tongue, dispels cardiac disorders and cures vomiting, ascites, cough, dyspnoea, anorexia, fever, anaemia, flatulence, colic, constipation, dysuria, swelling and elephantiasis. It has specific action in rheumatism and inflammation of liver. Tubers are useful in prurigo. They are used externally in the form of paste as an application for bruises and skin diseases

Antimicrobial Properties: Rhizome possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*) properties.

Propagation : Through rhizomes.

Curcuma angustifolia Roxb.

Family : Zingiberaceae

Vern. name: Tikhur

Botanical description : Herb, rhizome white-pale yellow inside, aromatic, roots ending in tubers, tubers ovoid, white inside. Leaves stalked, narrow, lanceolate, very acute, smooth on both sides; from 1 to 3 ft long (petiole & sheath included). Petioles 6-12 inches long spike radical, 4-6 inches long, separate from the leaves, crowned with a lively purple. Bracts ovate-cordate, obtuse. Flowers large, longer than their bracts, bright yellow, expanding at sunrise and decaying at sunset of the same day. Tube of corolla somewhat gibbous, contracted at the mouth, and there shut in with short hairs: throat campanulate; exterior border pale yellow, consisting of one large vaulted, upper segment, and two lower, oblong, smaller, concave ones; inner border 3-parted, the lip roundish, emarginate, or bifid, upper segments obovate, cuneate, with the filament between them. Ovary villous.

Flowering & Fruiting: May-October

Distribution : In sandy alluvial soil of river bank, some times as forest undergrowth i.e. Balaghat, Bastar, Bilaspur, Jabalpur, Jashpur, Panna, Sahahdol, Seoni and Shivpuri districts. Achanakmar forest area of Chhattisgarh is however rich with this species.

Uses : Rhizome is sweetish, fragrant, cooling, oleagenous, tonic, aphrodisiac and useful in biliousness, leprosy, burning sensation, dyspepsia, diarrhea, swelling of body, loss of taste, bronchitis, asthma, fever, thirst, jaundice, anaemia, leucoderma, stones in kidney and bladder, strangury, urinary discharges, ulcer and blood diseases. Rhizome mixed with raw *Curcuma longa* applied on body for bone fracture.

Antimicrobial Properties: Rhizome antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*) properties.

Propagation : Through rhizomes.

Curcuma aromatica Salib.

Family : Zingiberaceae

Vern. name : Banhaldi

Botanical description : Herb. Rhizomes greyish outside, yellow and strongly aromatic inside, smelling like camphor. Rhizomes ending in yellow, oblong in shape. Leaves in basal rosette, broadly lanceolate, 30-60 x 15-20 cm, uniformly green or with pale, acuminate at apex. Flowers in lateral spikes, peduncles 2.5 cm long, lower flower bracts green, upper one with pink tips. Corolla tube up to 2.5 cm long, inflated at top, pinkish white in colour. Lateral staminodes pinkish white. Spikes up to 20 x 6 cm, compact, lateral, separate from the leafy shoots.

Flowering & Fruiting: June -August

Distribution: Wild throughout different parts of both states i.e. mixed forests and shady habitats of Bastar, Bilaspur, Jashpur, Sargija, Chhatarpur, Raipur, Shahdol and Sidhi districts.

Chemical Composition : A volatile oil, resin, starch, mucilage, sugar, gum, albuminoids and curcumin.

Uses: Rhizome is bitter, carminative, appetizer, tonic, anthelmintic, aphrodisiac, astringent and aromatic, applied externally to sprains and bruises and promote eruption. It is useful in leucoderma, snake bite, pimples and early stage of cervix cancer. Rhizomes are tonic, carminative and yield orange-red dye used as substitute for turmeric. They are also externally applied to sprains, burns and swellings. Dried rhizomes are used as an aromatic adjunct to other medicines used in skin diseases and impurities of blood. Boiled in oil it is used externally as an application to sprains and bruises.

Antimicrobial Properties: Rhizome possess antibacterial (*Xanthomonas campestris* pv. *campestris*) while leaves possess antifungal (*Colletotrichum capsici*) properties.

Propagation : Through rhizomes.

Curcuma caesia Roxb.

Family : Zingiberaceae

Vern. name : Shyama haldi

Botanical description : Perennial herb, rhizomes greyish outside, blue inside. Leaves in basal rosette, broadly lanceolate, acuminate at apex, 30- 60 x 10-20 cm, uniformly green or with pale to deep purple band along mid rib above. Bracts 4-5 cm long, ovate, brightened; Leaf blade 30–45 cm in length and width. Spike produced dense, 5-6 x 2.5–3 in diameter. Flower bracts green, ovate, very obtuse, 4.5 cm. Flowers pink in colour, rather shorter than the bracts, lip 1.25 cm, 3–lobed. Calyx cylindrical, split on one side. Corolla tube up to 2.5 cm long, inflated at top, hairy in the throat; lip yellow, obovate, sub-entire on obscurely, 3 lobed.

Flowering & Fruiting: May-August

Distribution: Wild throughout India and cultivated chiefly in Bengal and Trvancore. Occasionally found in the mixed forests and shady habitats. It has been recorded from Bastar, Bilaspur Chhatarpur, Raipur and Sidhi districts.

Uses: Rhizome is bitter, pungent, stimulant, carminative, appetizer, tonic, anthelmintic, aphrodisiac, astringent and aromatic. It is useful in leucoderma, disease of blood, piles, bronchitis, tumors, tuberculosis, asthma, cervix cancer, snake bite and pimples. Rhizomes are tonic, carminative and yield orange-red dye used as substitute for turmeric. They are also externally applied to sprains, burns and swellings. Dried rhizome is used as an aromatic adjunct to other medicines used in skin diseases and impurities of blood. Boiled in oil it is used externally as an application to sprains and bruises.

Antimicrobial Properties: Leaves and tubers possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*) properties. The methanol extract of the plant was most effective in 100% arresting the mycelia growth of pathogens *Rhizoctonia solani* and *Sclerotium rolfsii* (Das et al.,2010) and *Xanthomonas oryzae* (Das et al., 2012).

Propagation : Through rhizomes.

Cymbopogon flexuosus Steud.

Family : Poaceae

Vern. name: Lemon grass

Botanical description : Perennial herb, culms 1-2 m high, erect or ascending, tufted. Leaves up to 1 m long; median nerve very thick, spatheolate at base; sheaths tight, glabrous, striate; ligules membranous, truncate. Inflorescence 30-50 cm long, decompound (tertiary branching). Sessile spikelets bisexual, pale green, lanceolate, 5-6 mm long; awns 9-11 mm

long. Lower glume equalling the spikelet, winged, 4-nerved, with 2 shallow pits at base; upper glume equal to lower. Male spikelets violet or reddish at summit. Anthers 3, yellow, 1.5-2 mm long.

Flowering & Fruiting: February - April.

Distribution : Grown in gardens and cultivated throughout both states.

Chemical Composition : leaf oil contain citrol.

Uses : Herb is stimulant, diaphoretic, anti-spasmodic. Oil is carminative in cholera and tonic. Leaves are chewed in Samoa for sore gums, used for elephantiasis. Infusion of leaves is sudorific, stimulant and antiperiodic, useful in catarrh. Juice applied in headache.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The leaves has antinematode (*Meloidogyne incognita*) properties (Pandey, 2002).

Propagation : Through seeds and slips

Cymbopogon martinii (Roxb.) Wats.

Family : Poaceae

Vern. Name: Palmrosa or Rosa grass

Botanical description : Perennial herb, culms 1.5-2 m tall, erect, tufted glabrous; lower nodes often swollen. Leaves linear-lanceolate, flat, cordate and amplexicaul at base, glabrous; sheaths terete, glabrous; ligules membranous. Inflorescence a compound panicle; spathe 3-6 cm long; spatheole 2 cm long, enclosing 3-6 spikelets. Sessile spikelets ovate or ovate-oblong, 3-5 mm long, awned. Lower glume ovate-oblong, obtuse, grooved on the back; upper glume lanceolate, acute; keel winged, serrulate. Lower floret empty. Lemma 3.5 mm long, nerveless, ciliate, awned, palea absent. Upper floret bisexual, lemma 3 mm long, 2-lobed, awned, pedicellate spikelets male. Lower glume lanceolate-oblong, obtuse; upper glume 3-nerved, lemma hyaline. Anthers 3, yellow-brown, 2.5-3 mm long. Caryopsis oblong, 2.5-3 mm long.

Flowering & Fruiting: September – February

Distribution: Common in sal and mixed forests, cultivated fields i.e. Bastar, Bilaspur, Gwalior, Hoshangabad, Raigarh, Rajnandgaon and Sidhi districts.

Uses : The plant is acrid, bitter, thermogenic, appetizer, carminative, digestive, cardi tonic, depurative, galactagogue, diuretic, pseudoreffice, and

febrifuge. The plant is useful in vitiated conditions of kapha and vata, neuralgia, bronchitis, cough, catarrh, helminthiasis, anorexia, dyspepsia, colic, cardiac debility, laprosy, skin diseases, agalactia, strangary, epileptic fits in children, pharingopathy and fever.

Antimicrobial Properties: The essential oil in 0.1% concentration completely inhibit the cells of *Saccharomyces cerevisiae* (Prashar *et al.*, 2003). The methanol leaf extract is effective against *Salmonella*, *Klebsiella*, *Staphylococcus* and *Enterobacter* human pathogen (Prasad and Sushant Sekhar, 2013).

Propagation : Through seeds and slips

Cymbopogon winterianus Jowitt.

Family : Poaceae

Vern. name: Jawa grass, Citronella grass

Botanical description : Perennial herb, culms 1-2 m tall, erect or ascending, tufted. Leaves up to 1 m long; median nerve very thick, spatheolate at base; sheaths tight, glabrous, striate; ligules membranous, truncate. Inflorescence 30-50 cm long, decomound. Sessile spikelets bisexual, pale green, lanceolate, 5-6 mm long; awns 9-11 mm long, lower glume equalling the spikelet, winged, 4-nerved, with 2 shallow pits at base; upper glume equal to lower. Male spikelets violet or reddish at summit. Anthers 3, yellow, 1.5-2 mm long.

Flowering & Fruiting: February-April

Distribution : Cultivated throughout both the states.

Chemical Composition : Cymbopogone from leaf wax. Cymbopogonal.

Uses : Aromatic oil from leaves is used to prepare mosquito repellent, soap, perfumes and cosmetics.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties. It also shows antinematode (*Meloidogyne incognita*) properties (Pandey, 2002).

Propagation : Through seeds and slips

Cynodon dactylon (L.) Pers.

Family: Poaceae

Vern. name : Doob, Durva

Botanical description : Perennial herb, stem slender, creeping, rooting at all nodes; branches erect. Leaves narrowly linear, flat, up to 8x 0.3 cm; spikes 3-7, umbellate, spikelets sessile, laterally compressed, arranged in two alternating series on the rachis, each spikelet one-flowered, glumes 3, 1 and 2 empty, boat-shaped, membranous, 3. Nerved, plea 2– nerved, both enclosing a bisexual flower, lodicules 2, short, glabrous, stamens 3, ovary glabrous. Fruit oblong, laterally compressed 2, short, glabrous, stamen 3, ovary glabrous, fruit oblong laterally compressed grain.

Flowering & Fruiting: Throughout the year under moist condition.

Distribution : The plant is a very common weed and found throughout both the states i.e. M.P. and C.G.

Chemical Composition : An alkaloid from the plant caused a slowing of blood flow in mesenteric capillaries of rats and mice. A glycoside from the plant caused hypotension in cat.

Uses : whole plant is used as the drug and it is a good remedy in epitaxis, haematuria and scabies. The drug is cooling, astringent, demulcent, diuretic, ophthalmic, haemostatic and suppurative. Rhizome useful in genito-urinary disorders. Pollen extraction used in rhinitis and asthma. The plant checks bleeding from cut and wounds and useful in fever, burning sensations, chronic diarrhoea, dysentery, dropsy, bleeding piles, eye affections, epilepsy, hysteria and insanity and for antifertility in women.

Antimicrobial Properties: The aqueous extract of whole plant possess antimicrobial activity against *Pseudomonas aeruginosa*, *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Proteus mirabilis* (Rao *et al.*, 2011). Chaudhari *et al.* (2011) reported its antibacterial activity of leaves against infectious disease causing bacterial pathogens (*Bacillus subtilis*, *Streptococcus pyogens*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Escherichia coli*, *Proteus mirabillis* and *Pseudomonas aeruginosa*).

Propagation : Through seeds & slips.

Datura stramonium L.

Family : Solanaceae

Vern. name : Datura

Botanical description : Robust, branched, pubescent undershrub, up to 1.5 cm tall. Leaves ovate, 3-angular to elliptic, obliquely rounded at base, acute or acuminate, repand dentate to lobed, up to 28 x 15 cm, hairy beneath. Flowers large, on short stout pedicles. Calyx subterete, 5-10 cm long; the tube inflated; lobes short, 3-angular, acuminate. Corolla long exserted, white or slightly purplish; lobes 5. Staminal filaments hairy at base. Capsule

depressed, globose irregularly dehiscent; prickles short, conical 2-5 mm long. Seeds compressed, rugose, brown.

Flowering & Fruiting: August –March

Distribution : Commonly grown as a weed in waste places, in garden, in unused places, along sides of roads or railway tracts and cultivated field bunds i.e. Bilaspur, Indore, Jabalpur and Shahdol districts.

Chemical Composition : The major constituent are tropane alkaloids which vary from 0.25-0.4%, two-third of which is hyoscyamine and one-third is hyoscyne. A number of withanolides have also been reported from the plant.

Uses : Leaves and flowering tops constitute the drug stramonium, hyoscyamine is the chief alkaloid. They are acrid, astringent, antiseptic, antiphlogistic, antispasmodic, anodyne bitter, germicidal, narcotic, mydriatic and sedative. Leaves & corolla used in cigarettes for asthma. Seeds quite often employed for homicidal purposes. It is used in skin diseases such as itching, scabies, ulcers, leprosy and dandruff. It is a reputed drug in the treatment of rabid dog-bites and poisonous insect bites. The drug gives good complexion, improves digestion and cures skin diseases fever, dysuria, anaemia and inflammatory swellings. It is also useful in respiratory ailments, ear ache, eye diseases, insanity rheumatism, epilepsy, convulsions, small pox, hydrocele, whooping cough, asthma, gonorrhoea, syphilis, mumps. Seeds useful for decaying teeth and pain in chest. Dhatura is toxic, narcotic, aphrodisiac; applied topically it removes pain of tumours and piles. It is anodyne, and anti-spasmodic and is used chiefly to relieve the spasm of the bronchioles in asthma. Leaves are used in the treatment of parkinsonism. Ointment is used in the treatment of haemorrhoids. Leaves after roasting are applied locally to relieve eye pain. They are applied to boils, sores and juice of flowers is used for earache. The juice from fruits is applied to scalp for curing dandruff and falling hair. Kanaka Asava, an Ayurvedic preparation is used as demulcent, expectorant and anodyne in coughs, asthma and phthisis. The drug is mostly used in crude form as anticholinergic agent in case of asthma and intestinal disorders.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) while seed possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties. The crude alcoholic extract of leaves exhibited antibacterial activity against pathogens isolated from infected burn patients (Gnanamani *et al.*, 2003). Leaf and root both reduces the damage of stored grain caused by *Sitophilus oryzae* and *Prostephanus truncates* (Niber, 1994).

Propagation : Through seeds.

Desmodium gangeticum (L.) DC.

Family : Papilionaceae

Vern. name : Shalparni

Botanical description : Suberect, diffusely branched under shrub. Leaves unifoliolate, alternate, stipulate, leaflet ovate-acute, to 14 x 10 cm. Flowers small, pink in terminal elongate racemae. Calyx campanulate, hairy outside, with triangular teeth. Corolla papilionaceous, exserted; stamens diadelphous; ovary sessile, manyovuled, style filiform, incurved, stigma capitate. Fruit compressed, moniliform, 6-8 seeded.

Flowering & Fruiting: August - January

Distribution: The plant is distributed throughout forests of Chhattisgarh and Madhya Pradesh.

Chemical Composition: 5 – Methpry - N, N - dimethytriptatmine, N, N dimethyltetrahydroharman, 6-methoxy-2-methyl β -carbolinium cation from aerial parts. Seeds contain β -carboline alkaloids, Gangetinin and desmodin.

Uses: Roots used as febrifuge, expectorant and diuretic. The root is one of the constituent of *Dashmula*, act as expectorant and vitalizer tonic. It is useful in burning sensation, fever, thirst, cough, difficulty in breathing, dysentery and vomiting. Root is used in snake bite, scorpion sting, asthma and chronic fever.

Whole plant is considered antipyretic and anticatarrhal and used for hazy vision and dysentery. It is a good cardiotonic. It is hot, sweet, diuretic, laxative and nervous tonic. Root is hot and bitter, astringent in diarrhea, tonic, diuretic, alterative, aphrodisiac, anthelmintic; used in chronic fever, biliousness cough, asthma, snake-bite, scorpion sting.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Desmodium heterocarpon (L.) DC.

Family : Papilionaceae

Vern. name : Ghunghunian, Mohini

Botanical description : Perennial herb or undershrub, 0.5-1.5 m high with angular slender appressed hairy branches. Leaves 3- foliolate; rachis 2-4 cm long; stipules lanceolate; leaflets elliptic-oblong, obovate or oblanceolate,

obtuse or rounded at base, terminal leaflets 2-9 x 1-4 cm, glabrous above, pubescent beneath. Flowers in 2-10 cm long terminal or axillary racemes or panicles. Calyx campanulate; teeth unequal, lanceolate. Corolla bluish purple. Pods linear, curved, 1-3 cm long, joints 5-8, with spreading hairs along sutures.

Flowering & Fruiting: September–March.

Distribution: In sal forests i.e. Balaghat, Bastar, Bilaspur, Chhind-wara, Hoshangabad, Mandla, Raigarh, Raipur, Rajnandgaon, Sagar, Seoni, Shahdol, Sidhi and Surguja districts.

Uses : Medicinal, decoction considered good tonic and useful for cough.

Antimicrobial Properties: Roots and Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties while fruits possess only antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Demodium laxiflorum DC.

Family : Papilionaceae

Vern. name: Latkani, Kariya Okhad

Botanical description : Undershrub, 0.5-1.5 m high with appressed hairy quadrangular branches. Leaves 3-foliolate; stipules triangular, pubescent; leaflets ovate, lanceolate, acute or rhomboid, rounded at base, glabrous above, hairy beneath; terminal leaflets 8-15 x 4-8 cm, lateral about half as long. Flowers in 12-40 cm long axillary or terminal racemes or fascicled; bracts lanceolate. Calyx hairy; teeth longer than the tube. Corolla purple; standard white; keel and wings blue or violet. Pods linear, 2.5-4 cm long, 4-6 cm long, 4-6-jointed, clothed with minute hooked hairs.

Flowering & Fruiting: September- December

Distribution: In moist places and sal forests i.e. Balaghat, Bastar, Bilaspur, Hoshangabad, Jabalpur, Jashpur, Mandla, Rajnandgaon, Shahdol and Surguja districts.

Uses : Decoction of leaves considered to be useful for fever. Leaves and roots possess antibacterial and antifungal properties.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds .

Desmodium motorium (Houtt.) Merr.

Family : Papilionaceae

Vern. name: The telegraph plant

Botanical description: Erect perennial herb or undershrub, 1-15 m high with striated branches. Leaves 3-foliolate; leaf-rachis 2-2.5 cm long; terminal leaflet elliptic, oblong or oblong lanceolate, rounded at both ends, 2.5-10 x 0.5-1.3 cm, glabrous above, silky beneath, lateral leaflets much smaller. Flowers in axillary and terminal racemes, often paniced; bracts large, ovate, acuminate, concealing the bud. Calyx campanulate, glabrous; teeth deltoid. Corolla purplish pink. Pods 2.5-4.5 cm long, falcate, 6-10-jointed, pubescent, dehiscing along the ventral suture.

Flowering & Fruiting: September- February.

Distribution : In mixed forests, among rocks i.e Balaghat, Bastar, Bilaspur, Chhindwara, Hoshangabad, Jabalpur, Mandla, Raigarh, Rajnandgaon, Shahdol, Sidhi and Surguja districts.

Uses : Leaves and seeds are medicinal. Leaves are reported to have antibacterial properties, considered as carminative, tonic diuretic, and used in bilious complaints, cough and asthma.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Desmodium pulchellum (L.) Benth.

Family : Papilionaceae

Vern. name: Chipoto, Katla

Botanical description: Shrub or undershrub, 0.5-2 m high with grey hairy branches. Leaves trifoliolate, petioles 5-15 mm long; stipules deltoid, acuminate, 4-6 mm long, leaflets elliptic to ovate-oblong, obtuse at apex, rounded at base, glabrous above, downy beneath; terminal leaflets 6-15 x 1.5-4 cm laterals about half as long. Flowers in terminal or axillary 10-50 cm long racemes composed of 2-6 flowered umbellules, each umbellute subtended by a pair of orbicular, leaflike bract placed back to back. Calyx hairy, teeth lanceolate. Corolla yellow or white, tinged with pink. Pods less than 1 cm long, 2-jointed, constricted at both sutures.

Flowering & Fruiting: September–May.

Distribution: In sal forests i.e. Balaghat, Bastar, Bilaspur, Damoh, Jabalpur, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Satna, Seoni, Shahdol, Sidhi and Surguja districts.

Uses: Bark considered to be medicinal. Decoction of bark is used to treat diarrhoea, haemorrhage and eye diseases. The flowers are given for biliousness.

Antimicrobial Properties: Roots possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Dioscorea bulbifera L.

Family : Dioscoreaceae

Vern. name: Dang kanda

Botanical description: Large climber; tubers solitary, globose-pyriform, 10-15 cm across, subsessile, stems twining to the left, terete, grooved, bulbils abundant, axillary, rounded. Leaves simple, alternate, broadly ovate-cordate, 10-30 x 8-28 cm, subcuadrate at apex, cordate at base, glabrous. Male flowering axes 1-4, on up to 1 m long leafless branches, pendulous. Flowers white, pink or brownish white, fragrant. Stamens 6, fertile. Female flowering axes 1 or 2 from a leaf axil, directed downwards. Capsules oblong, slightly widened upwards; wings rounded, 20-22 x 7-1- mm. Seeds winged at base.

Flowering & Fruiting: July - November

Distribution : Common in mixed and sal forests and on slopes of embankments. Balaghat, Bastar, Bilaspur, Damoh, Dhar, Durg, Hoshangabad, Indore, Jabalpur, mandla, Panna, Raigarh, Raipur, Rajnandgaon, Rewa, Satna, Seoni, Sidhi and Surguja districts.

Uses : Tubers used in piles, dysentery, syphilis and ulcer. The tubers are used as remedies against sore throat, boils, swelling and poisonous snake bites. Diosbulbin-B, a furanoid diterpene isolated from the leaves and stems (Yonemitsu et al., 1993).

Antimicrobial Properties: Fruits possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*) properties.

Propagation : Through tubers.

Dioscorea hispida Dennst.

Family : Dioscoreaceae

Vern. name : Baichandi

Botanical description : An extensive prickly twiner, terminal leaflet large, 10-20 x 5-9 cm., elliptic-oblong, acuminate, oblique, male flowers in dense pedunculate spikes, arranged in fascicles along axillary, 16-15 cm long racemes, female spikes solitary, capsule quadrately oblong, polished. Seeds winged at the top.

Flowering & Fruiting: September- March

Distribution : Common on hill slopes and in mixed forests i.e. Balaghat, Bilaspur, Hoshangabad, mandla, Raipur, Rajnandgaon, Rewa, Seoni and Surguja districts.

Uses : Juice of the tubers used on boils with *Calotropis procera*, with root of *Solanum surattense* for sores and with bark of *Shorea robusta* for bite of mad dog or jackal.

Antimicrobial Properties: Rhizome possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, leaves possess antifungal (*Rhizoctonia solani*) properties.

Propagation : Through tubers.

Dioscorea pentaphylla L.

Family : Dioscoreaceae.

Vern. name : Barahakanda

Botanical description : Climbers, stems twining to the left, prickly at base, bulbils globose-ellipsoed. Leaves alternate. 3-5-foliolate, glabrous or sparsely to densely pubescent beneath; middle leaflet elliptic-oblanceolate. 6-12 x 2-6 cm, acuminate at apex, oblique at base; lateral leaflets smaller, inequilateral. Male flowers white, in dense, pubescent, pendent, axillary or terminal panicles borne on large leafless branches, stamens 3, fertile, inserted at the base of the tepal. Female flowers in slender racemes, 2 to 3-nate. Capsules oblong, ascending, pubescent when young; wings up to 20x6 mm. Seeds winged at base.

Flowering & Fruiting: August-January

Distribution : Common in forests and along roadsides i.e. Balaghat, Bastar, Bilaspur, Jabalpur, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Seoni and Sarguja districts.

Uses : Tubers used for dispersing swellings, tonic, rheumatism, bite, cough and asthma.

Antimicrobial Properties: Fruits possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*) properties while leaves only possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through tuber.

Dioscorea wightii Hook.

Family : Dioscoreaceae

Vern. name : Terguriakand

Botanical description: Climber, stems twining to the right, slender, pale, glabrous, neither winged nor angled, etc. unarmed. Leaves simple, ovate, 5-8 x 2.5-5 cm, acuminate cordate at base, membranous, reticulate beneath; petioles 2-3 spikes slender, simple, rarely branched. Flowers solitary, settled by a broad base. Tepals erect. Filaments much minute. Capsules whitish green, trigonous. Seeds broadly winged.

Flowering & Fruiting: October–December

Distribution: Throughout India mostly along deciduous forest. In Chhattisgarh, this species has been recorded in Bastar forest division.

Uses : Rhizomes used on anthelmintic and useful in leprosy, piles, gonorrhoea and worms.

Antimicrobial Properties: Tuber possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Sclerotium rolfsii*) properties.

Propagation : Through rhizomes.

Diplocyclos palmatus L.

Family : Cucurbitaceae

Vern. name : Shivlingi, Bundela

Botanical description : An annual climbing herb. Plant is monoecious; branches slender. Leaves 3-5 lobed, tendrils branched, male flower greenish-yellow, small; in axillary fascicles. Female flowers few in leaf axils along with the male flowers. Berries globose, greenish with white vertical bands.

Flowering & Fruiting: September -January

Distribution : In sal and mixed forests, on bushes and hedges i.e. Bastar, Balaghat, Bilaspur, Hoshangabad, Morena, Sidhi and Raipur districts.

Chemical Composition: Bryonin, the bitter principle. Seed oil a source of punicic acid.

Uses : Plant has a bad smell, hot, bitter, aperient, tonic, pungent, alterative and used in bilious attack and fever with flatulence. Leaves are applied externally to inflammations. Root and seed powder given to help conception in women. The whole plant is used in headache, enlarged spleen, paralysis of tongue, colic pain, delirium, convulsion, sores, syphilis, carbuncle, stomach swelling, tumour, constipation and snake bite.

Antimicrobial Properties: Fruit possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*) properties.

Propagation : Through seeds.

Eclipta prostrata (L.) L.

Family : Asteraceae

Vern. name : Bhringaraj, Bhringra

Botanical description: Erect or prostrate, strigosely hairy herb. Leaves acute; to 10.5 x 2.5 cm, serrulate on margins; flowers small, white, in axillary, peduncled rayed heads; involucre companulate, bracts biseriate, the outer broader, receptacle flat with slender plumose paleae. Ray florets pistillate, disc florets bisexual; pappus of two minute connate scales; corolla of female flowers ligulate, 2-fid and those of bisexual flowers tubular with 4-5 lobes; stamens 5, epipetalous, syngenesious; ovary inferior, unilocular, I-ovuled; achenes of ray florets triquetrous, warted, those of disc florets compressed.

Flowering & Fruiting: September–January

Distribution : Common in moist waste places, bunds of cultivated fields i.e. Bastar, Bilaspur, Durg, Hoshangabad, Damoh and Raipur districts.

Chemical Composition: Plant has been found to posses myocardial depressant and hypotensive effect. It is found to be effective in the treatment of infective hepatitis and against liver injury and inflammation. Leaves contain stigmasterol and a-ter-thienylmethanol. Alkaloids ecliptine and nicotine. Sixteen new biogenetically closely related polyacetulenic thiopogenes isolated.

Uses : Tonic and deobstruent, used in hepatic and spleen enlargement and in skin troubles, asthma, worms, cough and strengthen body. Source of a black stain enters into preparation for darkening hair and root emetic and purgative also applied to the wounds in cattle's. Leaves are used in scorpion sting and jaundice. Flowers are used in toothache.

Bhringaraja is acid, bitter, hot and dry, reduces kapha and vaata and is a good rejuvenator. It is good for the hair and skin, expels intestinal worms, cures cough and asthma and strengthens body. It is a specific in nightblindness, eye diseases, headache and diseases pertaining to hair and its growth. Juice of plant in combination with aromatics administered for catarrhal jaundice. Juice of leaves along with honey used as remedy for catarrh in infants. Decoction of leaf and root is liver tonic. Root is emetic and purgative; applied externally as antiseptic to ulcers and wounds in cattle. A

preparation obtained from the juice of leaves boiled with sesamum or coconut oil is used for anointing the head to render the hair black and luxuriant. Fresh plant is considered anodyne and absorbent. It is rubbed on the gums in toothache and applied with a little oil for relieving headache. It is also applied with sesamum oil in elephantiasis. Drug is extensively used against jaundice.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*) properties. It has good analgesic activity in chronic pain in different disease state (Mahesh-Sawant *et al.*,2004).

Propagation : Through suckers.

Elephantopus scaber L.

Family : Atractaceae

Vern. name : Shahastramul

Botanical description : Annual erect dichotomously branched herb, 20-30 cm high. Leaves mostly radical, 10-15 x 3.5-5 cm, ovate-oblong or oblanceolate, coarsely serrate or dentate, cauline leaves small, amplexicaul. Heads numerous, 2-2.5 cm diameter, containing homogamous flowers. Corolla tubular having 5 lobes. Anther lobes auricled at base.

Flowering & Fruiting: January-March.

Distribution: Common in mixed dry deciduous forests i.e. Bastar, Damoh, Rajnandgaon, Raipur, Satna, Sagar, Sidhi and Sarguja districts.

Uses: Plant is light, cooling, astringent, abortifacient, diuretic, cardiac tonic and good for the liver. Roots is used to control vomiting, ulcers, eczema, pimples, digestive disorders, mental weakness, diabetes, fever, constipation, bronchial troubles and cures "Filariasis". Decoction of root and leaves is given to dysuria, diarrhea, dysentery, swellings and pain in stomach.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Elephantopus scaber (L.) Maton.

Family : Zingiberaceae

Vern. name: Chhoti-elachi

Botanical description: Herb, rootstocks branched, fleshy or woody. Leaves oblonglanceolate, gradually tapering at apex, entire glabrous above, pubescent beneath, subsessile. Flowers erect or prostrate panicles; bracts linearoblong, persistent. Calyx tubular, unilaterally split. Corolla white, labellum white with violet stripes, emarginate at apex. Anthers obscurely crested. Capsules subtrigynous.

Flowering & Fruiting: January onwards.

Distribution : Wild or cultivated. Recorded from Bastar, Bilaspur and Bhopal forests.

Uses : It has carminative and stimulant properties, but it is rarely prescribed alone, commonly either as adjuvant or correctives of cordial, tonic and purgative medicines; also used as a spice and masticatory. Seeds are aromatic, stimulant, carminative and used as condiments for flavouring dishes.

Antimicrobial Properties: The acetonic fruit extract possess antimicrobial activity against *dental caries caused by Staphylococcus aureus, Candida albicans, Saccharomyces cerevisiae Streptococcus mutans and Lactobacillus acidophilus* (Aneja and Joshi, 2009). The seed extract also possess antimicrobial properties against human pathogenic bacteria Gram positive: *Staphylococcus aureus, Streptococcus-β-haemolytica, Bacillus subtilis, Bacillus megaterium,* and *Sarcina lutea* as well as Gram negative: *Klebsiella pneumoniae, Pseudomonas aeruginosa, Salmonella typhi, Shigella dysenteriae,* and *Shigella sonnei* (Islam *et al.*, 2010).

Propagation : Through rhizomes and seeds.

Emblica officinalis Gaertn.

Family : Euphorbiaceae

Vern. name: Anola, Amla

Botanical description: Tree, deciduous, up to 8 m high; bark grey, peeling off in irregular pieces. Leaves oblong, 8-14 x 2-3 mm, obtuse at apex, obliquely subcordate at base; stipules ovate, 1-1.5 mm long. Flowers in axillary clusters towards lower portion of branchlets, greenish yellow. Male tepals 6, oblong, 1-1.2 mm long, obtuse. Stamens 3; filaments connate. Female tepals 6, oblong, 1.2-1.5 mm long, obtuse, valvat. Styles connate at base, twice 2-fid. Drupes globose, 3-5 cm across, obscurely 6-lobed. Seeds ca 6 mm long, dark brown, 3-angled.

Flowering & Fruiting: March-December

Distribution: Common in mixed forests throughout the states, also planted for its edible fruits i.e. Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Durg, Hoshangabad, Mandla, Panna, Rewa, Satna, Rajnandgaon, Sidhi, Shivpuri and Surguja districts.

Chemical Composition: Fruits and leaves contain tannins; polyphenolic compound, 1,3,6- trigalloylglucose, terchebin, corilagin, ellagic and phyllenbic acids also alkaloids phyllantidine and phyllantine. Leaves and stem yield lupeol and β -sitosteerol. Seed fat contained linoleic acid and closely resembled linseed oil; ellagic acid and lupeol from roots. Fruit rich source of Vitamin C. Phyllembin from fruit pulp identified as ethylgallate. It has mild depressant action on CNS and spasmolytic action. It potentiates action of adrenalin.

Uses : The plant is highly medicinal and exploited for the preparation of local and ayurvedic medicines i.e. *Chywanaprash*, *Arogyawardhani*, *Triphala* etc. Various plant parts are used in toothache, sores, fever, anaemia, epilepsy, pimples, rinder pest and gonorrhoea. Fresh roots are used in jaundice. Leaves are used as gastro-intestinal tonic, cardio tonic, antipyretic and antidiabetic. The fruits are acrid, cooling, refrigerant, diuretic, laxative and used in mild purgative, improving liver function, cancer, diarrhoea, dysentery, hair fall, ulcer and richest source of vitamin C. Seeds are used in asthma and bronchitis. Fresh roots as a remedy for jaundice. Leaf extract is antibacterial. Decoction of leaves is useful for ulcers in mouth. Infusion of leaves mixed with Fenugreek seeds is useful in chronic dysentery. Flowers are cooling, refrigerant and aperient.

Antimicrobial Properties: Fruit extracts causes immune-suppression in the treatment of arthritis (Lilly-ganju *et al.*, 2003).

Propagation : Through seeds.

Embelia tsjeriam (Roem. & Schult.) A. DC.

Family : Myrsinaceae

Vern. name: Vaividang

Botanical description : Shrub or small tree, deciduous, 2 m high. Leaves obovate-oblong or obovate, 5-11 x 3-6 cm. acute-acuminate at apex, cuneate at base, entire or obscurely serrulate, rusty pubescent beneath. Flowers in axillary racemes, bracteate. Calyx-segments 4-5, glandular, persistent. Corolla greenish white; lobes 5, free or slightly connate at base. Drupes globose, red, with persistent style forming filiform beak.

Flowering & Fruiting: August – November

Distribution : In sal and mixed forest i.e. Balaghat, Bastar, Bilaspur, Chhindwara, Hoshangabad, Jashpur, Panna, Raigarh, Raipur, Rajnandgaon, Sagar, Sahahdol, Seoni Sidhi and Surguja districts.

Chemical Composition : : Fruits contain 2 to 3 per cent embelin. Berries contain vilangin.

Uses : Root improves digestion, cures flatulence and colic and used as an antifertility drug. Pulp is purgative. Fresh juice is cooling, diuretic and laxative. Infusion of roots is given for coughs, tapeworms and diarrhoea. Paste of root-bark is applied externally to chest in pneumonia while its powder is a good remedy for toothache. Fruits are acrid, light, astringent, carminative, anthelmintic, stimulant, alterative, Fruit cures dental, oral, cure pyorrhoea and throat troubles. A paste of seeds is applied locally against ringworm and seed powder is used as an errhine in cold and headache. A decoction of seeds is beneficial in fevers, skin diseases and chest complaints.

Antimicrobial Properties: Roots and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) while, seed possess only antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seed and cuttings.

Equisetum diffusum D. Don.

Family : Equisetaceae

Vern. name: Hathjodi

Botanical description : Small plant, stems 30–50 cm long, erect, sterile and fertile stems alike, short firm, diffused; branchelets 5–6 at each node in whorl; internodes 2-4 cm, ridged, sheaths loose up to 1 cm long, linear-lanceolate, entire, 6-12 square grooved ribs. Strobilus stalked, 1-2 cm long, oblong-cylindrical.

Distribution : Common in the edge of forest in water logged sandy places i.e. Bastar, Bilaspur, Raigarh, Raipur, Shahdol, Sidhi and Shivpuri districts.

Uses: The whole plant is used for bone binding, bone healings, wounds healing and as pain killer.

Antimicrobial Properties: Whole plant possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through suckers.

Eucalyptus tereticornis Haines.

Family : Myrtaceae

Vern. name: Nilgiri

Botanical description : Tall tree with smooth ashy grey or white bark and slender branches. Leaves alternate, lanceolate-falcate; secondary nerves prominent; oil-dots scanty or obscure. Umbels short- peduncled, 4–8 fid, lateral or supra-axillary or solitary. Calyx-tube semi-globose, lid often much elongated in a gradually tapering cone. Fruits sub-globose, top more protruding. The seedlings have opposite and almost oval leaves.

Flowering & Fruiting: August -January

Distribution : Planted along road sides and in forests i.e. Bilaspur, Balaghat, Chhatarpur, Indore, Narsimhapur, Raigarh, Raipur, Rajnandgaon, Satna, Sidhi, shivpuri and Surguja districts.

Uses : Root is mild purgative. Leaves are febrifuge, carminative, stimulant, expectorant, diaphoretic and antiseptic. They increase flow of saliva, gastric and intestinal juices and thus increase appetite and digestion. Infusion of leaves is given in aphthous ulcerations of mouth and applied locally in erysipelas. Lotion is useful for foul ulcers. Inhalation of fumes is beneficial in respiratory affections. Antimalarial properties are attributed to volatile oil. It is a powerful antiseptic and disinfectant. Gum is mild astringent and used in diarrhoea.

Antimicrobial Properties: The essential oil constituent pinene (32%) and cineole (22%) antioxidant exhibit a strong fungitoxicity against phytopathogenic fungi such as *Fusarium oxysporum*, *Rhizoctonia solani* and *Heminthosporium oryzae* (Kaur *et al.*, 2011). The oil exhibit maximum zone of inhibition against *Pseudomonas* spp. (Bachheti *et al.*, 2011).

Propagation : Through seeds and cuttings.

Euphorbia hirta L.

Family : Euphorbiaceae

Vern. name: Dudhi, dudali

Botanical description : An erect or ascending annual herb with hairy stems, 20-35 cm high, often branched from the base. Leaves ovate-oblong to elliptic, 1.5-2.5 x 0.5-1.5 cm, subobtuse at apex, oblique, rounded or cuneate at base, serrulate; stipules subulate. Cyathia in axillary, capituliform cymes. Involucres campanulate; lobes acute, hairy; glands orbicular, truncate at apex, with an obsolete appendage. Capsules depressed globose, 1 mm across,

3-lobed, appressed pubescent. Seeds globose, 9 mm across, 4-angled, slightly transversely rugose, reddish.

Flowering & Fruiting: August –October

Distribution : Common in waste moist places, road-sides, gardens, rice fields, i.e. Balaghat, Bilaspur, Chhatarpur, Damoh, Durg, Hoshangabad, Indore, Jabalpur, Raipur, Satna and Tikamgarh districts.

Chemical Composition: Alkaloid, essential oil. I-inositol and an alkaloid xanthorhamnin Leucocyanidol, quercitol, camphol, quercitrin, quercitol derivatives containing rhamnose and chlorophenolic acid isolated. Aerial parts, choline, shikinic acid, I-inositol and sugars. L-hexacosanol, 24-Me-enacycloartenol, tenol, cycloartenol, β -sitosterol, euphorbol hexacosonate, B-amyrin-OAc, tinyatoxin, 2 derivatives of deoxyphorbol-AOAc and ingenol-tri-OAc. Stem, hentriacontane, myricyl alcohol, taraxerol etc. Flower, ellagic acid. Leaves and stems triterpenoids and usual sterols. Roots 2 derivatives of deoxyphorbol-OAc, ingenol-tri-OAc and taraxerone.

Uses : It is demulcent, antispasmodic, anti-asthmatic pectoral, anthelmintic and local parasiticide. Plant is chiefly used in the affections of childhood, in worms, bowel complaints and cough, postnatal complaints, failure of lactation and breast pain. Extract of plant has depressant action on cardiovascular system, a sedative effect on mucous membrane of respiratory and urino-genitoury tract. Juice of plant is given in dysentery, colic and milk applied to destroy warts. Decoction of plant is used in bronchial affections and asthma. Latex is vermifuge and used in diseases of urino-genitoury tract, warts, cough, bronchial and pulmonary disorders.

Antimicrobial Properties: Roots possess antifungal (*Colletotrichum capsici*) properties. Whole plant exhibit antidiarrhoeic activity due to flavonoid constituent and quercitrin (Galvez *et al.*, 1993).

Propagation : Through cuttings.

Ficus benghalensis L.

Family : Moraceae

Vern. name : Bargad, Bad, Bar

Botanical description : Tree, 10-15 m high, evergreen; aerial roots, forming prop roots. Leaves alternate, elliptic to ovate, 10-20 x 6-12 cm, obtuse at apex, rounded at base, entire, coriaceous, glabrous above, puberulous beneath, with abundant cystolith. Receptacles axillary, paired, sessile, globose, 1.5-2 cm across, red on ripening; basal bracts 3. Male flowers

numerous, near the ostiole receptacle. Tepals 3, stamen 1. Female flowers sessile. Gall flowers, pedicellate. Achenes globose-ellipsoid.

Flowering & Fruiting: . Throughout the year.

Distribution : Common through out the states on roadsides, banks of drains, often planted in the vicinity of temples, river banks, villages and some times in forests. i.e. Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Damoh, Dhar, Hosangabad, Jabalpur, Jhabua, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Rewa, Sagar, Satana, Seoni, Shivpuri, Sidhi and Surguja districts.

Chemical Composition : Bengalenoside a hypoglycemic glucoside in bark. Three methyl esters of leucoanthocyanins along with methyl ether of leucoanthocyanins from stem bark. Friedelin, quercetin, β -sitosterol, 3-galactoside and rutin in leaves. Taraxasterol of tiglata in heartwood.

Uses : The bark is tonic, astringent and used to treat dysentery, diarrhea and diabetes. Latex is used to treat indigestion, sexual diseases, rheumatism, lumbago and toothache. Leaves are applied as poultice to abscess. It is widely used in the treatment of skin diseases. Plant is used in ophthalmia and other eye troubles, mouth sores, fever, madness, atrophy, emaciation or cachexy, cholera and rinderpest. Paste of root applied to scalp to grow hair long and used for menorrhagia. It cures erysipelas, burning sensation and vaginal disorders. Root fibres are used in gonorrhoea. Leaves are applied as poultice on swellings and inflamed parts for relief. Bark is astringent, cooling and alleviates vitiated kapha and pitta. An infusion of bark cures dysentery, nervous disorders, diarrhea, leucorrhoea, menorrhagia, and reduces blood sugar in diabetes. Milky juice is beneficial as local application in toothache, sores and ulcers, for rheumatism and lumbago and for soles of feet when cracked. Infusion of young buds is used in diarrhea and dysentery and young tips of roots for obstinate vomiting. Juice mixed with sesamum oil is applied to burns. Latex used in genital disorders. Seeds are cooling and tonic. Powder of seeds is progenerative.

Antimicrobial Properties: The aqueous extracts of bark has significant antibacterial activity against pathogenic bacteria *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Klebsiella pneumonia* in an in vitro condition (Gayathri and Kannabiran, 2009). The ethanolic extract of the root having good antimicrobial activity towards *Staphylococcus aureus* (Murti and Kumar, 2011).

Propagation : Through seeds and cuttings.

Ficus racemosa L.

Family : Moraceae

Vern. name: Gular

Botanical description : Tree, 6-10 m high, young branches hairy. Leaves alternate, ovate oblong, 6-15 x 3-6 cm, obtuse or acute at apex, rounded or acute at base, entire, subcoriaceous, smooth, glabrous, stipulate. Receptacles in clusters on main branches of trunk or on leafless branches, pedunculate, subglobose or pyriform, 2-3 cm across, green to red. Male flowers sessile, in 2-3 rings near the ostiole. Stamens 2. Female flowers sessile or shortly pedicellate. Gall flowers long pedicellate. Achenes lenticular.

Flowering & Fruiting: February - September

Distribution : In wasteland and mixed forests, on banks of drains and rivers i.e. Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Dhar, Hosangabad, Jabalpur, Jhabua, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Rewa, Sagar, Satana, Seoni, Shivpuri, Sidhi, and Surguja districts.

Chemical Composition : Phytosterolin from bark, powerful CNS stimulant and hypoglycemic. β -sitosterol-D-glucoside is present in bark. Vitamin K from stem bark.

Uses : It is astringent, antiseptic, cooling and highly efficacious in threatened abortion, menorrhagia or flooding and failure of lactation, gonorrhoea, leucorrhoea, urinary diseases, haemorrhages, skin diseases, ulcers, smallpox, muscular pain, adenitis, scabies, spermatorrhoea, orchitis, epididymitis and hydrocele. Juice of roots is useful in measles, smallpox and chikanpox. It is also used for thirst during fever. Leaf is eaten and chewed in jaundice. A decoction of bark is used internally for menorrhagea, leucorrhoea and metrorrhagea and is useful for the growth of foetus. Decoction is used for gargle during inflammation of mouth. Root is used in dysentery. Sap of root is used in diabetes. Leaves and bark useful as poultice for eczema. Decoction of leaves for bronchitis. Powdered leaves mixed with honey given in bilious affections. Unripe fruits are astringent, sweet, carminative, digestive, stomachic and useful in diarrhoea, dyspepsia, dysentery, haemorrhages and menorrhagia. Bark is reputed for healing ulcers, skin and vaginal diseases. Decoction of bark is used to wash wounds. Fruit is astringent, stomachic and carminative, given in menorrhagia and haemoptysis. Milky juice or latex is useful in piles and diarrhoea and is applied externally on wounds to relieve pain and swelling. It is taken internally with sugar as an aphrodisiac.

Antimicrobial Properties: The ethanolic extract of the root possess good antimicrobial activity towards *Staphylococcus aureus* (Murti and Kumar, 2011). The hydroalcoholic leaf extract of the tree shows maximum potency

against *Lactococcus sp.*, *E. coli* and *Aspergillus niger*. The bark and fruit extract also reported antimicrobial activities against *Lactococcus sp.*, *E. coli* and *Lactococcus sp.* respectively (Mathur *et al.*, 2011). The ether extract of leave shows maximum potential against *Escherichia coli*, *Bacillus pumilis*, *Bacillus subtilis*, *Pseudomonas aeruginosa* and *Staphylococcus aureus* (Mandal *et al.*, 2000).

Propagation : Through seeds and cuttings.

Ficus religiosa L.

Family : Moraceae

Vern. name : Pipal

Botanical description : Large tree. Leaves alternate, long petioled, lamina broadly ovate, with a long lanceolate caudate tip base truncate-cordate, margin sinuate, up to 16 x 13 cm coriaceous, 3-nerved from base; figs monoecious, axillary, pained, sessile, obovoid or globose, 4-6 mm across, purplish when ripe, male flower, sessile; tepals-2, free, ovate-lanceolate; stame 1, female flower sessile, tepals 3-4, free, linear-lanceolate, brownish, glabrous, ovary ovoid-oblong, 1 mm style dilated above, gall flows similar, achenes smooth.

Flowering & Fruiting: April-September.

Distribution : Common throughout states on roadsides, banks of drains, vicinity of temples, rivers, fields, villages and some times in forests i.e. Balaghat, Bastar, Bhopla, Bilaspur, Chhatarpur, Damoh, Dhar, Hosangabad, Jabalpur, Jhabua, Mandla, Panna, Raigarh, Raipur, Rajnand-gaon, Rewa, Sagar, Satana, Seoni, Shivpuri, Sidhi and Surguja districts.

Uses : It is known to be a sacred plant in India and since ancient times it is widely being used to treat various ailments like skin diseases, heart diseases, constipation, dysentery, snakebite and important constituent of various traditional herbal preparations like shankha vati, chandraprabha vati, kaminivindravan rasa. The bark is astringent, heavy, alternative, cooling in action, haemostatic, laxative, allevative of pitta and kapha improves complexion and cleans vagina. It is used in diabetes, diarrhoea, leucorrhoea, menorrhagia, nervous disorders and vaginal diseases. Bark infusions used in ulcers, skin diseases and gonorrhoea. Leaves are used as antidote to snake bite. Powdered seeds taken for 3 days during menses, sterilizes women for long time. Plant is useful in mouth sores, atrophy, emaciation, rheumatism, smallpox carbuncle, mucus in urine, spermatorrhoea and cholera.

Antimicrobial Properties: The methanol extracts of leaf shows presence of carbohydrates, flavonoids, aminoacids, steroids, saponins and tannins. The extracts possess potency against Enterotoxigenic *E.coli* at 200mg/ml concentration by disc diffusion method (Uma *et al.*, 2009). The antibacterial activity root extract was reported against most pathogenic periodontal disease causing bacteria, *Streptococcus mutans* (Eswarlakshmi and Khatoon, 2012). The aqueous extract of the plant have antimicrobial activity against *Escherichia coli*, *Enterobacter aerogenes*, *Pseudomonas aeruginosa*, *Aeromonas hydrophila*, *staphylococcus aureus*, *Streptococcus pyogenes*, *Aspergillus niger* and *Candida albicans* at 100mg/ml concentration (Rajiv and Sivaraj. 2012).

Propagation : Through seeds.

Flemingia bracteata (Roxb.) Wight.

Family : Papilionaceae

Vern. name: Galfulla

Botanical description : Erect undershrub or shrub, 0.3-1 m high, with densely pubescent branches. Leaves 1-foliolate; petiole 3-18 mm long; stipules 12-25 mm long, linear, scarious; leaflets ovate or oblong-lanceolate, 7-18 x 2.5-7 cm, sub-cordate at base, acute or acuminate at apex, glabrescent above, pubescent and gland dotted beneath. Flowers in axillary and terminal branched 5-15 cm long racemes, arranged in clusters hidden by distichously arranged reniform, 12-25 mm long emarginate hairy bracts. Calyx 4-6 mm long, pubescent; teeth longer than the tube. Corolla pink, 5-8 mm long. Pods 7-12 mm, pubescent, 2-seeded.

Flowering & Fruiting: October–March.

Distribution : In shady situations of sal and mixed forests i.e. Bastar, Bilaspur, Chhindwara, Hoshangabad, Jabalpur, Jashpur, Mandla, Rewa and Shahdol districts.

Uses : Decoction of root is given in the treatment of paralysis. Pods and resin are used in skin troubles, antiseptic, ulcers and swellings.

Propagation : Through seeds.

Flemingia nana Roxb.

Family : Papilionaceae

Vern. name: Balraj

Botanical description: Dwarf shrub, stems 10-20 cm long, brown tomentose, from a woody rootstock. Leaves digitately 3-foliolate; petioles 10-20 cm long, winged; leaflets broadly elliptic or rhomboid to obovate, cuneate, mucronate, 7-17 cm long, laterals very oblique, mucronate, pubescent; stipules ensiform, 1.2-2 cm long. Racemes or panicles dense, 7-10 cm long, shortly peduncled, tomentose; bracts lanceolate. Flowers 5-6 mm long. Calyx covered with minute viscid bright red glands. Corolla reddish or pink. Pods 7-12 mm long, inflated, clothed with minute viscid bright red glands.

Flowering & Fruiting: January –April.

Distribution: In sal and mixed forests; among rock boulders and lateritic soil i.e. Balaghat, Bastar, Bilaspur, Damoh, Hoshangabad, Jabalpur, Mandla, Rajnandgaon, Sagar, Seoni, Sidhi and Surguja districts.

Uses: Roots are medicinal and used as one of the ingredients in the preparation of health tonic.

Antimicrobial Properties: Roots and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Flemingia praecox Clarke.

Family : Papilionaceae

Vern. name: Chhota Sanwar

Botanical description : Erect undershrub with woody glabrous triquetrous stem and terete branches. Leaves digitately 3-foliolate; petioles 7-10 cm long, deeply grooved, winged; leaflets oblong, acuminate, 10-16 cm long, glabrous except on nerves beneath. Racemes axillary, dense, 5-8 cm long, ciliate at margins with silky hairs. Calyx 6 mm long, ribbed, teeth silky hairy, lowest longest. Corolla bluish-white, equaling longest calyx tooth. Pods 2-25 mm long.

Flowering & Fruiting: February -April.

Distribution : In forest floor i.e. Bastar forest division.

Uses : Roots and leaves are medicinal and used as one of the ingredients in the preparation of health tonic.

Antimicrobial Properties: Roots possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Gardenia gummifera L.

Family : Rubiaceae

Vern. name : Deekamali

Botanical description : Small tree up to 7 m high, with low, round crown, bark peeling of in flakes. Leaves large, ovate or obovate, sub-sessile, rounded at apex, crowned at the end of branches. Flowers large, white, fragrant, solitary or paired. Calyx hairy, campanulate, teeth 5-9, lanceolate. Corolla tube up to 7.5 cm long, pubescent outside, lobes 5-9 stigma thick and fleshy. Fruit globose, smooth with many seeds embedded in pulp.

Flowering & Fruiting: March-December

Distribution : Distributed in deciduous forests i.e. Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Durg, Hosangabad, Jashpur, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Sagar, Satna, Seoni, Shahdol, Sidhi and Surguja districts.

Chemical Composition : Oleanonic aldehyde, sitosterol, D-mannitol, erythrodiol, and 5 flavons including gardenin, de-Me-tangeretin and nevadensin. Fruits, noncosane, β -sitosterol and d-mannitol.

Uses : Young leaves ground and applied to cattle wounds. It is also useful in snake bite. Sap used for sores on hands and feet. Fruits for pain in stomach. Externally it is antiseptic and stimulant. Root is used for piles and cancer treatment. Gum is antiperiodic, cathartic, alterative, anthelmintic, antispasmodic, carminative and stimulant in dyspepsia.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds & cuttings.

Gardenia spinosa Thunb.

Family : Rubiaceae

Vern. name : Khadhar

Botanical description : Armed shrub or small tree; spines axillary. Leaves mostly fascicled on branchlets, obovate or oblanceolate, subcoriaceous, glabrescent or pubescent; stipules ovate. Flowers solitary or 2-3 –

fascicled, creamy white, fragrant. Calyx campanulate. Corolla covered with appressed silky hairs. Fruits globose and fleshy.

Flowering & Fruiting: May–January.

Distribution : In sal and mixed forests, open forests, road side forest area i.e. Bastar, Bilaspur, Damoh, Hoshangabad, Raigarh, Raipur, Rajnandgaon, Satna, Shivpuri, Sidhi and Surguja districts.

Uses : Fruit is irritating, emetic, purgatives, carminative and aphrodisiac. It is useful in bronchitis, pain in muscles, paralysis and fish poisoning. Pulp of fruit used in dysentery, fever, toothache and tonic.

Antimicrobial Properties: Roots and leaves possess antifungal (*Colletotrichum capsici*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Globba recemosa Sm.

Family : Zingiberaceae

Vern. name: Janglee Haldi

Botanical description : Herb, up to 1 m high. Leaves oblong-lanceolate, 15-30 x 6-9 cm long acuminate at apex, pubescent beneath. Flowers in narrow, 8-20 cm long panicles, ultimate branches 2-5 flowered; bracts 1-1.5 cm long, caducous. Corolla bright yellow; tube puberulous, 1.5-2 cm long. Labellum obovate, 2-lobed with deep sinus; lateral lobes apiculate. Ovary glabrous, tuberculate. Capsules globose, smooth.

Flowering & Fruiting: August-September

Distribution: In sal forests i.e. Balaghat, Bastar, Bilaspur, Mandla, Raigarh, Raipur, Rajnandgaon and Surguja districts.

Uses : Dried rhizome is used as an aromatic adjunct to other medicines used in skin diseases and impurities of blood.

Antimicrobial Properties: Rhizome possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through tubers.

Gloriosa superba L.

Family: Liliaceae

Vern. name: Karihari, Kalihari

Botanical description: A glabrous climbing herb, tuberous root-stock, leaves simple, alternate or whorled, sessile, ovate-lanceolate, 17 x 4.5 cm, tip elongating into a spirally coiled tendril, base cordate, margin entire; flowers large in terminal racemes; perianth segments 6, linear, flexuous and deflexed, basal half bright yellow, upper half red; stamens 6; ovary glabrous, 3-celled; capsule linear-oblong, greenish-yellow, septicial, seeds subglobose.

Flowering & Fruiting: June-November.

Distribution : In field bunds, abundant on bushes in open forests i.e. Balaghat, Bilaspur, Damoh, Dhar, Hoshangabad, Indore, Mandla, Raigarh, Raipur, Rajnandgaon, Satna, Seoni, Sidhi and Tikamgarh districts.

Chemical Composition: Alkaloids, superbine and gloriosine. Colchicines and its derivatives from tubers. Sitosterol, its glucoside and β -& γ -lumicolchicines; β -sitosterol, its flucoside and 2-) H- 6-MeO benzoic acid. Flowers contain luteolin, its glucoside, N-tormyl-de-Me-colchicine its glucoside and 2-de-Me-colchicine increased basal release of growth hormone in experimental animal tissue.

Uses: Tubers are tonic, stomachic and anthelmintic; intense poisonous in large doses; also used to promote labour pain and as an abortifacient; externally used for neuralgic pains and skin troubles. Toxic properties are due to the presence of alkaloids, chiefly colchicines, which is used in treatment of gout and rheumatism and also to induce polyploidy. Tubers are used in leprosy, skin diseases, piles, colic, snake bite and scorpion sting. Juice of leaves is piscicidal. In primary tissue culture of malignant human gliomas, it induced mild and nonspecific reversible reduction in cell motility and did not change adhesion. Starch from root is given internally in gonorrhoea. Paste is antidote in snake bite. Powder of root is given in rheumatic fever. Various plant parts are used in spleen complains, sores, tumors, erysupelas and syphilis. Extract of plant is spasmolytic and CNS depressant.

Antimicrobial Properties: Tubers possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties. An extract possess antimicrobial properties to hyphal development of *Fusarium* sp., *Alternaria* sp. and *Aspergillus niger* (Jatisatienr *et al.*, 1996).

Propagation : Through seeds & tubers.

Glycyrriza glabra L.

Family : Papilionaceae

Vern. name: Mulhatti

Botanical description : A hardy sub-erect perennial herb or under shrub up to 1–2 m long, cylindrical, burrowing root stock and horizontal creeping stolons. Leaves yellowish green, alternate, pinnate with 9–17 ovate. Leaflets 2.5–5.0 cm long. Flowers are borne in erect, axillary long spikes, 10–15 cm long, lavender to purple in colour. Pods are maroon, 3 cm long, oblong, pointed, flattened and contain 2-4 kidney shaped seed.

Flowering & Fruiting: February–August.

Distribution : Indigenous to Europe, Africa and Iran; cultivated in Jammu and Kashmir, Delhi, Uttaranchal, Bangalore, Punjab and sub-Himalayan tracts. It is also cultivated in some parts of Madhya Pradesh and Chhattisgarh i.e. Bilaspur, Bhopal, Indore and Jabalpur districts.

Chemical Composition: The main constituent is a saponin-like glycoside Glycyrrhizin which ranges from 5 to 20% and is 50-60 times sweeter than sucrose. It also contains glycyrrhetic acid, rhamnoglucoside, twenty seven flavonoids a triterpenoid –liquoric acid from roots. Root extract, estrogenic; contains β -sitosterol and stigmasterol. It contains herniarin and umbelliferone and flavones- liquiritin, liquiritigenin, isoliquiritin and isoliquiritigenin. Deglycyrrhised liquorice extract of liquorice extract as such is used for treatment of peptic and duodenal ulcers. Glycyrrhetic acid obtained from liquorice is used as anti-inflammatory compound in the treatment of various skin diseases. Acid as well as its derivative, carbexonolone is also used as anti-inflammatory in gastric ulcers.

Uses : It is demulcent, expectorant, antitussive, laxative and sweetener. Root is sweet, slightly bitter; refrigerant, tonic, laxative demulcent, alexeteric, diuretic, for the eyes; coughs and sore throat, remove biliousness, genital-urinary diseases and in scorpion sting. Root is used for strengthening muscle, bone, increasing strength and for curing wounds. Powdered root extracts are used as laxative compounds in cough mixtures. It is also used in medicinal teas as a taste corrigent, in food and flavouring cigarettes, chewing and snuff tobacco; as a sweetener in low calorie food, chocolates, dietetic foods. Constituent of Ayurvedic drugs for sclerodermia and pneumonia.

Antimicrobial Properties: Whole plant possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The plant has strong antioxidant properties (Naik *et al.*, 2003).

Propagation : Through seeds & cuttings.

Gmelina arborea Roxb.

Family : Verbenaceae

Vern. name : Khamhar, Gambhar

Botanical description : Moderate-sized, unarmed deciduous tree. Leaves simple, opposite, long-petioled, broadly ovate-acuminate, to 22x19 cm, glabrous, green above, soft, fulvous-tomentose beneath. Flowers showy, yellow tinged with brown outside, in dense terminal pedunculate panicles. Calyx campanulate, pubescent outside. Corolla tube short, limb oblique; stamens 4, didynamous, included; ovary 4-chambered with one ovule in each, style slender, stigma bifid. Fruit an ovoid or oblong succulent drupe, yellow when ripe.

Flowering & Fruiting: September-March.

Distribution: The plant is found wild throughout both states in moist semi deciduous forests, bunds of cultivated fields, ponds, road side, railway tracts, industrial area, gardens and parks.

Uses: It is an ingredient of group *Dahsamula* (group of ten roots) which enter into the composition of many Ayurvedic formulations. It is astringent, bitter digestive, cardio tonic, diuretic, laxative, pulmonary and nervine tonic. It promotes digestive power, improves memory, overcomes giddiness and it is useful in burning sensation, fever, thirst, emaciation, heart disease, cholera, rheumatism, epilepsy, dropsy, anasarca, convulsions (with bark of *Bauhinia purpurea*) nervous disorders, piles, syphilis (with shoots of *Lagerstroemia parviflora*, roots of *Solanum violaceum* and *Achyranthes* and leaves of *Sida humailia*) bronchitis, bites of poisonous and animals.

Antimicrobial Properties: The leaf extract possess anti fungal activity on the growth of *Sclerotium rolfsii* (Tripathi *et al.*, 2006).

Propagation : Through seeds.

Grewia hirsuta Vahl.

Family : Tiliaceae

Vern. name : Ganer, Gudsakari

Botanical description : Branched shrub. Leaves 9.0 x 3.5 cm, suborbicular or broadly obovate, coarsely dentate; petioles 1-5 mm long. Flowers broadly obovate, coarsely dentate; petioles 1-5 mm long, flower 2 cm across, pale yellow, leaf opposed, solitary. Drupes 0.5–0.7 x 1 cm ripe yellow, didymous, 4-lobed.

Flowering & Fruiting: September-June.

Distribution: In mixed forests, forest boarders, gardens, field bunds i.e. Balaghat, Bastar, Bilaspur, Durg, Hosangabad, Indore, Jashpur, Panna, Raigarh, Raipur, Rajnandgaon, Sagar, Satna, Seoni, Shahdol, Sidhi and Surguja districts.

Uses: Mucilage of the bark is used for cleaning hair by women and used in the treatment of tuberculosis, cough and pain in the side.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Grewia tiliaefolia Vahl.

Family : Tiliaceae

Vern. name: Dhaman

Botanical description : Small trees, up to 10 m tall, young branches dark brown, faintly pubescent. Leaves ovate-orbicular or elliptic-ovate, 15x13.5 cm, crenate-serrate, acute or acuminate, cordate and unequal sided at base, 3-nerved from base; petioles up to 18 mm long; stipules falcately acuminate. Flowers yellow, in axillary groups of 3-flowered peduncles, cymes 7 cm long. Sepals elliptic-obovate or ovate, with incurved tips, 6 mm long, brown tomentose. Petals 7 mm long, hairy and glandular at base within. Drupes 1 cm across, bilobed, glabrous or sparingly pubescent.

Flowering & Fruiting: May–January

Distribution : In mixed & sal forests of Balaghat, Bilaspur, Hoshangabad, Raigarh, Raipur, Rajnandgaon, Rewa, Seoni, Shahdol, Shivpuri and Surguja districts.

Uses : Bark and stem parts are used in the treatment of dysentery, emetic cough and side pain, vaat, throat complains, diseases of nose, blood cow itch and antidote in opium poisoning.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, bark possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Gymnema sylvaestre (Retz.) R. Br.

Family : Asclepiadaceae

Vern. name: Godmari, Gurmar.

Botanical description : Large climbers. Leaves broadly elliptic-ovate or oblong, 3-6 cm long, shortly acuminate at apex, rounded to cordate at base. Petioles 0.6-1.2 cm long. Flowers umbelliform cymes, pedicels slender, 4-8 cm long. Calyx pubescent, deeply lobed. Corolla pale yellow, 2-4 mm across, lobes obtuse. Seeds nearly ovoid or oblong, flat, 1-2 cm long, pale brown, broadly margined.

Flowering & Fruiting: October–February.

Distribution : In mixed & sal forests i.e. Bastar, Betul, Bilaspur, Chhatarpur, Damoh, Hoshangabad, Jabalpur, Narsimhapur, Raigarh, Raipur, Rajnandgaon, Rewa, Seoni, Shahdol, Shivpuri and Surguja districts.

Chemical Composition : Plant bases, choline, betaine etc. Leaves contain an antisaccharin principle gymnemic acid; gymnamine, nonacosane, hentriacontane, tritriacontane and conduritol.

Uses : It is astringent, stomachic, antiperiodic, diuretic, tonic and refrigerant. Root is expectorant and emetic. Roots are used in stomach pain and leaves used for the treatment of diabetes. Extract of leaves is stimulant, diuretic, cardiovascular and hypoglycemic and has purgative action and are used in diabetes, chewed to reduce glycosuria. Leaves powder stimulates heart and the circulatory system, increases secretion of urine and activates uterus.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Harbenaria marginata Colebr.

Family: Burmanniaceae

Vern. name : Banpyaj

Botanical description : Herbs, terrestrial, 15-30 cm high, tubers small, 1 or 2, ovate or ellipsoid. Leaves subradical, clustered in the lower part of the stem, oblong, elliptic, 5-8x1.3–2.5 cm, acute or obtuse at apex, whitish yellow on margins, somewhat fleshy. Flowers in lax or dense, many-flowered. 5-10 cm long spikes, sessile: peduncles green, terete, bracteate; bracts ovate-lanceolate. Sepals pale green, unequal; dorsal sepal green. Petals yellow or greenish yellow, labellum yellow, 3-lobed, fleshy; mid lobe clavate, inflexed on

margins; lateral lobes narrowly linear-lanceolate; spur fusiform. Capsules fusiform, turgid.

Flowering & Fruiting: August –January.

Distribution : Species found in moist places i.e. Bastar, Bilaspur, Balaghat, Indore, Jashpur, Rajnandgaon, Rewa, Sidhi and Sarguja districts.

Uses : Tuber part is used as cardio tonic.

Antimicrobial Properties: Tuber possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Hedychium coronarium J. Koenig.

Family : Zingiberaceae

Vern. name: Gulbakawali

Botanical description : Rhizomatous herb, 1.2 m high. Leaves lanceolate, 25-40 x 2.5-5 cm, acuminate at apex, attenuate at base, glabrous above, sparsely pubescent or glabrous beneath, more or less sessile. Flowers in terminal. 10-20 cm long, dense spikes; bracts closely imbricating, each subtending 3 or 4 flowers. Calyx shorter than bracts. Corolla white; lobes linear, tube longer than bracts. Labellum white with yellow tinge. Staminodes white. Capsules globose-oblong, glabrous. Seeds with crimson aril.

Flowering & Fruiting: August-February

Distribution : In moist forest places of Bilaspur, Seoni, Shahdol and Surguja districts.

Uses : Rhizomes yield edible starch, used as tonic, antirheumatic and applied to swellings. Flowers are used for the control of eye diseases and disorders.

Antimicrobial Properties: Roots possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) while, flowers possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*) properties.

Propagation : Through seeds and rhizomes.

Helicteres isora L.

Family : Sterculiaceae

Vern. name: Marorphali

Botanical description : Trees or large shrub. Leaves variable in shape and size, irregularly toothed, short acuminate; scabrous; stipule linear. Flowers bracteate; red to grey; in 2-6 flowers cymes. Calyx yellow, pubescent with 3 angular teeth. Lower 2 petals reflexed, shorter but broader than upper 3. Staminal column fused with the gynophore, exerted and reflexed above. Anthers in 5 pairs, each alternating with minute scaly staminode. Ovary 5 grooved, tomentose. Follicle 5 densely tomentose, twisted. Seeds angular.

Flowering & Fruiting: July–January

Distribution : Common in deciduous forests and open areas i.e. Balaghat, Bastar, Betul, Bilaspur, Chhatarpur, Damoh, Hoshangabad, Indore, Narsimhapur, Panna, Raigarh, Raipur, Rajnandgaon, Seoni, Shahdol Surguja and Tikamgarh districts.

Chemical Composition : Bark contains chloroplast pigments, phyto-sterol, a hydroxyl-carboxylic, a crystalline colouring matter, saponins, sugars, phlobotannins and lignin.

Uses: Fruit is demulcent, astringent and useful in gripping of bowels and fatulence of children. Bark used in dysentery and diarrhoea. Juice of root used in diabetes, empyema, stomach affections and snake bite. Root and bark extract is demulcent, astringent and useful in scabies.

Antimicrobial Properties: Leaves and fruits possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Heliotropium indicum L.

Family : Boraginaceae

Vern. name: Hathisunda

Botanical description : Herb, perennial, strigose to woolly, up to 30 cm high. Leaves alternate or subopposite, broadly ovate or ovate-oblong, 3-9 x 2-6 cm, serrulate, rugose above, pilose beneath. Flowers in extra-axillary, up to 15 cm long, ebracteate spikes, scorpioid at the apex. Calyx-lobes linear. Corolla bluemauve; lobes small, rounded, crenate. Drupes deeply 2-lobed, conical or ovoid; nutlets compressed, 4-ribbed, beaked, 2-seeded.

Flowering & Fruiting: Throughout the year.

Distribution : In moist wastelands of Balaghat, Bastar, Bilaspur, Damoh, Durg, Mandla, Raipur and Rajnandgaon districts.

Uses : Leaves are applied to boils, ulcers, wounds and as antidote to insects sting.

Antimicrobial Properties: Whole plant possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Hemidesmus indicus L.

Family : Asclepiadaceae

Vern. name: Anantmul

Botanical description: Twining under shrub, with many slender wiry laticiferous branches. Leaves simple, opposite or whorl, linear, lanceolate to elliptic-oblong, apiculate, acute or obtuse, 9.5 x 1 cm, entire, leathery, shiny, dark green above, pale beneath. Flowers greenish yellow or greenish purple in subsessile axillary fascicles. Calyx deeply 5-lobed, glandular within. Corolla 5-partite, lobes thick, ovate-oblong, rugose within; corona single, corolline; stamens 5' connivent around styles, filaments incurved, distinct, pollinial bags spherical, closely appressed to the brownish caudicle; ovaries conic, stigma flat, circular, follicles terete, gradually narrowed, abruptly acuminate. Seeds oblong, flattened, ventrally ridged, coma brownish white.

Flowering & Fruiting: August -January

Distribution : On forest floor and twinner on a number of plants i.e. Bastar, Betul, Bilaspur, Chhatarpur, Hoshangabad, Panna, Raigarh, Raipur, Rajnandgaon, Seoni, Shahdol, Shivpuri and Surguja districts.

Chemical Composition: Rutin from leaves. Hexatriacontane, lupeol, its octacosanoate, α -amyrin, β -amyrin, its acetate and sitosterol in roots. Air-dried roots contain essential oil containing methoxy benzaldehyde, sterols and a glucoside; saonin, resin acid and tannins.

Uses: The dried roots constitute the drug Hemidesmus or Anantmul which has long been in use as a demulcent, diaphoretic, diuretic and alterative and prescribed in rheumatism, gravel, other urinary diseases and skin troubles. Root is sweet, bitter, cooling, tonic aphrodisiac, alterative, astringent, demulcent, antipyretic, antidiarrhoeal, cures leprosy, leucoderma, itching, skin diseases, fevers, foul odour from the body, loss of appetite, asthma, and bronchitis, diaphoretic and diuretic. It is also sudorific.

Useful in fever, skin diseases, as a blood purifier, in loss of appetite and disinclination for food and in nutritional disorders. Also syphilis, chronic rheumatism, gravel and other urinary diseases, leucorrhoea, in scorpion sting and snake bite. It is administered in the form of powder, infusion or decoction and as syrup.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties. It is also reported to be most effective in controlling of collar root rot diseases caused by *S. rolfsii* (*Corticium rolfsii*) (Daya Ram and Ram, 1992).

Propagation : Through seeds and cuttings.

Hibiscus vitifolius L.

Family : Malvaceae

Vern. name: Van Kapas

Botanical description : Annual slender climbing herb, 1-2 m high, sparsely to densely hairy. Leaves ovate, cordate, 3-10 cm long, palmately 3-7 lobed, margins toothed; petioles coppery red on adaxial side. Flowers axillary, solitary or clustered, drooping, 5-6 cm across, yellow with a purple center. Epicalyx lobes 7-12, linear, 10-12 mm long, hairy. Calyx 2 cm long, 5-lobed, with a soft tomentum and a few bristles. Corolla twisted. Staminal columns 15-20 mm long, antheriferous throughout. Capsules suborbicular, apiculate, 15 mm across, 5-winged; wings reticulately nerved. Seeds reniform, minutely tubercled.

Flowering & Fruiting: October–March.

Distribution : In mixed and sal forests, forest margins and wastelands i.e. Bastar, Bilaspur, Damoh, Hoshangabad and Shivpuri districts.

Uses : Root is diuretic and its paste mixed with rice-water is given in leucorrhoea. Bark of root is emmenagogue, galactagogue, parturient and oxytocic. Juice of leaves is antidysenteric and is used in scorpion sting and snake bite. Decoction of leaves finds special application in fever and diarrhoea. Flowers are used in uterine discharges and for safe and effective contraction of uterus. Useful in cases of difficult or obstructed menstruation. Seeds are demulcent, laxative, expectorant, galactagogue, aphrodisiac, abortifacient and employed to produce abortion. They are used as a nervine tonic and given in headache.

Antimicrobial Properties: Root and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Medicinal plants - Taxonomy, chemical composition, antimicrobial properties and uses

Propagation : Through seeds and cuttings.

Hiptage madolobata Gaertn.

Family : Malpighiaceae

Vern. name: Madhivilata, Battery

Botanical description : Shrub or small tree; up to 2 to 4 m high. Leaves oblong or ovate, lanceolate, 9 – 14 x 4 - 8 cm, acute or acuminate, glabrous. Flowers white 3 cm across, sepals ovate, elliptic or oblong 8 -10 x 2 – 4 mm. Petals suborbiculate to obovate, 1 cm long, hairy out side, margins fimbriate. Anthers ovoid 2 mm long, filaments 6 mm long, one filament 10 mm long. Ovary pubescent, style terete, 14 – 15 mm long, acute, curved.

Flowering & Fruiting: January – April.

Distribution : In mixed and sal forests i.e. Bastar, Chhindwara, Raigarh, Rewa and Sidhi districts. .

Chemical Composition: Root contain glucoside hiptagin and root bark mangiferin. Alcoholic extract of aerial parts is CNS depressant and hypotensive.

Uses : Bark, leaves and flowers are aromatic, bitter, acrid, cooling, vulnerary, astringent, expectorant, cardiogenic, anti-inflammatory, insecticidal, wound healing and used in burning sensation of the body, wound pruritus, foul ulcers, scabies, leprosy, skin diseases, cough, asthma, cardiac debility, rheumatism, hyperdipsia, obesity, intrinsic haemorrhage.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds and cuttings.

Holostemma annulare (Roth.) K. Schum.

Family : Asclepiadaceae

Vern. name: Chhirvel, Khudhur

Botanical description : Large climber; stems glabrous, shining. Leaves oblong or ovate, 7.5-15.5 cm long, cuspidate at apex, cordate with deep sinus at base, glabrous. Flowers in umbelliform or subracemose cymes; peduncles and pedicels 2.5-5 cm long. Calyx-lobes 5 mm long. Corolla white or pale pink outside, crimson inside; lobes ovate or oblong, 7-15 mm long, obtuse. Follicles 10-12 cm long. Seeds 6 mm.

Flowering & Fruiting: June-August

Distribution : In sal forest clearings i.e. Bastar, Bilaspur, Hoshangabad, Raigarh, and Raipur districts.

Uses: Roots are referred for the treatment of gonorrhoea, spermatorrhoea and diabetes.

Antimicrobial Properties: Leaves and fruits possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Hydrocotyle sibthorpiodes Lamk.

Family : Apiaceae

Vern. name: Brahmi

Botanical description : Perennial herb; stems slender, creeping with ascending branches. Leaves orbicular, 0.6–2.5 cm across, petiolate, undersurface pubescent. Peduncle solitary, very short; umbels 8–10 flowered. Flowers subsessile, pink, small. Petals lanceolate. Fruits orbicular, yellow to dark brown when ripe.

Flowering & Fruiting: March–November

Distribution: Species has been found in marshy and wet places of Balaghat, Bilaspur, Hoshangabad, Rajnandgaon, Shahdol (Amarkantak), Sidhi and Surguja forests.

Uses : Like *Baccopa monnieri*, the entire plant constitutes the well-known drug Brahmi. This plant is found very effective in cases of anxiety neurosis, asthma, hoarseness, insanity and epilepsy. Stems and leaves are brain tonic which sharpens dull memory and catarrhal complaints. The juice of leaves is given to children for relief in bronchitis and diarrhoea. Paste of leaves is used as a remedy for rheumatism. Decoction of leaves used in rheumatism, cough and capable of imparting youthful vitality and longevity.

Antimicrobial Properties: The shoot, root and leaves possess antimicrobial properties against *E. coli* (Ferrando, 2010).

Propagation : Through suckers.

Hygrophila auriculata (Schumach.) Heine.

Family : Acanthaceae

Vern. name: Talmakhana

Botanical description :Gregarious, sub-shrub, strigose-hispid all over, stem purplish, thickened at nodes. Leaves simple, subsessile, narrowly lanceolate, 11 x 2.5 cm, in whorls of 6, with sharp axillary spines, the two outer leaves of each whorl larger and other much smaller. Flowers bluish purple, in sessile axillary whorls, calyx deeply 4-partite, lobes unequal, clothed with soft hairs, corolla blue, distinctly 2-lipped, the upper 2-lobed and the lower 3-lobed; stamens 4, didynamous, filaments connate in pairs at base, anthers 2-celled; ovary 2-celled with 4 ovules in each cell, style filiform, pubescent, stigma simple; fruit a linear capsule, with orbicular seeds on retinacula.

Flowering & Fruiting: September- May.

Distribution : The plant grows in damp areas such as marshy margins of canals, rice fields, railway tracts, waste land, muddy area, wet forests places, ponds etc and found throughout the plains districts of both states i.e. Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Dhar, Durg, Khargon, Khandwa, Hoshangabad, Indore, Jabalpur, Mandla, Narsimhapur, Panna, Raigarh, Raipur, Rajnandgaon, Rewa, Sagar, Satna, Seoni, Shivpuri, Sidhi and Tikamgarh districts.

Chemical Composition : Diuretic properties of seeds are due to large amount of mucilage and potassium salts. Seeds contain 23% of a yellow semi-drying oil; they also contain diastase, lipase and protease. Xylose and uronic acids from oil of seeds; lupenol stigmaterol and straight chain hydrocarbons from lipid extract of plant. Palmitic (7.2) stearic (0.8) oleic (11.9) and linoleic (80.1%) acids in seed oil.

Uses: It is sweet, sour, bitter, cold, aphrodisiac and demulcent. It promotes strength appetite; overcomes morbid pitta, cures oedema, ascites, thirst, bladder stones, eye diseases and dysentery. Its leaves given for toxicosis, flatulence and anaemia. Leaves, roots and seeds are diuretic, employed in jaundice, dropsy, rheumatism, anascagea and diseases of the urino-genital tracts, cancer, anaemia and arthritis. Seeds are sweet and astringent and promote sexual vigour and strength, arrest abortion, cure impurity of blood and burning sensations. Seeds given for gonorrhoea and in spermatorrhoea with milk and sugar.

Antimicrobial Properties: Root and leaves antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Hymenodictyon orixense (Roxb.) Mabb.

Family : Rubiaceae

Vern. name: Bhenvarmal

Botanical description : Deciduous tree, 15 m high. Leaves ovate-elliptic, pubescent, acuminate, 10x7-10 cm, panicles terminal, dense flowered. Flowers small, greenish white, fragrant, bract solitary, foliaceous. Calyx minute, pubescent. Corolla pubescent outside. Style very long. Capsules ellipsoid, on recurved pedicels, reddish brown, 2 cm long; seeds winged.

Flowering & Fruiting: July-February

Distribution : Species is found in forests of Bilaspur, Chhatarpur, Hoshangabad, Indore, Morena, Panna, Raigarh, Raipur, Seoni, Sidhi and Surguja districts.

Uses : The bark is used as astringent, febrifuge, antimicrobial and hypotensive. Decoction of bark is used in diarrhoea and powder of bark is orally used for piles. Various plant parts are used in burning sensation in chest, emaciations, carbuncle, sores, small pox, atrophy and lactations complaints.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Hyptis suaveolens (L.) Poit.

Family : Lamiaceae

Vern. name: Van talsa

Botanical description : Herb, annual, sweet-smelling, rigid, 0.6-1.0 m high; stems and branches obtusely 4-angled, patently hirsute. Leaves broadly ovate or suborbicular, 3-7 x 2-5 cm, obtusely acute at apex, shallowly crenate-serrulate; petioles 1.5-4 cm long. Flowers auxiliary or terminal, second in short umbels, sometimes in panicles or flowers even solitary; bracts minute. Calyx glandular and hispid outside, villous at the mouth, striate; teeth erect, subulate. Corolla small, blue. Nutlets usually 2, ovoid, flat, blackish brown, notched at the apex and with a white mark on either side of the pointed base.

Flowering & Fruiting: Throughout year.

Distribution : Common as weed in wastelands, along bank of drains, field bunds, roadsides, in forest clearings i.e. Bilaspur. Chhatarpur.

Chhindwara, Damoh, Durg, Hoshangabad, Mandla, Raigarh, Raipur, Rewa, Sidhi and Surguja districts.

Uses : Leaves used in cancer and tumors. Infusion taken in fever, uterus infection, headache and boils. Steam from hot decoction of shoot is used for malaria and headache. Poultice used in curing wounds. Leaves decoction used as eye lotion, nasal drop and fever.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties. It also decreases catalase activity and increases peroxidase and polyphenol oxidase activities results in to increase in Acid phosphatase and ATP activities (Pillay, 2003).

Propagation : Through seeds.

***Ipomoea mauritiana* Jacq.**

Family : Convolvulaceae

Vern. name: Vidarikanda

Botanical description : An extensive perennial climber with tuberous roots. Leaves shallowly 4–6 lobed, lobes cut less than half way to the blade bases, 2.5 to 8 x 1.5-8.5 cm. Flowers solitary or in few to several flowers cymes, pedicles 0.5-1.0 cm long, sepals glabrous, more than 5 mm long. Corolla 5–7 cm long, deep pink to purple in colour. Capsules ovoid to sub globose, 1.5 cm long. Seeds covered with long comose, brown trichomes.

Flowering & Fruiting: July–October

Distribution : In mixed forest of Bastar.

Uses: Plant is sweet, cooling, restorative, tonic, diuretic, aphrodisiac, galactagogue, and demulcent and is found useful in fevers and bronchitis. Tuberous roots contain a resin similar to jalap resin and is considered tonic, alterative, aphrodisiac, demulcent, lactagogue, purgative and cholagogue. It is used to increase weight reduced due to mental or physical fatigue and also in scorpion sting. Flour of raw rhizome is useful in enlargement of liver or spleen. Powdered root is given for emaciation in children and used in spleen and liver diseases, menorrhagia and skin diseases. Powdered root-stalk is given with wine to women to increase secretion of milk. Juice of fresh root is beneficial in spermatorrhoea.

Antimicrobial Properties: Tubers possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, fruit possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds, rhizomes and cuttings.

Jasminum grandiflorum L.

Family : Oleaceae

Vern. name: Vanmogra

Botanical description : Shrub, scandent or erect, branches pubescent. Leaves simple, opposite or ternate, elliptic to obovate-oblong, 4-10 x 2-5 cm, acute or obtuse at apex, rounded or truncate at base, entire, chartaceous, glabrous. Flowers in terminal, 3-flowered cymes, fragrant; bracts linear, 5 mm long. Calyx-lobes 5-7, 6 mm long, curved, pubescent. Corolla white; lobes 5-9, oblong, 1-1.4 cm long, mucronate; tube 1.8 cm long. Berries globose, 8 mm across, green, turning black, surrounded by subulate calyx-lobes.

Flowering & Fruiting: April–October

Distribution: Species has been found as forest undergrowth in forests of Bastar, Hoshangabad, Raigarh, Raipur districts.

Chemical Composition : Salicylic acid in leaves. Essential oil in flowers contains lactone IV. Pyridine and nicotinate derivatives.

Uses: Shrub used in burns. It is bitter, astringent, anthelmintic, diuretic and emmenagogue. Van Mogra is good for healing chronic ulcers, skin diseases and poisonous affections. Root is used in the treatment of ringworm. Leaves chewed as a treatment for ulceration or eruptions in mouth. Fresh juice applied to corns. Flowers and leaves are aphrodisiac and overcome menstrual irregularities. Flowers as well as poultice of leaves are applied as a plaster to loins, genitals and pubes as an aphrodisiac and various kinds of tumours. Flowers are used as an application in skin diseases, headache and weak eyes. Oil prepared with juice of leaves used in gonorrhoea. Alcoholic extract of aerial parts is hypotensive and anticancer.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds and cuttings.

Jatropha curcas L.

Family : Euphorbiaceae

Vern. name: Ratanjot, Bakarandah

Botanical description : Glabrous, shrub, 1.5-4 m high. Leaves broadly ovate, cordiform, 5-15 x 5-13 cm, acute at apex, entire or shallowly 5-lobed;

stipules caducous. Flowers in terminal, cymose panicles, small, yellowish. Perianth campanulate, 5-10-lobed; outer tepals equal, ovate-obovate, 4 mm long, sericeous at base inside. Stamens 10, 2-seriate; filaments ca 3 mm long. Ovary 2 mm across; styles 5 mm long. Capsules globose, 3 mm long. Ovary 2 mm across; styles 5 mm long. Capsules globose, 3 cm across, rugose when dry.

Flowering & Fruiting: August–January

Distribution : The plant is common in waste places, along cultivated fields and in wastelands, grown as hedges i.e. Balaghat, Bastar, Bilaspur, Chhatarpur, Durg, Indore, Mandla, Panna, Raipur, Seoni, Shahdol, Sidhi, Surguja Khargon and Khandwa districts.

Chemical Composition: Leaves contain apigenin, vitexin and isovitexin. α -amyrin, stigmasterol, stigmastenes along with two new flaonoid glycosides found in leaves and twigs. Palmitic, oleic and linoleic acids in seed fat. Ash of seeds contained Ca., Mg., Na., K. and traces of P. Alcoholic extract of aerial parts is found to be CNS depressant and diuretic and showed activity against P-388 lymphocytic leukemia.

Uses : It is bitter, acrid, astringent and anthelmintic. It is useful in chronic dysentery, thirst, abdominal complaints, biliousness, anaemia, fistula, ulcer, diseases of the heart, skin, dropsy, syphilis, neuralgia, pleuracy and pneurmonia. The leaves are reported to be galactogogue, rubefacient, supprurative, insectidical and are used in foul ulcers, tumours and scabies. Fresh juice from stem arrests bleeding from wounds, ulcers and cuts. The seeds are powerful purgative, acrid, sweet, aphrodisiac, digestive, anthelmintic are useful in piles, wounds, enlarged spleen and skin diseases. Seed oil used in rheumatism, itch, herpes and eczema.

Juice is a well known purgative and is useful in whitlow, convulsions, syphilis, neuralgia, dropsy, anasarca, pleurisy and pneumonia. Root bark is applied externally in rheumatism and is used in sores. Leaves locally applied to breasts to increase secretion of milk. Leaves warmed and rubbed with castor oil and applied to boils and abscesses have supperative effect. Decoction of leaves is antidiarrhoea useful in stomach-ache and cough also used for gargle to strengthen gums. Fresh stems are used as toothbrush. Fresh viscid luice flowing from stem is employed to arrest bleeding or haemorrhage from wounds. Stem bark is used for wound of animal bites. Fruit and seeds are anthelmintic; useful in chronic dysentery, urinary discharges, abdominal complaints, biliousness, anaemia, fistula, diseases of heart. Seeds are acronarcotic, poisonous to human being and cattle and used against warts and cancers, also to promote hair growth. Seed and oil are

purgative, more drastic than castor oil. Wood causes dermatitis. Drug is bitter, acrid, astringent and anthelmintic. It serves to cleanse the entire system through its purgative property. It is useful in chronic dysentery, thirst, abdominal complaints, biliousness, anaemia, fistula, ulcer, diseases of the heart and skin.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds & cuttings.

Jatropha gossypifolia L.

Family : Euphorbiaceae

Vern. name: Lal bherenda, Ratanjot

Botanical description : Shrub, 1.5 - 2 m high; branchlets glandular hairy. Leaves palmately lobed, 7.5-13 x 6-15 cm, subcordate; lobes obovate, acute at apex, glandular hairy on margin. Flowers in glandular, corymbose cymes, small, red, outer tepals 6 mm long, glandular hairy, acuminate; inner tepals ovate, 4 mm long, obtuse, ciliate Stamens 8 (5+3); filaments basally connate; inner 3 longer. Ovary 2 mm across; styles 1.5 mm long. Capsules broadly oblong, 2 cm across, 3 lobed. Seeds oblong, 3-angled, grayish brown.

Flowering & Fruiting: April–September

Distribution : Common along roadsides, wasteland, bunds of cultivated fields as well as open forest areas i.e. Bastar, Bilaspur, Chhatarpur, Damoh, Dhar, Durg, Mandla, Panna, Raigarh, Raipur, Rewa, Satna and Surguja districts.

Uses: Stems are used as tooth brush to relieve toothache. The seed oil is used for body pain, rheumatism, paralytic affection, skin diseases like itching and scabies. It is antitumors and anti leukemic. It is bitter, acrid, astringent and purgative. Seed oil also used as bio fuel.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*) properties.

Propagation : Through seeds & cuttings.

Kaempferia galanga L.

Family : Zingiberaceae

Vern. name : Chandramula

Botanical description: A geophilous perennial herb with very fragrant, white rhizomes and ovoid tubers at the tips of fibrous roots. Leaves 2-3, radical spread over the floor, broadly ovate or orbicular, 20 x 15 cm, glabrous, green above, tawny below; flowers rose-coloured with purple spot, 2-3 in a subsessile spike, lasting only for a day; calyx spathaceous, corolla tubular spots, 3-lobed; fertile stamen 1, staminodes petaloid, lip deeply 2-lobed; ovary inferior, 3-celled, style filiform ending in a turbinate, ruceolate stigma; capsules oblong.

Flowering & Fruiting: July – October.

Distribution : Common in the plains, at low elevations, especially in shaded areas on the forest floor i.e. Bastar, Bilaspur and Shahdol districts.

Uses : It is reported to be acrid, hot, bitter, aromatic and light. It is a reputed remedy for all diseases caused by the morbidity of vata and kapha and is especially useful in respiratory ailments like cough, spenic disorders. It promotes digestion, odour of the mouth and destroys pathogenic organisms. Rhizome is stomachic, anti-inflammatory. In the form of powder or ointment, it is applied to wounds and bruises to reduce swellings. Rhizomes are stimulating, expectorant, carminative and diuretic and improve complexion, cure burning sensation, mental disorders, insomnia, facilitate birth delivery, preparation of gargles and administered with honey in cough and pectoral affections. Decoction of rhizomes is used for dyspepsia, headache and malaria. Roasted rhizomes are applied hot in rheumatism and for hastening the ripening of inflammatory tumors. They are used as a wash in dandruff and for relieving irritation produced by stinging caterpillars. Leaves are used in lotions and poultices for sore eyes, sore throat, swellings, rheumatism and fevers. Extracts of this plant have anti-inflammatory, analgesic, nematocidal, mosquito repellent, larvicidal, vasorelaxant, sedative, antineoplastic, antimicrobial, anti-oxidant, antiallergic and wound healing properties. Ethyl-pmethoxycinnamate and ethyl-cinnamate are found to be the most vital constituents responsible for most of these pharmacological properties

Antimicrobial Properties: The methanolic extracts of plant rhizome exhibits strong antimicrobial activities against two gram -ve and two gram +ve pathogenic bacteria *Escherichia coli*, *Salmonella typhi*, *Bacillus subtilis* and *Staphylococcus aureus* (Hanumantharaju *et al.*, 2010). The essential oil of rhizome found to inhibit drug susceptible and multidrug resistant clinical isolates of *M. tuberculosis* with minimum inhibitory concentration (MIC) of 0.242 to 0.485 mM. The plant extracts possess antimicrobial activity against a number of organisms including *Streptococcus pyogenes*, *Candida albicans*, *Klebsiella pneumonia*, *Salmonella typhi*, *Serratia marcescens*, *Vibrios cholera*, *Vibrios parahaemolyticus*, *Enterococcus faecalis*, and *Pseudomonas aeruginosa* (Meksepralard *et al.*, 2010).

Propagation : Through rhizomes.

Kalanchoe heterophylla Prain.

Family : Crassulaceae

Vern. name: Parnabeej, Bhasmpatti

Botanical description: Herb up to 75 cm high, young stem often green with deep purple blotches. Leaves simple or compound, upper usually 3-5(-7) foliolate; leaflets 5-20 x 2.5-5 cm, ovate or elliptic, margin crenate or serrate. Flower as pendant in 10–40 cm long panicles; pedicels slender. Calyx 2-4 cm long, green with purple tinge; segments ovate-triangular. Corolla green in lower half, red in upper half, base swollen, constricted in middle; lobes triangular. Anthers black, hastate. Hypogynous scales adhering at the base of ovaries, sub-rectangular, yellow. Ovaries ovoid-oblong, free or connate at the base, narrowed into 2.5–3.5 cm long styles.

Flowering: October-February

Distribution : Planted and found as escape on border of forests i.e. Balaghat, Bilaspur, Chhatarpur and Mandla districts.

Uses : Leaves are slightly toasted used as an application to bruises, wounds, boils, worms, amoebic dysentery and insect bites. It is also useful in controlling diabetes.

Antimicrobial Properties: Roots possess antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through leaves and suckers.

Kalanchoe pinnata (Lamk.) Pers.

Family : Crassulaceae

Vern. name: Patharchata

Botanical description: Perennial herb up to 1.5 m high, erect or ascending, succulent. Leaves simple, trifoliolate. Flowers terminal in corymbose or peniculate cymes, pedicelled. Calyx more or less deeply five lobed or 4 fid. Corolla 4 lobed erect or recurved. Stamens 8 inserted on corolla tube, carpals 4, ovules many. Seeds oblong, ellipsoid with 8 to 15 longitudinal ribs.

Flowering & Fruiting: October–January.

Distribution : Planted as ornamental herb in gardens and Ashrams. Species recorded on hilly area of Amarkantak forest.

Chemical Composition: Plant contains n-al-kane, n-alkanol; & β -amyirin and sitosterol. Leaves contain malic, isocitric and citric acids. Glycosides of quercetin and kaempferol; fumaric acid; phenolic components from leaves.

Uses : Whole plant possesses bitter, aperient and tonic properties. It is used to control boils and bruises. Leaves are useful for the treatment of stones of gall bladder and kidney. Leave is used very effectively for the treatment of jaundice. Leaves are bitter, slightly toasted used as an application to bruises, wounds, boils and bites of insects. They are eaten to control diabetes. Juice of succulent leaves used in burns. Juice mixed with juice of leaves of *Aegle marmelos*, given in blood and amoebic dysentery.

Antimicrobial Properties: Roots possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The leaf extract contains substances potentially active and safe for the oral treatment of human cutaneous leishmaniasis (Torres-Santos *et al.*, 2003). The leaf juice found effective as hepatoprotective against CCl₄ induced hepatotoxicity (Yadav and Dixit, 2003).

Propagation : Through leaves and suckers.

***Lasia spinosa* (L.) Thwaites.**

Family : Araceae

Vern. name: Katasadu

Botanical description : Herb, perennial, stout. Stems up to 50 cm long, 0.2-6 cm thick, covered with up to 1 cm long, broad-based spines. Leaves very variable, 10-70x7-80 cm, coriaceous, young entire, hastate or sagittate, older ones variously pedately lobed, frequently broader than long, cordatae; lobes acuminate; nerves yellowish, raised and prickly beneath; petioles 40-50 cm long, 1-3 cm thick. Peduncles solitary, axillary, 30-100 cm long, spiny. Spathe-tube greenish, ovoid, 6-10 cm long; limb linear-lanceolate, twisted. 10-30 x 2-4 cm. Spadix reddish, 2-6 x 0.8-1 cm, sessile; appendage absent. Flowers bisexual. Tepals with incurved tips. Anthers 0.5 mm long. Ovary ovoid, 1.5-2.5 mm long; ovules solitary; style stout. 0.5-1 mm long; stigma depressed globose, 1 mm broad. Berries obovoid, muricate on top. Seeds exalbuminous.

Flowering & Fruiting: January-November

Distribution : In mixed forest; in marshy and shady places, drains of hill slopes i.e. Bastar, Bilaspur and Raigarh districts.

Uses : Rhizomes are used in healing of wounds and cuts of cattle.

Antimicrobial Properties: Roots, leaves and fruits possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through rhizomes.

Lavandula bipinnata (Roth.) Kuntze.

Family : Acanthaceae

Vern. name: Jirenium

Botanical description : Herb, erect, stout or slender, 0.4-1.0 m high. Stems simple or branched, leaves 2-10 cm long, sessile or almost so. Calyx tubular, 4-6 mm long, slightly curved, teeth equal, lanceolate, corolla blue or white, 12 mm long. Nutlets minute, oblong, ellipsoid, black smooth, with a large, white areola on the dorsal side.

Flowering & Fruiting: October –February.

Distribution : Along drains, hills, in and around bamboo thickets and forest clearings i.e. Balaghat, Bilaspur, Damoh, Hoshangabad, Indore, Mandla, Narsimhapur, Panna, Raigarh, Raipur, Rajnandgaon, Satna, Sidhi and Surguja districts.

Uses : Aromatic plants and oil is used for the preparation of various medicines and cosmetics.

Antimicrobial Properties: Whole plant possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Leea asiatica Edgew.

Family : Leeaceae

Vern. name: Bada Hansraj

Botanical description : Under shrub, 1-2 m high, characterized by crisped wings on the branches and petioles. Leaves 20-35 cm long; leaflets 3-5, 10-20 x 5-8 cm, oblong or oblong-elliptic, rounded at base, apex acute or acuminate, serrate. Corymbs axillary, solitary or paired; flowers greenish white or pale yellow. Berries 7-8 mm, subglobose, grey turning black, 5-6 seeded.

Flowering & Fruiting: June-December

Distribution : Plant is found in mixed forests of Balaghat, Bastar, Bilaspur, Damoh, Durg, Hoshangabad, Indore, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Satna, Seoni, Sidhi and Surguja districts.

Uses : Leaves possess antimicrobial properties. Roots are astringent, anthelmintic and used for the treatment of ring worms. Roots tubers used on wounds, sores, guinea worm and ring worm.

Antimicrobial Properties: Leaves possess antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Leea macrophylla Roxb.

Family : Leeaceae

Vern. name : Hathkan

Botanical description : Perennial shrub, up to 1.5 m high. Leaves simple, ovate cordate at base, acute, nearly white beneath, serrate, stipules sub persistent, corymbs sessile, nearly pubescent. Flowers greenish-white. Lobes of corolla entire or sheathy emarginate. Berries 4 to 6 celled, red in colour turning black at maturity.

Flowering & Fruiting: October– January.

Distribution : This species has been recorded from Indore, Mandla, Bilaspur, Bastar and Raipur forest area.

Uses : Leaves possess antimicrobial properties and eaten as a vegetable. Root-astringent, anthelmintic and used for healing wounds, sores and ring worms. Fruits edible, mucilaginous, roots tubers used on wounds, sores, guinea worm and ring worm.

Antimicrobial Properties: Root and leaves possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Leea robusta Roxb.

Family: Leeaceae

Vern. name : Hasia daphar

Botanical description : Herbaceous plant. Stem erect, branched, hard, angular, rough, swollen nodes. Leaves evergreen, opposite super posed, petiolate, exstipulate, oval shape, serrate margin, hairy surface, coriaceous texture, reticulate venation, simple leaf, acuminate apex, leaf base swollen. Inflorescence on the leaf base, fruit berry, black in colour at maturity.

Flowering & Fruiting: June - December

Distribution: In mixed forests i.e. Balaghat, Bastar, Bilaspur, Durg, Hoshangabad, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Seoni, Sidhi and Surguja districts.

Uses: Tubers are used in expelling guines and worms.

Antimicrobial Properties: Tuber, leaves and fruits possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, stem possess antifungal (*Colletotrichum capsici*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Lepidium sativum L.

Family : Brassicaceae

Vern. name: Chansaur

Botanical description : Erect, 30-60 cm tall, branched annual herbs. Lower leaves petiolate, pinnatipartite, with pinnatifid segments, 4-10 x 2.5-3.5 cm; upper ones linear, sessile, nearly entire, glabrous, racemes lax, 10-15 cm long 20-30 flowered. Flowers 3 mm across, white; pedicels sub erect, 2-3 mm long, scarcely as long as the pods. Sepals about 1.5 mm long, oblong, obtuse. Petals about 3 mm long. Stamens 6, 1.8 and 2.2 mm long. Pods 4-6x3-5 mm broadly elliptic; winged at the top and notched at the apex with short style. Seeds 3 mm long .

Flowering & Fruiting: February – May.

Distribution : In cultivated fields and road sides i.e. Bilaspur, Khandwa, Khargon, Raipur and Sidhi districts. Species cultivated commercially.

Uses : Plant is used in cases of bleeding piles, asthma, and cough with expectoration. Root is used in secondary syphilis and tenesmus. Seeds are aperient, diuretic, alterative, tonic, demulcent, aphrodisiac, carminative, galactagogue, emmenagogue and administered after being boiled with milk to cause abortion. Mucilage of seeds allays irritation of mucous coat of intestines and is used as apparent. Paste of seeds used as external application for lumber pain and rheumatism. Applied to pains and hurts as a poultice. Tea of seeds is useful in hicough.

Antimicrobial Properties: The petroleum ether extracts of seed shows antimicrobial activity against opportunistic pathogens *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus vulgaris*,

Pseudomonas aeruginosa and one fungus *Candida albicans* using the concentrations of 2.5, 5 and 10% (Sharma et al., 2011).

Propagation : Through seeds.

Lippia javanica (Burm.f.) Spreng.

Family : Verbenaceae

Vern. name: Hanumansand, Bhui-okra

Botanical description : A creeping much-branched herb, erect. Leaves alternately whorled, elliptic-oblong, 5-8 x 2-3.5 cm, acute at apex, rounded at base, crenate-serrate, pubescent beneath; petioles up to 1 cm long. Flowers in axillary spikes; bracts ovate-lanceolate, 3 mm long, pubescent. Calyx-lobes lanceolate. Corolla pink. 5-6 mm long. Drupes subglobose.

Flowering & Fruiting: July – January

Distribution : Rare. Species has been recorded from Bastar forest division.

Uses : Plant possesses cooling, diuretic, stomachic, antiseptic, antispasmodic, carminative, diaphoretic, aphrodisiac, astringent, vulnerary, anthelmintic, febrifuge properties and is used in stoppage of bowels and pain in knee-joints. Useful in diseases of heart, eye, piles, wounds, ulcers, burning sensation, asthma and bronchitis. A paste or poultice from fresh plant is applied on boils, swollen cervical glands, erysipelas, fistula and chronic indolent ulcers. Decoction is laxative and is useful in malaria and rheumatism. Infusion of leaves of tender stalks is useful in indigestion in children. In combination with cumin it is useful in gonorrhoea. Extract of leaves is antibacterial.

Antimicrobial Properties: Leaves possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties. It exhibit strong antimalarial activity (Benoit et al., 1996).

Propagation : Through cuttings.

Loranthus philippensis Cham. & Schlechtend.

Family : Loranthaceae

Vern. name: Banda

Botanical description : Branchlets tomentose. Leaves ovate-elliptic, 4-11 x 3-6 cm, obtuse to subacute at apex, rounded or subcordate at base, white pubescent beneath; petioles 1.8 cm long. Flowers in axillary, 3-6-flowered

racemes; bracts elliptic-lanceolate. Calyx entire or obtusely 4-toothed. Corolla 1.5-2 cm long, whitish. Fruits clavate, tomentose.

Flowering & Fruiting: July – February

Distribution : Common parasite on various hosts viz., *Butea monosperma*, *Ficus semicordata*, *Diospyros* sp., *Xeromphis* sp., *Woodfordia fruticosa*, *Zanthoxylum alatum* and on *Mangifera indica*. Species recorded from Balaghat, Betul, Bilaspur, Hoshangabad, Jabalpur, Mandla, Raigarh, Rajnandgaon, Seoni and Surguja districts.

Uses : Plant is sweet, bitter, cooling, tonic. Plant useful in physical fatigue, fevers, cholera, cardiac diseases, bronchitis, tuberculosis and urino – genital disorders. Juice is used for pain in ear. It is used to increase weight reduced due to mental disorders and also in scorpion sting.

Propagation : Through cuttings.

Malaxis latifolia Sm.

Family : Orchidaceae

Vern. name : Rajmohini

Botanical description : Herbs; terrestrial. Stems stout, erect, 5-15 cm high. Leaves ovate or lanceolate, 12-22 x 4-7 cm, purplish, sessile or petiolate. Flowers dense, up to 20 cm long, stout spikes. Sepals incurved, dorsal sepals, oblong. Petals yellowish green, flushed with purple, linear. Capsules ellipsoid, erect, transversely wrinkled.

Flowering & Fruiting: June-December.

Distribution: In forests i.e. Bastar, Hoshangabad and Surguja districts.

Uses : Decoction of leaves useful in fever.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds and cuttings.

Marsdenia tenacissima (Roxb) Moon.

Family : Asclepiadaceae

Vern. name : Jiti, Chiti, Dodhi

Botanical description : Laticiferous climbing shrub, tender parts tomentose. Leaves 8-11 x 7-11 cm. Broadly ovate-cordate, acuminate. Flowers small, yellowish green in axillary corymbose cymes; calyx lobes lanceolate, corolla campanulate, villous without; corona linear, hard, acuminate; follicles

oblong, terete, 12 x 2 cm. Seeds 1-1.2 cm long, ovate-oblong, flat, coma 3-4 cm long, silky white.

Flowering & Fruiting: April– June.

Distribution: In forests i.e. Balaghat, Bilaspur, Chhatarpur, Raigarh, Raipur and Satna districts.

Uses : It is tonic, cooling, aphrodisiac, expectorant. Roots constitute the drug white Turpeth (Safed Nisoth), used as purgative. Root and tender stalks emetic and expectorant. Leaves are used as an application to boils and abscesses. It is used in curing wat, biliousness, burning sensation, colds, eye diseases, snake bite and sneezing.

Antimicrobial Properties: Leaves possess antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Martynia annua L.

Family : Pedaliaceae

Vern. name: Bicchu, Baghnakha

Botanical description: Herb, perennial, erect, much branched, glandular pubescent, up to 2 m high: stems subterete, fistular. Leaves broadly ovate-orbicular. 20-40 cm across, sinuately dentate, sticky: petioles 20-30 cm long. Flowers in lax racemes, borne in the bifurcation of upper branches drooping. Calyx and corolla glandular pubescent. Corolla mauve or pinkish white with deep purple blotches on the inner side of lobe, bilabiate. Drupes ovoid, green, black on drying, hooked at the tip, deflexed.

Flowering & Fruiting: August – November

Distribution : In wastelands, open forests, field bunds, road sides i.e. Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Dhar, Durg, Hoshangabad, Indore, Mandla, Panna, Raipur, Rajnandgaon, Rewa, Satna, Sidhi, Surguja and Tikamgarh districts.

Uses: Whole plant used in epilepsy tuberculosis, glands, sore, throat, alexiteric inflammations and healing wounds.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*) properties.

Propagation : Through seeds.

Melia azadarachta L.

Family : Meliaceae

Vern. name: Bakain

Botanical description: Trees; leaves alternate, imparipinnate, 7-13 foliolate; leaflets sub-opposite, falcate lanceolate, oblique at base, coarsely serrate, acuminate, up to 7.5 x 2.5 cm, glabrous green above, pale beneath. Flowers greenish white in axillary panicles; calyx 5 fid; petals 5, free shortly ciliate, staminal tube cylindrical, 8-10 lobed, lobes slightly toothed at the tip; ovary three-chambered, superior, style slender, elongate, ending in a three lobed cylindrical stigma; drupes ellipsoid, fleshy, yellow when mature, 1-seeded.

Flowering & Fruiting: February -April.

Distribution : It is often planted in gardens and along roadside as avenue tree throughout Madhya Pradesh and Chhattisgarh .

Uses: Leaves, barks and fruits accredited with insect-repellant properties. Leaf-juice anthelmintic, diuretic and emmenagogue. A gum collected from the tree used in spleen enlargement, and infusion of bark in ascariasis. Seeds yield a drying oil, suitable for soap making and hair oil. Fruits tonic, cases of severe poisoning have been recorded.

Antimicrobial Properties: Leaf possess meliacine an antiviral activity that inhibits herpes simplex virus type -1 (HSV-1) infection cause of corneal disease which may result in a loss of vision and prevents ocular disease (Pifarre *et al.*, 2002).

Propagation : Through seeds.

Mentha arvensis L.

Family : Lamiaceae

Vern. name : Podina, Mint

Botanical description : Erect herbs, braanches pubescent. Leaves 4-7 x 1.3 x. 3 cm, opposite, elliptic, lanceolate, serrate, scattered, pubescent, gland-dotted beneath, acute or subacute, base acute, petioles up to 2 cm long. Flowers up to 5 mm long bluish white, scented in axillary umbels.

Flowering & Fruiting: June-July.

Distribution : This species is under cultivation in various parts of both states i.e. Chhattisgarh and Madhya Pradesh.

Chemical Composition: Essential oil contains chiefly pulegone and D-isomenthone. Essential oil from leaves contains d-carvone, carene, d-

sylvestrene and citronellol. Acacetin, apigenin, diosmetin, eriodictyol, hesperitin and luteolin from Polish herb. Alcoholic extract of leaves is antiovolatory and inhibitory of implantation in female experimental animals.

Uses : Infusion of leaves of Putinasa is used in rheumatism. Dried plant is antiseptic, carminative, stomachic, stimulant, diuretic, refrigerant, antispasmodic and emmenagogue. Leaves used for rheumatic pain and indigestion and used on stimulant and carminative. Dried plant is antispasmodic, stomachic, refrigerant, stimulant, diuretic and emmenagogue. It yields an essential oil which is used in pharmaceutical industries specially for medicines used in cough and headache. It is also used in perfume and soap industries. "Piper mint" is prepared from this plant which is used in Pan masala industries.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) (Tripathi *et al.*, 2006) properties.

Propagation : Through suckers.

Mentha spicata L.

Family : Lamiaceae

Vern. name: Podina, Pudina

Botanical description : Perennial, herb, prostrate or creeping, aromatic. Leaves opposite, ovate, ovate-elliptic or elliptic-oblong, 1.5-2 x 0.5-1 cm, serrate, glabrous, sessile. Verticillasters arranged in interrupted, 5-7 cm long spikes. Flowers purplish.

Flowering & Fruiting: June – July.

Distribution : Cultivated throughout states as kitchen garden crop.

Chemical Composition: Methyl acetate, menthyl acetate, menthol, menthone and hydrocarbons. Viridiflorol, menthofuran, isomenthone, neomenthol, neoisomenthol, α -pinene, β -pinene, cineol and carvone.

Uses : The paste of leaves is used against heat stroke, indigestion. Leaves used for rheumatic pain and used as stimulant and carminative. Dried plant is antispasmodic, stomachic, refrigerant, stimulant, diuretic and emmenagogue. Leaves are given in fever and bronchitis and in decoction used as a lotion in aphthae. Seeds are mucilaginous.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties. It reduces symptoms of feeling of pressure, heaviness, tension and improvement of disease in patients suffering from functional dyspepsia (Holtmann *et al.*, 2003).

Propagation : Through suckers.

Millingtonia hortensis L. f.

Family : Bignoniaceae

Vern. name: Akashneem

Botanical description : Tree, 8-10 m high, bark rough, cracking; young shoots pubescent. Leaves 40-50 cm long; leaflets 5-7. ovate-elliptic, 3.5-7 x 2-4.5 cm, acuminate at apex, cuneate-truncate at base, sinuate-dentate, glabrous. Flowers in widely branched, erect panicles. Calyx truncate: lobes short. Corolla bright white; lobes ovate, unequal; tube cylindrical, slender. Capsules up to 30 cm long.

Flowering & Fruiting: November – March.

Distribution : Planted on roadsides and in gardens as well as forests i.e. Bastar, Bilaspur, Chhatarpur, Dhar, Gwalior, Indore and Raigarh districts.

Uses : The bark is considered as antipyretic and also used to relieve bodyache.

Antimicrobial Properties: Roots and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Mimosa pudica L.

Family : Mimosaceae

Vern name : Lajwanti, Chui-mui

Botanical description: Diffuse, prickly, trailing herb, stem terete with recurved prickles. Leaves alternate, stipulate, bipinnate; leaflets 10 to 12 pairs, folding obliquely upwards on touching, small, sessile, linear, oblong clothed with appressed hairs below. Flowers 4-merous, pink, in pedunculate, polygamous, globose heads, calyx minute; corolla pinkish, lobes 4, ovate oblong, obtuse; stamens 4, filaments free, rose coloured, much exerted, ovary superior, oblong unilocular, style filiform, ending in a small terminal stigma. Fruit a lomentum, flat, bristly, slightly curved with 3-5, 1-seeded joints.

Flowering & Fruiting: August -March.

Distribution : In wastelands, open forests, field bunds, road sides, gardens i.e. Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Dhar, Durg, Gwalior, Indore, Mandla, Tikamgarh, Raipur, Seoni, Shivpuri and Raigarh districts.

Chemical Composition : Plant contains β -sitosterol and friedelin. Mucilage of seeds contain galactose and mannose and mannose. An adrenaline-like substance indentified in extracts of leaves.

Uses : Decoction of root used in gravel and other urinary complaints. Juice of leaves used in dressings for sinus and also for sores and piles. Seeds yield a fatty oil resembling soybean oil and may find similar uses, it may be suitable for dimerization and production at coating materials, such as Narolac. Leaves and roots are useful in piles fistula and hydrocele. It is used in burning sensation, diarrhoea, dysentery and haemophilia. Root is cooling, vulnerary, cures cough, asthma, biliousness, vaginal and uterinal complaints. Leaves and stem are used in scorpion sting.

Antimicrobial Properties: Root and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Mimusops elengi L.

Family : Sapotaceae

Vern name : Maulshri, Molsri

Botanical description: Tree, evergreen, 12-15 m high; bark rough, dark grey. Leaves ellipticovate or lanceolate, 4-12 x 3.5-5.5 cm, acute to shortly acuminate at apex, acute at base, subcoriaceous, exstipulate; petioles up to 4 cm long. Flowers axillary, solitary or in fascicles of 2-6, fragrant; pedicels 1.2-1.9 cm long, rusty tomentose. Calyx-lobes 8. Corolla white, up to 1 cm across; lobes ca 24, in 3 series of 8 each, imbricate. Berries ovoid or ellipsoid, 3 x 2 cm, yellow when ripe, 1-seeded. Seeds brown, shining.

Flowering & Fruiting: January–September

Distribution: Usually planted in gardens and parks i.e. Bhopal, Bilaspur, Chhatarpur, Gwalior, Damoh, Jabalpur, Raigarh, Raipur and Sarguja districts.

Uses : Flowers, fruits and bark are astringent and used as tonic, increases fertility in women, fevers, diseases of gums and teeth, headache and ulcers. Leaves are used in snake bite. Seeds are used in constipation. The flowers are used to treat diarrhea and in snuff. Flower has essential oil used in perfumery and as a stimulant due to presence of content phenylethanol (38%) and Methylbenzoate (13%) (Wong and Teng, 1994).

Antimicrobial Properties: A sterol identified in leaves which exhibit inhibitory properties to dysentery and diarrhea microbes in cattle and mammal (Jahan *et al.*, 1996).

Propagation : Through seeds.

Mirabilis jalapa L.

Family : Nyctaginaceae

Vern. name : Gulabbans

Botanical description : Erect herb, branches swollen at nodes. Leaves 5-1 x 3-7 cm. Opposite, ovate, funicles scattered beneath, acuminate, base retuse

on subcordate, petioles up to 4 cm long. Flowers 5 cm long, red or yellow, subsessile, in terminal cymes. Anthocarps 8x6 mm, black, clipsoid, warted.

Flowering & Fruiting: July – February

Distribution : Planted on roadsides, in gardens as well in side the forests i.e. Bastar, Bilaspur, Chhatarpur, Dhar, Gwalior, Indore, Mandla, Shahdol, Tikamgarh and Raigarh districts.

Chemical Composition : Alkaloid trigonelline. Tricosan-12-one, n-hexacosanol, β -sitosterol and tetracosanoic acid isolated, while tartaric, citric acids, valine tryptophan, leucine, alanine and glycine detected in leaves. Indicaxanthin and vulgaxanthin I, meraxanthins I, II, III and IV from flowers.

Uses : Leaves and stems cooked with pork used in China as a tonic. Seeds used as an adulterant of black pepper .Juice of leaves applied to wounds and bruises and for allaying itching in urticaria. Dried root is used as nutrient powdered and fried in ghee with spices it is given in milk as a nourishing and strengthening medicine. Leaves are used in boils, phlegmons and whitlow. Fresh leaves juice is also used to the body in urticaria. Root is used for Piles.

Antimicrobial Properties: Root possess (*Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Moringa oleifera Lank.

Family : Moringaceae

Vern. name : Munga, Sahjan

Botanical description :Tree, up to 7 m high; young parts tomentose. Leaves up to 50 cm long; rachis thickened and articulate at the base; terminal pinnule obovate, slightly larger than lateral leaflets; lateral pinnules elliptic, apex obtuse or emarginated. Petiolules of lateral pinnules 1.5-2.5 mm long and those of terminal leaflets 3-7 mm long. Flowers white or yellowish, in large, puberulous, effuse panicles. Calyx lobes 1.3-1.5 x 0.4 cm, linear alternating with 5-7 sterile stamens; filaments hairy at the base. Ovary oblong, villous, Capsules up to 40 cm long, pendulous ribbed, more or less obtusely trigonous; seeds up to 2.5 cm long, 3-angled, 3-winged.

Flowering & Fruiting: February–June

Distribution : Planted in the vicinity of villages i.e. Bastar, Bilaspur, Guna, Indore, Jabalpur, Mandla, Raigarh, Rajnandgaon, Raipur, Raisen, Rewa, Seoni, Shivpuri and Sidhi districts.

Chemical Composition : Alanine, arginine, glycine, threonine, serine, valine, glutamic and aspartic acids in flowers and fruits. Lysine, sucrose and glucose in flowers. 4-hydroxymellein, vanillin, octacosanoic acid, β -sitostenone from stems. Aldotriouronic acid from gum. Bark yields a base moringine. Pterygospermin, an antibiotic.

Uses : Plant is hot, sweet, light, stimulant, expectorant, diuretic and antispasmodic. Various parts are used in improving appetite, digestion, promoting semen, heart and eye diseases, intermittent fever, epilepsy, chronic rheumatic pain, cardiac and circulatory tonic, nervous debility, bowels affections, hysteria and liver diseases. Leaves are used in glandular swellings, hicough and eye diseases. Clinical studies have shown that stem bark produces significant relief in patients suffering from difficult micturition. It improves appetite and digestion, promotes semen and is good for heart and eye problems. Fresh root is acrid and vesicant, internally stimulant, diuretic and antilithic. Root bark is used as fomentation to relieve spasm. Polutice of leaves is beneficial in glandular swellings. Leaf-juice is useful in hicough, emetic in higher doses. Mixed with honey it is applied to eyelids in eye diseases. Fruit is used in diseases of liver and spleen, articular pains, tenesmus and paralysis. Flowers are stimulant, tonic, diuretic and useful to increase flow of bile and are also aphrodisiac. Oil from seeds is used as external application in rheumatism. Gum is used for dental caries; mixed with sesamum oil and poured into ears for relief of otalgia. Seeds are used in venereal affections. Root, bark and gum are abortifacient. Pod contains Iron used as vegetable and blood purifier.

Antimicrobial Properties: Leaves shows hypotensive activity led to nitrile glycosides, niazirin and niazirin which decreases arterial blood pressure (Shaheen-Faizi *et al.*, 1994).

Propagation : Through seeds and cuttings.

Mucuna pruriens (L.). DC.

Family : Papilionaceae

Vern. name : Kiwach

Botanical description : Perennial twining shrub, clothed with dense hairs when young. Leaves alternate, trifoliolate, long-petioled, leaflets ovate-rhomboid acute, mucronate; terminal leaflet up to 10.5x5.5 cm, laterals unequal-sided at base, appressed white-pubescent above, densely covered with silvery gray hairs beneath. Flowers purple in axillary, pendulous racemes, calyx 2-lipped, tube pubescent, corolla papilionaceous, exserted;

stamens diadelphous. Fruit a turgid, falcately curved pod, densely covered with irritant bristles.

Flowering & Fruiting: September-May.

Distribution : Climbing on trees and shrubs on road sides and forests edges i.e. Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Damoh, Dhar, Gwalior, Hosangabad, Indore, Jabalpur, Mandla, Panna, Raigarh, Raipur, Raisen, Seoni, Shahdol and Sidhi districts.

Chemical Composition: Plant extract induced marked hypotensive and hypocholesterolaemic effect. The total indole alkyamines produced marked behavioural changes in rats. Seeds give mucuadine, mucuadinine and pruriendine and small amounts of nicotine and reddish viscous oil.

Uses: This is considered to be an important drug, capable of promoting the semen and sexual vigour. This is also reported to be anthelmintic, diuretic, purgative and nervine tonic. It promotes strength and overcome vaata, pitta and malignant ulcers. It is also used in cholera, delirium, impotence, leucorrhoea, spermatorrhoea, urinary troubles and in expelling round worms. Seeds and hairs covering the pods are the medicinal main use. A paste of the seeds is applied on the body in dropsy. It is reported to produce anti-depressant effect in patients suffering from depressive neurosis. Leave is also useful to treat snakebite (Houghton and Skari, 1994). Seeds are aphrodisiac, tonic, aphrodisiac, tonic and alexipharmic, cure scorpion sting. Pods most active anthelmintic against *Tenia cannina* and *paraphistonium*.

Antimicrobial Properties: Root, leaves and seed and seed scalp possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The treatment by cotyledon powder increases the brain mitochondrial complex I activity and the presence of NADH and coenzyme Q-10 which controls the Parkinson disease (Manyam *et al.*, 2004).

Propagation : Through seeds.

***Murraya paniculata* (L.) Jacq.**

Family : Rutaceae

Vern. name: Hathul

Botanical description : An evergreen shrub or small tree, Leaflets 3-7, elliptic-ovate, acuminate, often oblique at base, dark green and shining

above. Flowers Sepals minute, acute. Petals oblong, lanceolate. Ovary hirsute, 2-celled; style filiform. Berry red elliptic, apiculate; seeds woolly.

Flowering & Fruiting: October-April

Distribution : In mixed forests, commonly grown in the garden for its glossy green leaves and large clusters of fragrant flowers; also a common hedge plant i.e. Bastar, Bilaspur, Bhopal, Damoh, Jashpur, Raigarh and Shahdol districts.

Chemical Composition : Girinimbin from stem bark, Girinimbine, mahanimbine and isomahanimbine from leaves and roots.

Uses : Leaves are used to treat fever and rheumatism. Root is slightly purgative. Bark and root are stimulant, externally used to cure eruptions and bites of poisonous animals. Leaves promote appetite and digestion, destroy pathogenic organisms. It is acrid, bitter, astringent, cool and light and is useful in emaciation or wasting conditions, skin diseases, hemopathy, worm troubles, neurosis and poisons in system. Green leaves are eaten raw as cure for dysentery; bruised and applied externally to cure eruptions; given in decoction with bitters as febrifuge and used in snake-bite.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Nelsonia canescens (Lam.) Spreng.

Family : Acanthaceae

Vern. name: BaidJadi, Chhota-aandhi

Botanical description: Herb, perennial, erect or diffuse, up to 60 cm high; young parts villous; roots fleshy, tuberous. Leaves elliptic-oblong to obovate, 5-20 x 1-3 cm, obtuse or subacute at apex; basal leaves petiolate; upper ones subsessile. Flowers in axillary and terminal, 1-5 cm long, grey woolly spikes; bracts ovate-obovate, 4-6 mm long; bracteoles represented by two opposite tuft of hairs. Calyx-segments 5-6 mm long, glandular ciliate. Corolla white, pink or blue, 7-8 mm long. Capsules ovoid-conical, 6 mm long, glabrous, 8-12 seeded. Seeds ovoid, brown.

Flowering & Fruiting: February-June.

Distribution : Species found in mixed forests of Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Hoshangabad, Mandla, Raigarh, Raipur, Rajnandgaon, Rewa, Seoni, Sidhi and Surguja districts..

Uses : Roots are used in heat stroke, fever and in tonic preparation.

Antimicrobial Properties: Root and flowers possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Nervilia aragoana Gaud.

Family : Orchidaceae

Vern. name: Bhimalathi

Botanical description : Small herb, terrestrial, tubers white, globose to subglobose. Leaves broadly ovate, 8 cm across, abruptly caudate at apex, cordate at base, undulate on margins, glabrous; petioles 10-15 cm long. Flowers in lax, few to many-flowered, 10-20 cm long racemes, drooping, shortly pedicellate; bracts linear-lanceolate, glabrous, deflexed. Sepals linear, subequal, acute, entire, glabrous, 3-nerved. Petals green, similar to sepals, sometimes narrower at base. Labellum obovate, 12 mm long, 3-lobed; mid lobe ovate, crenulate, densely pubescent along the nerves; lateral lobes erect, embracing the column. Column 7 mm long, dilated above.

Flowering & Fruiting: July–September.

Distribution : In sal forests i.e. Balaghat, Bastar and Raipur districts.

Uses : Whole plant is used as medicine. The plant is bitter, acrid, coolly, glactagogue, diuretic and tonic. It is useful in uropathy, lithiasis, colic, agalactia, mental instability, epileptic fits, haemoptysis, diarrhoea, asthma, cough, vomiting and vitiated condition of pitta.

Antimicrobial Properties: Tubers possess antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Nervilia prainiana (King. & Pantl.) Scidenf. & Smitin.

Family : Orchidaceae

Vern. name: Ekpatti

Botanical description : Herb, terrestrial, tubers ovate, fleshy. Leaves flat on the ground, reniform-cordate or broadly infundibuliform, 4-7 cm across, glandular pubescent above. Flowers solitary on 5-8 cm long peduncle; bracts triangular, small. Sepals and petals more or less similar, greenish white, linear-oblongate. Petals yellow, slightly shorter than sepals. Labellum pale pink more or less tubular, obscurely 3-lobed; mid lobe 3-4 lobulate, fimbriate,

wrinkled, with hairy outgrowths; lateral lobes oblong, connivent around the column. Column clavate, glabrous. Capsules broadly fusiform, ribbed.

Flowering & Fruiting: July–October

Distribution : In forests, hills, i.e. Bilaspur, Hoshangabad and Shahdol districts.

Uses : Whole plant is used as medicine. The plant is useful in uropathy, lithiasis, colic, agalactia, mental instability, epileptic fits, haemoptysis, diarrhoea, asthma, cough, and vomiting. Decoction of leaves given after parturition.

Antimicrobial Properties: Tubers possess antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Nyctanthes arbor-tristis L.

Family : Oleaceae

Vern. name: Harsringar, Parijat

Botanical description: Large shrub or small tree, 2-4 m high, branches 4-angled. Leaves ovate or obovate, 7-16 x 3-8.5 cm. Flowers in trichotomous cymes, subsessile. Calyx lobes 5, truncate. Corolla lobes white, 5-7, tube orange, 7-10 mm long, capsules suborbicular 2 cm long.

Flowering & Fruiting: September - February

Distribution : Common in mixed deciduous forests, gardens, parks, home gardens, and hill slopes i.e. Balaghat, Betul, Bilaspur, Chhatarpur, Damoh, Durg, Gwalior, Indore, Khandwa, Khargon, Jabalpur, Narsimhapur, Panna, Chhatarpur, Raipur, raigarh, Rewa, Satna, Seoni, Sidhi, Sarguja and Tikamgarh districts.

Chemical Composition : Leaves give mannitol, free glucose and fructose benzoic acid, β -amyrin, β -sitosterol, hentriacontane, astragalins and nicotiflorin from leaves. Nyctanthoside, crocin-1, crocin-3 and D-mannitol from flowers. β -sitosterol and glycoside naringenin from stem. Essential oil

Uses : Leaves are used to treat intestinal worms, fever and rheumatism. Flowers yield dye. Whole plant is cholagogue, anthelmintic and laxative. It is used in dysentery, menorrhagia, sores and ulcers. Decoction of leaves prepared over a gentle fire, is recommended as a specific for obstinate sciatica.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) while, leaves possess antifungal (*Colletotrichum capsici*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings

Ocimum basilicum L.

Family : Lamiaceae

Vern. name: Ban tulsi, marmari, Ram tulsi.

Botanical description : A perennial erect, almost glabrous herb, much branched, 0.5-1 m high. Leaves ovate-lanceolate, 3-5 x 1-2 cm, acuminate at apex, cuneate or tapering at base, entire or dentate, glabrous; petioles 1-2 cm long, ciliate. Verticillasters in simple or much branched, often thyrsoid racemes. Calyx 2-4 mm long, 6 mm in fruit, villous inside; upper calyx-lobe becoming horizontal in fruit; 2 middle teeth of the lower lip awned. Corolla white, 10-12 mm long. Nutlets pitted.

Flowering & Fruiting: July–April

Distribution : In wastelands, forest floor and nearby habitations i.e. Balaghat, Bastar, Betul, Bilaspur, Chhatarpur, Durg, Gwalior, Indore, Jabalpur, Jashpur, Rewa, Satna, Seoni, Sidhi and Tikamgarh district.

Chemical Composition: Methyl cinnamate, methylchavicol, cineole, linalool, ocimene, borneol, sambulene and safrol from essential oil.

Uses : It is aromatic with carminative, bitter, hot, acrid, diuretic, anthelmintic and cooling properties. It cures disorders due to kapha and vaata, dyspepsia, cough, constipation, bronchitis, intermittent fevers, intestinal worms, anoxeria, ulcer, itching, poison affections and skin diseases. Flowers are diuretic, carminative, stimulant and demulcent. Seeds are mucilaginous and given in infusion for gonorrhoea, dysentery, bleeding piles, water debility and chronic diarrhoea. Roots are used in bowel complaints of children. Leaves are useful in treatment of cough, for which the warm juice with honey is given.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) (Tripathi *et al.*, 2006) properties. The leaves contain oil 'basil' in which linalool (54.95%), methylchavicol (11.98%), methylcinnamate (7.24%) are found. The activity of basil against multidrug resistant clinical isolates from the genera *Staphylococcus*, *Enterococcus* and *Pseudomonas* shows strong antimicrobial properties (Opalchenova and Obreshkova, 2003).

Propagation : Through seeds.

Ocimum gratissimum L.

Family : Lamiaceae

Vern. name: Ramtulasa, Ban tulsi

Botanical description : A tall, much-branched perennial shrub, up to 2.5 m high. Leaves ovate, 2.5-10 x 3-7 cm, acute at apex, cuneate at base, coarsely crenate-serrate; petioles as long as the lamina. Verticillasters moderately close, in short, simple or branched, woolly racemes; bracts sessile, longer than calyx. Calyx 2.5 mm long, twice enlarged in fruit, pubescent; upper calyx-tooth rounded, longer than the lower ones, curved upwards in fruit closing the mouth of the calyx. Corolla 5 mm long, pubescent outside; upper lip with 4 teeth; lower lip longer. Nutlets subglobose, brown, with a glandular depression.

Flowering & Fruiting: September–March.

Distribution : In wastelands and along roadsides i.e. Balaghat, Bastar, Damoh, Dhar, Indore, Jabalpur, Raipur, Seoni and Surguja districts.

Chemical Composition: Essential oil contains thymol, eugenol, cadinene, methyl chavicol, myrcene, monocyclic terpenes. Ocimol and gratissimin from leaves. Essential oil from leaves and soft stem contains citral, geraniol and citronellol.

Uses : Ramatulasi is aromatic. A strong decoction is effectual in aphthae of children and baths of fumigations. It is recommended in the treatment of rheumatism and paralysis. Decoction of leaves is useful in seminal weakness and is remedy for gonorrhoea. Seeds are given in headache and neuralgia. Tribals of Bastar region prepare cold drinks from the plant.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*) while, leaves possess only antibacterial (*Xanthomonas campestris* pv. *campestris*) properties. The essential oil of leaf found to inhibit *Bacillus cereus*, *B. subtilis*, *Corynebacterium glutamicum*, *Staphylococcus aureus*, *Streptococcus faecalis*, *Escherichia coli* and *Enterococcus faecalis* (Ngassoum *et al.*, 2003). The leaves also has inhibitory properties of extracellular protease and expression of O-LPS rhamnose in shigellosis (Iwalokun *et al.*, 2003).

Propagation : Through seeds.

Ocimum sanctum L.

Family : Lamiaceae

Vern. name: Tulsa, Tulsi

Botanical description : An erect herbaceous, much-branched, softly hairy, perennial herb, 0.3-1 m high; stems and branches purplish or green, woody below on maturity. Leaves elliptic-oblong, 2-6 cm long, acute or obtuse at apex, entire or serrate, pubescent; petioles 1-2.5 cm long. Verticillasters close, in 10-20 cm long racemes; pedicels as long as fruiting calyx, slender, pubescent. Calyx broadly campanulate, slightly enlarged in fruit; uppermost calyx-tooth broadly obovate, much reflexed and shortly apiculate. Corolla purplish, 5 mm long; upper lip pubescent on the back. Nutlets subglobose or broadly ellipsoid, slightly compressed, pale brown or reddish, nearly smooth, with small black markings. .

Flowering & Fruiting: Almost throughout the year.

Distribution : Planted in home gardens, ashrams, parks. Cultivated throughout both states i.e. Chhattisgarh and Madhya Pradesh.

Chemical Composition: : Eugenol, its methyl ether, nerol, caryophyllene, terpineen-4-ol, decylaldehyde, γ -selinene, β -pinene, camphene and α -pinene from essential oil. Plant contains citric, tartaric and malic acids.

Uses : It is aromatic, carminative, antipyretic, diaphoretic and expectorant. It has been found to be very effective in treatment of viral encephalitis and tropical pulmonary eosinophilia in children. Plant is used in snake bite and scorpion sting. Fresh roots, stems and leaves are bruised and applied to the bites of mosquitoes. Decoction of roots is used as diaphoretic in malarial fevers. Leaves are expectorant. Juice of leaves is diaphoretic, antiperiodic and stimulating expectorant; used in catarrh and bronchitis; dropped into ear as remedy for earache. Infusion of leaves are given in malaria, stomachic, gastric disorders of children and in hepatic affections. It improves appetite, afflicts of ear, destroys intestinal worms and cures skin diseases. Dried leaves, powdered and used as snuff in ozaena. Seeds are demulcent, given in disorders of genito-urinary system. Decoction of leaves are given for the treatment of common cold and cough and skin diseases.

Antimicrobial Properties: Leaves found to possess potent anti-ulcerogenic as well as ulcer healing properties and act as a potent therapeutic agent against peptic ulcer disease (Dharmani *et al.*, 2004). It possess anticataract activity in sugar induced cataract (Halder *et al.*, 2003). The leaf possess antifungicidal properties against sheath blight of rice (Ansari, 1995).

Propagation : Through seeds.

Operculina turpethum (L.) Manso.

Family : Convolvulaceae

Vern. name: Nisoth

Botanical description : Large climbing shrub; stem 4-angled, winged. Leaves simple, alternate, broadly ovate to cordate, obtuse at apex, 8-12 x 7-13 cm, puberulous. Flowers showy, creamy white in axillary, long-peduncled, lax corymbose cymes; bracts large, oblong. Calyx lobes unequal, persistent, puberulous. Corolla funnel form; stamens 5; ovary globose; capsule circumscissile, enclosed in the enlarged, woody calyx lobes. Seeds 4, black, smooth.

Flowering & Fruiting: February–May.

Distribution : On bushes and hedges i.e. Bilaspur, Chhatarpur, Damoh, Mandla, Panna, Raigarh, Raipur and Sarguja districts.

Uses: Source of a purgative called Turpeth or Indian Jalap, available in two forms; white and black. It is almost as active as true Jalap. White Turpeth is preferred as black turpeth produces drastic purgation which may be followed by vomiting, giddiness and even fainting. Active principle is a glycosidic resin. Recent investigations have shown that white turpenthum is also derived from *Marsdenia tenassima*.

Antimicrobial Properties: Root and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, flowers possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds & cuttings.

Paederia foetida Linn.

Family : Rubiaceae

Vern. name: Gandha Prasarini/Prasarini

Botanical description: A slender, twining, foetid shrub. Leaves opposite, ovate to lanceolate, entire, long-petiolate. Flowers purple or violate, tubular or funnel shaped, nearly sessile, in axillary and terminal, often scorpioid cymose panicles. Fruits ellipsoid, compressed, red or black.

Flowering & Fruiting: January-February.

Distribution : In mixed forest i.e. Bastar, Balaghat, Bilaspur and Raipur districts.

Uses : The plant is bitter, aphrodisiac, tonic, diuretic, emmenagogue and usefull in inflammations, piles, fever, epistaxis, diseases of eye and night blindness. The whole plant is regarded as specific for rheumatic affections for which it is administered both externally and internally. Leaves are tonic, styptic, vulnerary and used as poultice to relive distention of abdomen due to

flatulence and also used in herpes and earache. The juice of leaves are given to children in diarrhoea while root juice is given in piles, diseases of spleen, liver and in chest pain.

Antimicrobial Properties: Root and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, fruits possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through stem cutting.

Pergularia daemia (Forsk.) Chiov.

Family : Asclepiadaceae

Vern. name : Sagovani, Utaran

Botanical description: Slender hispid climber. Leaves simple, opposite, broadly ovate acuminate, deeply cordate at base, up to 14 x 11 cm, flowers greenish white, axillary, pedunculate, corymbose cymes. Calyx 5-partite, glandular within. Corolla tube short, lobes 5, lanceolate acute, hairy on margins; corona double, the outer 5 lobes entire and the inner fleshy and spurred; pollinium, one in each cell; ovary of 2 distinct carpels; follicles 2, lanceolate, echinate.

Flowering & Fruiting: May-October

Distribution: Climbing on trees and shrubs on roadsides and forest edges i.e. Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Damoh, Khandwa, Khargon, Indore, Mandla, Panna, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Sagar, Satna, Seoni, Shahdol, Shivpuri, Sidhi and Tikamgarh districts.

Uses : Leaves and flowers eaten; plant also browsed by goats. Plant emetic, expectorant, anthelmintic. Decoction of leaves used in asthma, their juice in infantile diarrhoea. Combined with lime, leaf juice applied to rheumatic swellings. Pulped leaves applied to carbuncles. Plant extract gives for uterine and menstrual troubles and to facilitate parturition. The leaves extract in alcohol is given for getting rid of alcoholic addiction.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds & cuttings.

Peucedanum nagpurensis (Clarke.) Prain.

Family : Apiaceae

Vern. name: Bhojraj

Botanical description: Erect perennial herb. Leaves 1-3 pinnate; ultimate segments lanceolate or ovate. Umbels compound with 12-16 rays; bracts absent; bracteoles 4-7. Fruits truncate, emarginated at the narrowed base.

Flowering & Fruiting: October–January

Distribution : In mixed forest i.e. Bastar, Balaghat, Bilaspur and Raipur districts.

Uses : Tuberos roots considered as tonic and used to increase sexual power. Seeds are having medicinal properties. Roots, leaves and seeds possess antimicrobial properties against plant and clinical pathogens.

Antimicrobial Properties: Leaves and flowers possess antibacterial (*Xanthomonas campestris* pv. *campestris*) while, root possess both antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. Seeds possess antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Phyllanthus amarus Schumach. & Thonn.

Family : Euphorbiaceae

Vern. name : Bhuia Anwala

Botanical description : Erect, annual herb; stem terete; cataphylls obovate, obtuse or retuse. Leaves closely arranged, up to 1.5 x 0.6 cm, obtuse or retuse at apex. Flowers yellowish green in minute; pedant from the axils of leaves. Male flowers; tepals 5 to 6, obovate; stamens 3, filaments connate. Female flowers; tepals much shorter than the capsule; ovary minute, styles 3; capsule smooth. Seeds 6, blackish, concentrically striate.

Flowering & Fruiting: August -December

Distribution : Common as weed in gardens, fields and in open sandy places near villages and forests i.e. Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Dhar, Indore, Jabalpur, Khandwa, Mandla, Panna, Raigarh, Raipur, Seoni, Shahdol, Shivpuri, Sidhi and Tikamgarh districts.

Chemical Composition: Leaves contain bitter substance phyllanthin, hypophyllanthin. Three new lignans- niranthin. and phyltetralin from leaves.

Kaempferol-4-rhamnopyranoside and eriodictyol-rhamnopyranoside from roots. Stem contains saponin.

Uses : It is astringent, stomachic, diuretic and febrifuge and used in diarrhoea, dysentery, dyspepsia and colic, dropsy and diseases of urogenital system. Fresh roots given in jaundice, also used as a galactagogue. Latex applied to sores. Seeds are used in jaundice.

It is used as a diuretic in dropsical affections, gonorrhoea and other troubles of genitor-urinary tract. It is used in stomach troubles such as dyspepsia, colic, diarrhoea and dysentery and also for dropsy and diseases of urogenital system. Leaves stomachic. Milky juice used as application to sore. Powdered leaves and roots, pulverized and made into poultice with rice - water used to lessen oedematous swellings and ulcers. Leaves are a popular remedy against fever. Infusion of young shoots given in dysentery

Antimicrobial Properties: Whole plant possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The root has anti bovine viral diarrhoea virus (BVDV) and antihepatitis C virus (HCV) activity (Bhattacharyya *et al.*, 2003). The plant extracts potently inhibit HIV-1 replication in HeLa CD4+ cells thus useful in the chemotherapy of HIV infections (Notka *et al.*, 2003).

Propagation : Through seeds.

Pimpinella bracteata Haines.

Family : Apiaceae

Vern. name: Hansraj

Botanical description : Stout under shrubs, up to 1 m high. Leaves 3-5 foliolate; first year leaves radical, 3-foliolate; leaflets ovate-lanceolate; lower leaflets ovate; upper leaflets lanceolate and uppermost leaflets pinnatifid, with linear-lanceolate lobes ending in sub-spinulose tips. Umbel with 6 linear bracts; bracteoles 3-5. Fruits glabrescent, minutely papillose.

Flowering & Fruiting: October – January

Distribution : Species is found in sal dominated mixed forests of Bastar, Bilaspur, Jashpur, Hoshangabad, Shahdol and Surguja districts.

Uses : Fresh roots given in jaundice, also used as a galactagogue. Roots are also used in the preparation of various health tonic.

Antimicrobial Properties: Root and possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Piper longum L.

Family : Piperaceae

Vern. name : Pippali, Pipramul

Botanical description : Dioecious creeper or root climber with fastigate branches. Leaves simple, alternate, ovate to oblong, deeply cordate, often oblique at base, acuminate at apex, to 12 x 6 cm. Flowers minute on unisexual, axillary, cylindric spikes, green at first, turning yellow later, to 5 cm, long, male spikes longer than female; fruits small berries, dark red when ripened partially sunk in the fleshy axis of the spike, 1.8 – 2.5 cm long.

Flowering & Fruiting: July–October.

Distribution: Rare; the plant is found in moist shady places of mixed forests i.e. Bastar, Dhar and Sidhi districts. It is occasionally cultivated in Chhattis-garh and Madhya Pradesh.

Chemical Composition : Plant contains essential oil consisting of long-chain hydrocarbons, mono- and sesquiterpenes. Piperlongumine, piperlonguminine, sesamin, piperine, and methyl 3,4,5-trimethoxycinnamate from roots.

Uses : Roots and fruits used for diseases of respiratory tract i.e. cough and cold as counter irritant and analgesic for muscular pains and inflammation as sunff in coma and internally as a carminative, in insomnia and epilepsy, as cholagogue in obstructions of bile duct and gall-bladder and as an emmenagogue and abortifacient. Fruits used as a spice and condiment; also employed to preserve pickles. It is capable of improving intellect and memory power and also to regain health by dispelling disease. It is acrid, hot, light, digestive, appetizer, aphrodisiac and tonic. It cures cough, dyspnoea, ascites, leprosy, diabetes, piles, colic, anemia, indigestion, and dispels cardiac and splenic disorders, chronic fever.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, root and fruit possess antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds & cuttings.

Plantago ovata Forsk.

Family : Plantaginaceae

Vern. name: Isabagol

Botanical description : Erect herb. Leaves ovate or ovate-lanceolate. 10-16 x 4-8 cm, obtuse at apex, subentire: nerves 5 or 7, much prominent; petioles very narrow. Flowers in elongate, 15-25 cm long, rarely up to 50 cm long spikes: peduncles grooved, 20-40 cm long: bracts broadly deltoid, 2 mm long. Calyx shortly stipitate; sepals 2-2.5 mm long; anterior sepal narrowly ovate-elliptic, often a little incurved at apex, with adjacent furrows equally broad to the lateral lamina; posterior sepal elliptic, little narrowed at apex. Corolla-lobes lanceolate, 1-2 mm long. Capsules ellipsoid, rounded or a little conical at apex, 5-8 – seeded.

Flowering & Fruiting: November – March.

Distribution: Rare. On embankments of streams i.e. Surguja district. Also cultivated in some parts of Chhattisgarh and Madhya Pradesh.

Chemical Composition : Mucilage Seeds contain holoside planteose. Seeds oil has 50% linoleic acid, prevents atherosclerosis. Oil is more active than safflower oil, reduces serum cholesterol level in rabbits. The husk of the seed contains a colloidal mucilage (polysaccharide), mainly consisting of xylose, arabinose, galacturonic acid with rhamnose and galactose.

Uses : Seeds are demulcent, cooling, diuretic and laxative. Used in inflammatory conditions of mucous membrane of gastro-intestinal, genito-urinary tracts, chronic dysentery, diarrhoea and constipation. Infusion or decoction of the whole seed is used to control chronic constipation. In addition to its medicinal use, it is employed as a stabilizer in ice creams and as an ingredient in chocolates and other food materials.

Antimicrobial Properties: The ethanolic and methanolic extract of seed husk possess antimicrobial properties against *Staphylococcus epidermidis* and *Staphylococcus aureus* (Motamedi *et al.*, 2010).

Propagation : Through seeds.

Plumbago zeylanica L.

Family : Plumbaginaceae

Vern. name : Chitrak

Botanical description: Branched undershrub; roots long, tuberous; stem striate. Leaves simple, alternate, short-petioled, ovate-oblong, acute with entire or wavy margin, 7 x 3.8 cm, glabrous. Flowers white in terminal spikes; calyx tubular, glandular-hairy; corolla tube slender, stigmatic branches 5; fruit a membranaceous capsule enclosed within the persistent calyx. Capsules oblong, acute with 5 furrows.

Flowering & Fruiting: August-September.

Distribution : On roadsides and forests undergrowth, often planted in gardens i.e. Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Damoh, Guna, Gwalior, Hosangabad, Indore, Jabalpur, Mandla, Panna, Raigarh, Raipur, Raisen, Seoni, Shahdol, Sidhi and Tikamgarh districts.

Chemical Composition : Contains plumbagin which externally is a strong irritant and a powerful germicide, stimulates muscular tissue in smaller doses and paralyzes in larger ones; stimulates contraction of the muscular tissue of heart, intestines and worms; stimulates secretion of sweat, urine and bile and has stimulant action on nervous system. Roots contain plumbagin, 3-chloroplumbagin, 3, 3-biplumbagin, chitranone, zeylinone, isozeylinone, elliptinone and droserone. Plant extract prevented 100% ovulation and implantation in female rats.

Uses : Chitrak root is powerful poisonous. Root part of the plant is very caustic in actions, used for the treatment of diseases of spleen, piles, skin diseases, black water fever muscular pain, leprosy etc. Tincture of root bark is a powerful antiperiodic. It is abortifacient, appetizer and diuretic. The paste used to ripen and open abscesses. The root paste is applied locally on joints for rheumatic pain. It is reported to have antifertility properties in this plant. It is an esteemed remedy for leucoderma and other skin diseases. Drug is used only after adequate curing and purification. It is alterative, gastric stimulant and aperiser; in large doses it is acronarcotic poison. It has a specific action on uterus. Tempered with little bland oil is used as external application in rheumatism and paralytic affection; also prescribed internally for these complaints. It is a powerful sialogogue, remedy for secondary syphilis and leprosy. Milky juice is useful in ophthalmia and application to scabies.

Antimicrobial Properties: Leaves and root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, seed possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds & cuttings.

***Polygala crotalarioides* Buch-Ham ex DC.**

Family : Polygalaceae

Vern. name: Tejraj

Botanical description : Erect perennial herb. Leaves obovate or oblanceolate, obtuse, pubescent, short-petioled. Flowers pinkish in axillary racemes, outer sepals ovate-oblong; wing sepals obovate-rounded, ciliate, keel crested with filiform appendages. Capsules orbicular, notched at apex, ciliate. Seeds obovoid, dark brown, hairy; caruncle hood-shaped with 2 small ovate appendages.

Flowering & Fruiting: July – December

Distribution : As undergrowth in hill forests i.e. Bilaspur, Jabalpur, Sagar, Sidhi and Surguja districts.

Uses : Used in chronic malaria, leucorrhoea and urinary diseases.

Antimicrobial Properties: Roots possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Pongamia pinnata (L.) Pierre.

Family : Papilionaceae

Vern name : Karanj

Botanical description : Tree; leaves alternate, imparipinnate, 5-7 foliolate, leaflets elliptic-acuminate, 15 x 8 cm, glabrous. Flowers small pinkish white in axillary racemes. Calyx cup-shaped, shortly 4-5 toothed. Corolla papilionaceous, much exerted; stamens 10, monadelphous, anthers uniform, ovary subsessile, 2-ovuled, style incurved, glabrous, ending in a capitate stigma, pod woody, compressed, obliquely oblong. Seeds 1-2 solitary.

Flowering & Fruiting: March -February

Distribution : Generally planted on roadsides and forests edges i.e. Balaghat, Bastar, Betul, Bhopal, Bilaspur, Chhatarpur, Damoh, Dhar, Durg, Gwalior, Hosangabad, Indore, Jabalpur, Mandla, Panna, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Seoni, Shahdol and Sidhi districts.

Chemical Composition: Seeds contain 27 to 36.4% of a bitter fatty oil and traces of an essential oil. Seeds yield fixed oil and three crystalline substances karanjin, pongamol and glabrin. Roots contain four furoflavones, viz. keranjin, pongapin, pinnatin and gamatin. Seeds, pongapin; flowers,

kaempferol and waxes; stem-bark, waxes. Tetra-O-methylfisetin and pongachromene from root and stem-bark. B-sitosterol from seeds.

Uses : It is a good and effective remedy for all skin diseases like scabies, eczema, leprosy and ulcers. It is reported to be acrid, active, hot and cures vaginal diseases, skin diseases, intestinal obstruction, phantom tumour, piles, abdominal and spleen enlargement. Bark is the main medicinal part. Leaves cure piles, parasites, oedema and morbid kapha and vaata. Fruit overcomes urinary diseases, piles and skin diseases. Oil from seeds are applied to scabies, sores, herpes and other skin diseases.

Juice of roots, used for closing fistulous sores and cleaning foul ulcers; given internally with equal quantities of coconut milk and lime water for gonorrhoea. Leaves in form of poultice applied to ulcers infected with worms. Flowers are used as a remedy for diabetes. Fresh bark is used internally in bleeding piles. Seeds are used as external application in skin diseases. Powder of seeds is efficacious in whooping and irritating coughs of children. Expressed oil from seeds has antiseptic and stimulant healing properties, is useful in cutaneous affections, herpes and scabies; used in rheumatism. Internally the oil has sometimes been used as a stomachic and cholagogue in cases of dyspepsia with sluggish liver. Seeds and roots are used as fish poison.

Antimicrobial Properties: The flower pigments extract with 80% acetone in water and petroleum ether as solvents inhibit the growth of pathogenic bacteria *Escherichia coli*, *Bacillus cereus*, *Bacillus subtilis*, *Klebsiella pneumoniae*, *Staphylococcus aureus* and *Enterobacter aerogenes* (Kagithoju *et al.*, 2010). The leaf extract also exhibit anti microbial activity against *Escherichia coli* (Brajesh *et al.*, 2006).

Propagation : Through seeds.

Psoralea corylifolia L.

Family : Papilionaceae

Vern. name : Bawchi

Botanical description : Erect annual herb, stem and branches striated. Leaves simple, alternate, long-petioled, ovate-acute to roundish, serrate-dentate, up to 9.5 x 7.5 cm. Flowers small, pale lilac in axillary, dense racemes. Calyx glandular, 5-lobed, lobes lanceolate, upper ones connate. Corolla papilionaceous, exserted, petals clawed; stamens 10, diadelphous; ovary sessile, unilocular with one ovule, style long, filiform, incurved with a

minute terminal sigma; pod ovoid, one seeded, indehiscent. Seeds ovoid, blackish with a bitter taste, 1-seeded.

Flowering & Fruiting: September - April.

Distribution : Plant is found in open forests, wasteland and field bunds, generally on black clay soil i.e. Balaghat, Bastar, Bhopal, Bilaspur, Chhatarpur, Damoh, Dhar, Gwalior, Hosangabad, Indore, Jabalpur, Mandla, Panna, Raigarh, Raipur, Raisen, Sagar, Seoni, Shahdol, Shivpuri and Sidhi districts.

Chemical Composition: Psoralone and isopsoralone, isopsoralidin, corylin, triacontane and β -sitosterol-B-D-glucoside from seeds. A mixture of psoralen, isopsoralen and imperatorin caused hypertrophy of liver, kidney and spleen in experimental rats.

Uses : It is used in all forms of leucoderma, leprosy, psoriasis and inflammatory diseases of the skin.. It is sweet, astringent, stomachic, anthelmintic, diuretic and germicidal. It overcomes diseases due to the morbidity of vata and kapha and cures haemetaesis, leprosy, diabetes, fever, cough, oedema, anaemia, piles, dysuria and poisonous affections and help in healing ulcers. Seeds found to possess anti-inflammatory, antipyretic and analgesic properties.

Root is useful in caries of teeth. Leaves are good to stay diarrhea. Fruit is bitter, diuretic, causes biliousness, cures leprosy, skin diseases, kapha, vaata, vomiting, asthma, difficulty in micturation, piles, bronchitis, inflammations, anaemias, improves the hair and complexion. Seeds are sweet, bitter, astringent, stomachic, anthelmintic, diuretic, germicidal laxative, aphrodisiac, deobstruent, and diaphoretic in febrile condition. They impart vigour and vitality, improve digestive power and receptive power of mind, improve texture and complexion of skin and help growth of hair. Oleo-resinous extract of seeds used as application to leucoderma. Essential oil from fruits used internally as tonic and aphrodisiac against impotency and externally for treatment of leucoderma, psoriasis and leprosy.

Antimicrobial Properties: Seed possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) while, leaves possess only antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Pueraria tuberosa (Roxb. Ex. Willd) DC.

Family : Papilionaceae

Vern. name : Patal Kumhada

Botanical description : Large woody climber; roots tuberous with several strings of tubers connected by thin roots; young branches pubescent. Tubers are large, 25-30 cm. broad and 30-60 cm long weighing up to 35 kg. Leaves 3-foliolate, silky pubescent beneath; petioles 15-20 cm long; terminal leaflet broadly ovate or rhomboid, acuminate, 10-20 x 8-17 cm; laterals obliquely ovate-oblong, acuminate. Flowers when leafless, in 15-30 cm long axillary or terminal racemes or panicles. Calyx 8 mm long, silky; teeth unequal, 2 upper teeth connate. Corolla 1-1.5 cm long, blue, fading to bluish-purple, often white. Stamens diadelphous. Pods 5-7.5 cm long, constricted between seeds, densely clothed with bristly hairs, 3-6 seeded.

Flowering & Fruiting: February – April.

Distribution: The plant grows in mixed forests i.e. Balaghat, Bastar, Bilaspur, Chhindwara, Hoshangabad, Indore, Jabalpur, Raigarh, Raipur, Shahdol, Surguja districts.

Uses : Root tubers eaten raw or boiled; used for extraction of starch. Leaves used as fodder for horses and cattle. Roots demulcent and refrigerant; also used as cataplasm on swollen joints, and as a lactagogue. Tubers highly medicinal and used for ulcer treatment.

Antimicrobial Properties: Tubers and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and tubers.

Putranjeeva roxburghii Wallich.

Family : Euphorbiaceae

Vern. name: Putranjeeva

Botanical description : Tree, up to 8 m high; branches drooping. Leaves ovate-oblong, 4-10 x 2-3 cm. acute to shortly acuminate at apex, obliquely obtuse or rounded at base, serrulate, shining above. Male flowers in axillary, capituliform clusters, yellowish, shortly pedicellate. Tepals 5, oblong, 2 mm long, obtuse, ciliate. Disk absent. Stamens 3, connate at base. Female flowers 1-3 in an axil, greenish. Tepals 5, oblong, up to 2 mm long. Ovary 3-locular, finely silky; stigmas 3, recurved. Drupes ellipsoid, 1.5 cm long, pointed at apex, white tomentose; stone hard, rugose. Seeds crustaceous.

Flowering & Fruiting: March - February

Distribution : Commonly planted as avenue tree, sometimes in wastelands i.e. Bilaspur, Chhatarpur, Damoh, Jabalpur, Indore, Rewa, Raigarh, Shahdol, Surguja and Seoni districts.

Uses : Root, bark and leaves are medicinal and mainly used to increase fertility in women. It is one of the important ingredient of Dasmularishta.

Antimicrobial Properties: Leaves possess antifungal (*Alternaria solani*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds & cuttings.

Pygmaeopremna herbacea (Roxb.) Moldenke.

Family : Verbenaceae

Vern. name: Vajraghat, Patrangi

Botanical description : A herb with perennial root stock and root nodules. Leaves, sessile; in whorls of 2-3 obovate, serrate on upper half. Flowers small, pale, yellow, in terminal corymbose cymes; drupes small, globose, seated on persistent calyx. Corolla greenish yellow or cream coloured. Drupes green, black on drying, glabrous.

Flowering & Fruiting: July- October

Distribution : The plant is common in sal forest often along with *Combretum nanum* and *Justica* sp. i.e. Balaghat, Bastar, Bilaspur, Mandla, Raigarh, Raipur, Shahdol, Sidhi and Surguja districts.

Uses : The roots are the main medicinal part. It is used in promotion of digestion and treatment of fever and cough. Roots are also used in bone fixing.

Antimicrobial Properties: Roots possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties while, leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through root suckers.

Rauvolfia serpentina (L.) Benth ex Kurz.

Family : Apocynaceae

Vern. name : Sarpagandha

Botanical description : Erect, glabrous, perennial, suffruticose under shrub, 45–150 cm height, bark brown. Leaves whorled, lanceolate. Flowers

white or pinkish, often tinged with violet, in many flowered irregular corymbose cymes. Drupe single or didymous and connate, purplish-black when ripe, more or less concave

Flowering & Fruiting: Through out the year.

Distribution : Rare, in mixed and sal forest of Bastar, Raipur districts. Species has been introduced in gardens, parks, medicinal plant nursery as well as in farmers fields in some of the districts.

Chemical Composition : More than 50 alkaloids have been reported from this plant. Root yields alkaloids ajmaline, ajmalinine, ajmalicine, yohimbine, allohyimbine, isoyohimbine, r-yohimbine, chandrinem desrpidine, isoajmaline, papverine, corynanthine, raunatine, rauwolfine, rauwolscine, reserpline, reserpine, rescinnamine, reserpinine, reserpoxidine, sarpagine, serpinine, serpentine, serpentinine and amorphous bases. Alkaloid rauwolone decreases heart rate and intravenous injection reduces blood pressure and increases tone of small intestines and decreases peristaltic contractions. Alkaloid reserpin has a very marked hypnotic effect and lowers blood pressure.

Uses : Roots constitute the drug Rauwolfia, which has been employed centuries for relieve from central nervous disorders both psychic and motor including anxiety states excitement, maniacal behaviour associated with psychosis, schizophrenia, insanity, insommia, and epilepsy. Extracts of the root are valued for intestinal troubles. Root is bitter tonic, hypnotic sedative, specific for insanity, reduces blood pressure. It is a remedy in painful affections of the bowels. Extract of roots is used for the treatment of intestinal disorders, particularly diarrhoea and dysentery and also as anthelmintic. Roots are believed to stimulate uterine contractions and used in case of difficult delivery. Juice of the leaves has long been in use for clearing the corneal opacity. In recent years Rauwolfia and its preparations have gained importance in the treatment of hypertension and as sedative and tranquilizing agent. Pharmacological activity is due to the presence of several alkaloids, of which reserpine is the most important. Leaves stems and seeds also contain alkaloids, but in much smaller amount than the root bark. Leaves are bitter stimulant for uterus, nutritive, anthelmintic and febrifuge. Juice of leaves is used for removal of opacities of cornea. Its action is similar to *Plumbago zeylanica*. Ajmaloon a drug from *Rauwolfia serpentina* has been found to be highly effective for the treatment of hypertension.

Antimicrobial Properties: Roots and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) while fruit possess antifungal (*Alternaria solani*, *Colletotrichum capsici*) properties.

Propagation : Through seeds & roots.

Rauvolfia tetraphylla L.

Family : Apocynaceae

Vern. name : Barachandrika

Botanical description : Under shrub 0.7-1.5 m high. Leaves 1.5–14x 1-6 cm, 3-4 nearly whorled, rarely opposite, very unequal in size, elliptic, slightly undulate, petioles up to 1 cm long. Flowers 4 mm across, white, in axillary carymbose cymes. Drupes, 7 mm in diameter, ripe black subglobose.

Flowering & Fruiting: November–September.

Distribution : Species has been introduced in gardens, parks and in medicinal plant nursery.

Uses : Whole plant mixed with castor oil and applied locally on skin diseases, often used as a substitute for *Rauvolfia serpentina*.

Antimicrobial properties: Roots possess antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds and roots.

Rubia cordifolia L. var. munjista (Roxb.)

Family : Rubiaceae

Vern. name: Munjista

Botanical description : Stiff climbing herb, sometimes prickly or hispid; stem angular. Leaves simple, ovate or ovate-lanceolate, cordate or rounded at base, with minute bristles along the margin, glabrous or hairy, 4–9 x 1.5–4.5 cm; petiole 5-8 cm long; stipules modified to leaves or absent. Flowers white in axillary or terminal cyme. Calyx enclosing the ovary and adhering to it. Corolla lobes lanceolate, acute. Stamens 5, epipetalous. Fruits globose, deep purple, 3-4 mm in diameter.

Flowering & Fruiting: March – November

Distribution : Species has been recorded as undergrowth near streams in the forests of Balaghat, Bilaspur, Hoshangabad, Rajnandgaon, Shahdol, Sidhi and Surguja districts.

Chemical Composition : Colouring matter in the roots is a mixture of purpurin and munjistin. Roots also contain small amounts of xanthopurpurin and pseudopurpurin. Munjistin, alizarin and its glucoside in plant.

Uses : Plant is an efficient blood purifier, extensively used against blood, skin, ear and eye diseases, rheumatism, swellings, leprosy and urino-genital

diseases. Stem is used in “Kobra” bite and scorpion sting. It is alterative, antiseptic, astringent, bitter and tonic. Dried root is emmenagogue, astringent, diuretic; much used in dropsy, paralysis, jaundice, amenorrhoea and visceral obstruction. Root are tonic, alterative astringent antidyenteric, deobstruent and antiseptic. They are used in rheumatism and from an ingredient of several Ayurvedic preparations. They are active against *Staphylococcus aureus* and are made into paste and applied into ulcers inflammations and skin troubles.

Antimicrobial Properties: Whole plant possess antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds & root suckers.

Ruta graveolans L.

Family : Rutaceae

Vern. name : Sitab

Botanical description: Erect undershrub. Leaves 5-10 cm long, 2-3 pinnate or multified; ultimate segments 0.5-1.0 x 0.3-0.5 cm, spatulate, elliptic or elliptic-oblong, crenulate, glaucous. Flower 1-1.5 cm across, in terminal corymbs. Capsules 5 mm in diameter, globose, 4-5-lobed.

Flowering & Fruiting: October - April.

Distribution : Species has been recorded from Bastar forest area of Chattisgarh

Chemical Composition : Alkaloids, graveolin; graveolinine, rutamine, dictamine, aeboring and arborinine. Glucoside rutin an essential oil.

Uses : Plants used as insect repellent, antiseptic, stimulant, chiefly for the uterine and nervous system ailments in homeopathic medicines. Major source of rutin glycoside, a famous homeopathic drug RUTA is manufactured from this plant. It is also used in abortions. It is resolvent, diuretic, emmenagogue, antispasmodic, acro-narcotic, poison, irritant and abortifacient. It is useful in hysteria and amenorrhoea. Juice of the herb relieves earache and toothache. Leaves are used in rheumatic pains, in treating hysteria, worms, colic and atonic amenorrhoea and menorrhagia. Oil is used externally as rubefacient.

Antimicrobial Properties: Leaves possess antifungal (*Rhizoctonia solani*) properties. The ingestion of plants induce abortions but involves the risk of severe morbidity and mortality (Ciganda and Laborde, 2003).

Propagation : Through seeds.

Sagittaria sagittifolia L.

Family : Alismataceae

Vern. name: Champa

Botanical description : Aquatic herb, erect, rhizomes thick, stoloniferous. Mature leaves hastate or sagittate, 5-20 cm long, acute or acuminate at apex; young and floating leaves often strap-shaped or cordate-oblong; petioles trigonous, up to 60 mm long. Flowers white; lower female, nearly sessile; upper male, with longer pedicels. Stamens 24. Bisexual flowers rare. Petals white; claw usually purple. Achenes obliquely obovate, winged.

Flowering & Fruiting: December –May

Distribution : As under growth near ponds and streams in forests i.e. Bilaspur, Jashpur, Rewa, Satna and Surguja districts.

Uses : Roots and leaves are medicinal, possess antifungal and antibacterial properties against plant pathogens.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties while, root possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through cuttings.

Salvia plebeja R. Br.

Family : Lamiaceae

Vern. name: Memari

Botanical description : Herb, annual, erect, 20-75 cm high: stems branched, obtusely 4-angled and grooved. Leaves oblong-lanceolate, 4-14x1.5-4 cm, narrowed at base, irregularly cretate, bracts small, narrow. Fruiting calyx 3 mm long; upper lip shorter than the lower, obtuse, entire, reflexed; lower lip obtusely 3-toothed. Corolla white or lilac, 5 mm long; upper lip oblong-obtuse; lower lip 3-lobed; middle lobe much larger; tube exerted, annulate inside. Nutlets minute, ovoid, brown, mucilaginous when wet.

Flowering & Fruiting: September–April.

Distribution : Common as weed in wastelands, along roadsides, river banks, field bunds and sides of channels. Bilaspur, Chhatarpur, Damoh, Durg, Jabalpur, Mandla, Panna, Raigarh, Rewa, Sagar, Satna, Sidhi and Surguja districts.

Uses : Leaves used in cancer and tumors. Infusion taken in fever, uterus affection, headache and boils. Steam from hot decoction of shoot is used for malaria and headache. Poultice used in curing wounds. Leaves used as eye lotion, nasal drop and for fever.

Antimicrobial Properties: Leaves extract possess antifungal (*Alternaria solani*) properties and cholinergic activities relevant to the treatment of Alzheimer's disease (Savelev *et al.*, 2004).

Propagation : Through seeds.

Sansevieria cylindrica Thunb., Nom.cons.

Family : Agavaceae

Vern. name: Janglee Munga

Botanical description : Herb or under shrub, perennial, rootstocks thick, creeping. Leaves in a basal rosette, lanceolate, 30-50 x 6-8 cm, smooth, acute or obtuse and usually with a white, withered, up to 16 mm long point at apex, dull green, marked on both sides with numerous closely placed transverse pale green bands; margin yellow or brownish red, sometimes whitish, scape 45-75 cm long. Flowers greenish white. Perianth 3.5 cm long; lobes linear, revolute, obtuse; tube 1.8 cm long. .

Flowering & Fruiting: February - March.

Distribution : Found in wastelands also planted in gardens i.e. Bastar and Bilaspur districts.

Uses : Plant used in abdomen pain.

Antimicrobial Properties: whole plant possess antifungal (*Alternaria solani*, *Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through suckers.

Saraca indica Linn.

Family : Caesalpiniaceae

Vern. name : Ashoka

Botanical description : Small evergreen tree, up to 10 m high, with blackish bark and reddish-brown wood. Leaves paripinnate, ca 30 cm long; stipules intra-petiolar, united, scarious; leaflets 4-6 pairs, 10-25 x 3-6 cm, oblong, lanceolate, glabrous, lateral nerves 8-12 pairs. Flowers orange to scarlet, 2.5-3 cm, in dense corymbose panicles; pedicels 7-15 mm long; bracts ovate, 1-6 x 1-3 mm. Calyx yellowish-orange to scarlet, petaloid, cylindric, 4-lobed; lobes 7-10 x 5-9 mm. Petals absent. Stamens 6-8, much exerted; filaments filiform, anthers purple. Pods 10-25 x 3-5 cm thick, tapering at both ends. Seeds 4-8, ellipsoid-oblong.

Flowering & Fruiting: December-July.

Distribution : Planted as an ornamental i.e. Bilaspur, Bastar, Bhopal, Chhattarpur, Gwalior, Jabalpur, Raigarh, Raipur, Rewa and Sagar districts

Uses: Bark is refrigerant, astringent, alexiteric, demulcent, emollient, anthelmintic and used in dyspepsia, burning sensation, blood diseases, biliousness, tumors, abdomen diseases, colic, piles, ulcers, uterus diseases and menorrhagia. Flowers are used in haemorrhagic dysentery, bleeding piles and urinal diseases.

Antimicrobial Properties: the stem bark possess antifungal activity against standard strains of *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Bacillus cereus*, *Klebsiella pneumoniae*, *Proteus mirabilis*, *Salmonella typhimurium* and *Streptococcus pneumonia* and the fungi: *Candida albicans* and *Cryptococcus albidus*. Methanolic and aqueous extract exhibites antimicrobial activity with MIC ranging from 0.5-2% and 1-3% respectively (Sainath *et al.*, 2009). The methnolic extract of leave found to be strong activity against both the bacteria E. coli and B. subtilis (Sharma and Bharadwaj, 2011).

Propagation : Through seeds.

Scoparia dulcis L.

Family :Scrophulariaceae

Vern. name : Hazardana

Botanical description : Herb, erect, 0.3-1 m high; stems and branches 4-6 angled, glabrous or nearly so. Leaves opposite or ternate, rhomboid or elliptic. 1.2-3.5 x 0.6 – 1.4 cm, sub acute or obtuse at apex, narrowed into a petiole at base, serrate. Flowers 3-6 in axillary whorls; pedicels 8-12 mm long. Calyx-segments 4, oblong, acute or subacute, entire 3-5-nerved. Corolla white, 4 mm across, pilose. Capsules sublobose. 2-3 mm across, Seeds ovoid or obovoid.

Flowering & Fruiting: Throughout the year.

Distribution : Species found in open forest area, wastelands and as a weed of cultivated fields through out both states i.e. Bastar, Chhatarpur, Damoh, Durg, Hoshangabad, Jabalpur, Mandla, Narsimhapur, Panna, Raigarh, Raipur, Rajnandgaon, Seoni and Siddhi districts.

Uses : Whole plant is used to treat dropsy and diabetes. The leaves are used as tonic especially for weakness of semen while and seeds are used in preparing cold drinks. It is traditionally used as an analgesic and antipyretic and to treat gastric disorders, bronchitis, diabetic, hypertension, haemorrhoids and insect bites.

Antimicrobial Properties: Root possess antifungal (*Sclerotium rolfsii*) properties. Leaf extract possess analgesic and anti-inflammatory properties in rodents (Freire *et al.*, 1993).

Propagation : Through seeds.

Sida acuta Burm. f.

Family : Malvaceae

Vern. name: Mahabala, Bariari

Botanical description : Annual herb or undershrub, 0.3-1.3 m high, sparsely hairy or glabrous. Leaves mostly linear-lanceolate, acute, 2-7 cm long, remotely serrate, sometimes a few lower ovate-oblong. Flowers axillary, solitary or two together; pedicel jointed in the middle. Calyx campanulate 5 mm long. Corolla 12-15 mm across, pale yellow or whitish, petals obovate,

ciliate at base. Mericarps 6-10, tetrahedral, 2 mm long, usually with 2 awns at apex; seeds ovoid, 2 mm long.

Distribution : In wastelands, fallow-fields, along roads and forests i.e. Balaghat, Bastar, Bilaspur, Damoh, Durg, Gwalior, Hoshangabad, Mandla, Raigarh, Raipur, Raisen, Rajnandgaon, Rewa, Sagar, Seoni, Shivpuri, Sidhi and Surguja districts.

Chemical Composition: Four alkaloids from aerial parts and three from roots. Ecdysterone also isolated.

Flowering & Fruiting: August –January.

Uses : Root is useful in nervous and urinary diseases, disorders of blood, bile, chronic bowel complaints as well as used as a febrifuge, stomachic and aphrodisiac. Decoction of roots is emollient as well as tonic and used in the treatment of haemorrhoids and impotence. Leaves are abortifacient, demulcent diuretic and poultice used in rheumatic affections, hasten suppuration, haemorrhoids and impotence. Juice of leaves is useful for relief in chest pain and as anthelmintic. Juice is boiled in oil and applied to reticular swellings and in elephantiasis.

Antimicrobial Properties: Root and seeds possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties. Leaf reduce the damages of stored grain caused by *Sitophilus oryzae* and *Prostephanus truncatus* (Niber, 1994).

Propagation : Through seeds.

Smilax perfoliata Lour.

Family : Smilacaceae

Vern. name: Jalraj

Botanical description : Climber; stem stout, strongly armed with recurved prickles; branchlets 4-angled. Leaves alternate, elliptic, ovate or broadly oblong, 10-25 x 5-15 cm, acuminate-cuspidate at apex, rounded or subcordate at base, usually 3-costate, rarely 7-costate; petioles 2-5 cm long, sheathing portion usually forming 2, large, basal, amplexicaul, erect or reflexed auricles; tendrils 5-10 cm long. Umbels 10-20; peduncles 2-4 cm long, 30-40 flowered. Flowers white, very small; bracteoles minute. Perianth-segments oblong-lanceolate. Staminodes 3 in female flowers. Berries red when ripe, oblong or globose. Seeds biconvex.

Flowering & Fruiting: September-April.

Distribution : On bushes near stream embankments i.e. Bastar, Bilaspur and Surguja districts.

Uses : It is anti-inflammatory and cleansing, and can bring relief to skin problems such as eczema, psoriasis and general itchness, and help treat rheumatism, rheumatoid. It also has a progestogenic action, making it beneficial in pre-menstrual problems, and menopausal condition such as debility and depression. The combined extract with *Ocimum* and *strychnos* species inhibit HIV 1 multiplication.

Antimicrobial Properties: Roots and seeds possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds & cuttings.

Smilax zeylanica L.

Family : Smilacaceae

Vern. name: Ramdatun

Botanical description : Climber, stem slender to stout, more or less 4-angled to terete; branches unarmed or with a few small prickles; branchlets often zig-zag. Leaves elliptic, broadly oblong, ovate-oblong or orbicular, 10-30 x 5-15 cm, cuspidate at apex, rounded or subcordate at base, usually 5-costate from above the base, rarely 3-costate; petioles 1.5-2.5 cm long. Umbels 1-3 on a common peduncle, 20-30 flowered; male peduncle 1 cm long. Female ones 1.5 cm long. Perianth-segments oblong. Stamens as long as perianth-segments. Staminodes 3 in female flowers. Berries red, globose. Seeds biconvex.

Flowering & Fruiting: September–April.

Distribution : In damp valleys i.e. Bastar, Bilaspur, Hoshangabad, Jabalpur, Mandla, Narsimhapur, Raigarh, Raipur, Rajnandgaon, Sagar, Shahdol and Sidhi districts.

Uses : Roots are prescribed for venereal and skin diseases, while decoction is given for sores, swellings and abscesses. Fresh leaves are consumed as a vegetable. Climber shoot stick is chewed in the treatment of toothache. Berries showing antimicrobial properties.

Antimicrobial Properties: Roots and fruits possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds & cuttings.

Solanum incanum L.

Family : Solanaceae

Vern. name: Janglee bhanta

Botanical description : Under shrub, armed tomentose. Leaves ovate-elliptic, 4-10 x 3-6 cm, obtuse at apex, sinuately lobed, stellate pubescent, prickly on veins. Peduncles extra-axillary, paired, one bearing several male flowers in racemes, other bearing solitary, bisexual flower. Calyx stellate hairy; teeth deltoid. Corolla blue, stellate hairy outside. Berries globose, 2 cm across, yellow. Seeds minutely pitted.

Distribution : Along the edge of forests i.e. Bilaspur, Chhatarpur, Damoh, Hoshangabad, Rajnandgaon and Shahdol districts.

Flowering & Fruiting: January –June.

Uses : Root powder is used to relieve stomachache.

Antimicrobial Properties: Root and stem possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties while, root only possess antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Solanum nigrum L.

Family : Solanaceae

Vern. name: Makoi

Botanical description : Herb, annual, erect. Leaves ovate-oblong or oblong-lanceolate, 5-10 x 3-5 cm, entire to sinuate-dentate, almost glabrous; petioles 2-5 cm long. Flowers in extra-axillary, umbelliform cymes, small, nodding; peduncles appressed hairy, 1-5 cm long; pedicels 4-5 mm long. Calyx 2 mm long; lobed ovate-rounded, subobtuse. Corolla white, rarely purple; lobes oblong. Berries globose, 6-8 mm across, black, blackish purple or red.

Distribution : In wastelands and moist places throughout the states i.e. Bastar, Bilaspur, Chhatarpur, Damoh, Hoshangabad, Jashpur, Raipur, Rajnandgaon and Shahdol districts.

Flowering & Fruiting: September – February

Chemical Composition : Solasomine and solamargine in leaves and glucoalkaloids from immature fruits.

Uses : Tender shoots and leaves are eaten as vegetables. Decoction of leaves is used for liver and skin diseases. Fruits are edible and also used to treat eye diseases. Plant is emollient, diuretic, laxative, alterative, sedative,

diaphoretic, diuretic, hydrogogue and expectorant; locally anodyne and its decoction is antispasmodic and narcotic. Herb has antiseptic and antidysenteric properties and is given internally for cardalgia and gripe. Infusion of plant is used as an enema for infants having abdominal upsets. It is a household remedy for anthrax pustules and applied locally. Root bark is laxative; useful in diseases of ears, eyes and nose; good for ulcers on neck, burning of throat, inflammation of liver, chronic fever. Leaves are used as poultice over rheumatic and gouty joints and also as a remedy for skin diseases. Fresh juice produces dilatation of pupils. Hot leaves are applied with benefit to painful and swollen testicles. Flowers are prescribed in cough and cold. Berries are bitter, tonic, diuretic, laxative, alterative, aphrodisiac; improve appetite and taste; useful for itch, dysentery, hiccough, vomiting, asthma, bronchitis, in fever diseases of heart and eye, pains, piles, inflammation, leucoderma and urinary discharges.

Antimicrobial Properties: Leaf reduces the damages of stored grain caused by *Sitophilus oryzae* and *Prostephanus truncates* (Niber, 1994).

Propagation : Through seeds.

Solanum torvum Sw.

Family : Solanaceae

Vern. name: Choti Kaheri

Botanical description : Shrub, erect, much branched; stem and petioles with scattered prickles. Leaves ovate-elliptic to oblong, 5-10 x 3-6 cm, acute or obtuse at apex, rounded or cordate at base, sinuate or pinnatifid, pubescent, sparsely prickly on midrib. Flowers in many-flowered, sessile or shortly pedunculate, corymbose cymes. Calyx, 6 mm long, glandular pubescent; lobes oblong, acuminate. Corolla white, 7-8 mm long, lobes lanceolate, sub acute. Berries globose, 1 cm across. Seeds globose, smooth.

Distribution : On hill slopes i.e. Bastar, Bilaspur, Hoshangabad and Raigarh districts..

Flowering & Fruiting: Throughout year.

Uses : Fruits are eaten as vegetables and also given in spleen enlargement.

Antimicrobial Properties: Leaves possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solan*) properties.

Propagation : Through seeds.

Solanum violaceum Ortega.

Family : Solanaceae

Vern. name : Birhatta Kateri

Botanical description : Under shrub, erect tomentose; stem armed with hooked prickles. Leaves ovate-oblong, 6-15 x 5-10 cm, subacute or obtuse at apex, subcordate or truncate at base, sinuate-pinnatifid; petioles 2.5 cm long. Flowers in lateral, corymbose cymes; pedicels 1.5 cm long. Calyx 5 mm long, stellate pubescent outside; lobes ovate, acute. Corolla violet, 2.5 cm across, stellate pubescent; lobes elliptic-oblong, obtuse. Ovary glabrous, style stellately pubescent. Berries globose, smooth, light green, variegated with dark green when young and orange-yellow when ripe. Seeds smooth.

Flowering & Fruiting: Throughout year.

Distribution : In sal and mixed forests i.e. Balaghat, Bilaspur, Khandwa, Khargon, Hoshangabad, Raigarh, Raipur, Satna, Shahdol, Seoni and Surguja districts.

Chemical Composition : Enzyme in fruits. Alkaloids solanine, solanidine in roots and leaves. Fruits contain 1.8% of alkaloids and can form a good source material for conrisone and sex hormone preparations

Uses : Plant and root, both are pungent, bitter, stimulant, digestive, astringent, anthelmintic, carminative, diaphoretic and expectorant. They are beneficial in catarrhal affections, asthma, fever, dysuria, worms, nervous complaints and skin diseases. Root effective in curing asthma, dysuria, cough, colic, catarrh, worms, difficult parturition and fever. Leaf juice mixed with ginger juice is given to stop vomiting. Leaf and fruit useful in itching. It removes foulness of mouth. Plant is used as aphrodisiac. Leaves and fruit rubbed up with sugar used as external application for itch. Fruits are digestive and laxative and their juice is beneficial in alopecia. Decoction of seeds is used in dysuria and vapour from seeds is useful in otalgia.

Antimicrobial Properties: Root and leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Solanum xanthocarpum Schrad. & Wendl.

Family : Solanaceae

Vern. name: Kantakari

Botanical description : A perennial prickly prostrate herb; perennial, diffuse, prickly, woolly; branches zigzag, bearing strong, yellow prickles.

Leaves ovate or elliptic, sinuate or subpinnatifid, 5-8 x 3-5 cm, obtuse or subacute at apex, stellate hairy, with prickles on midrib and veins. Flowers in extra-axillary, few-flowered cymes. Calyx lobes linear or lanceolate. Corolla bluish purple to violet; lobes deltoid, pubescent outside. Berries globose, 1.5-2.5 cm across, yellow-orange. Seeds compressed, smooth.

Flowering & Fruiting: December-June.

Distribution: In open wastelands throughout the state ie. Balaghat, Bastar, Bilaspur, Chhatarpur, Damoh, Dhar, Durg, Khargone, Hoshangabad, Indore, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Rewa, Satna, Seoni, Sidhi, Surguja, Tikamgarh and Khandwa districts.

Chemical Composition : Crude plant extract caused hypotension. Plant powder is anti-tussive and is beneficial in bronchial asthma and non-specific cough.

Uses : Plant is astringent, stimulant, aperient, diuretic, pungent, bitter, digestive, expectorant, febrifuge, laxative and cardio tonic. It is an important therapeutic agent and is extensively used in asthma, cough and bronchitis. It is useful in influenza, enteric fever, allied conditions, difficult urination, bladder stones, rheumatism, sore throat, skin diseases, enlargement of liver and spleen. A decoction of plant is used in gonorrhoea. It promotes conception in females. Root is pungent, bitter, heating, appetiser, laxative, stomachic, anthelmintic and aphrodisiac, useful in asthma, bronchitis, fever, lumbago, pains, piles, urinary concretions and diseases of heart. It is an effective diuretic, expectorant and febrifuge. Leaves juice in combination with black pepper is prescribed in rheumatism. Stems, flowers and fruits are bitter and carminative and are prescribed in burning of feet in cases associated with a vesicular and watery eruption. Juice of fruits is beneficial in sore throat. Fine powder of berries mixed with honey is given to children in chronic cough. Vapour of burning seeds is beneficial as an expectorant in asthma and cough and cures toothache. Decoction of roots is given in fever and spermatorrhoea. Fruit juice is given to relieve earache while the pulp is eaten as vegetables. Boiled seeds are eaten with salt.

Antimicrobial Properties: The whole plant extracts showed high sensitivity to *Klebsiella pneumoniae* and *Salmonella typhi*, moderate sensitivity to *Escherichia coli* and less sensitivity and resistant to *Bacillus cereus*. In control, there is no inhibitory zone observed (Udaykumar *et al.*, 2003).

Propagation : Through seeds.

Sphaeranthus indicus L.

Family : Asteraceae

Vern. name: Gorakhmundi

Botanical description : Much-branched, annual herb; stem winged, wings dentate. Leaves alternate, subsesile, oblong-spathulate, obtuse, 9x2.5 cm, lacerate or dentate, base decurrent, hirsute-pubescent, aromatic; heads globose, heterogamous, purplish pink, outer florets female and inner bisexual. Corolla tubular-campanulate, 5-lobed; stamens 5, included; ovary angled, oblong. Female flowers: corolla tube 2.5 mm long, minutely toothed above; ovary oblong; entire, densely hairy; achenes angular, glabrescent.

Flowering & Fruiting: November-March.

Distribution : Common in dry open forests, field bunds, waste land i.e. Bastar, Bilaspur, Balaghat, Damoh, Durg, Hoshangabad, Jashpur, Raigarh, Raipur and Sarguja districts.

Uses : Whole plant is used for jaundice, piles, hepatic disorders and tonic for eyes. Seed used in chest troubles. It is reported to be bitter, acrid, laxative, tonic, digestive, anthelmintic and alleviative of morbid vata and kapha. It improves digestion, purifies blood and useful in abdominal tumours, colic, indigestion, piles and hydrocele. It also cures, cough, diarrhoea, impotence, leucorrhoea and skin diseases. Root and seed is used in jaundice. Fruit is also used in fish poison.

Antimicrobial Properties: Leaves, stem and fruits possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties while, flowers possess antibacterial (*Xanthomonas campestris* pv. *campestris*) and antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds.

Spilanthus oleracea (DC.) Clarke.

Family : Asteraceae

Vern. name: Akarkara

Botanical description : Annual erect or ascending herb, 15-40 cm high. Leaves opposite, petioled, 2-5x1-2.5 cm, ovate, acute, subcrenate at margins, sparsely pubescent on both surfaces. Heads 1 cm in diameter, ovoid, usually solitary. Involucral bracts 3.5-4.5 mm long, ovate, acute, sometimes elliptic, glabrous. Ray-florets absent, disc-florets 2 mm long, 4-5-lobed, yellow. Achenes 2 mm long, narrowly obovate, dark brown, glabrous, ciliate, palease 3 mm long, enfolding achenes; pappus absent.

Flowering & Fruiting: November –December.

Distribution : Common near dried tanks or streams and in waste places i.e. Jabalpur, Raigarh and Seoni districts.

Uses: Flowers are used for the treatment of scabies, throat, toothache, throat infection, dysentery, diuretic rheumatism and scurvy.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) and antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds.

Stachytarpheta jamaicensis (L.) Vahl.

Family : Verbenaceae

Vern. name: Safed Chirchira

Botanical description : Herbs or under shrub, climbing; stems somewhat 4-angled, dichotomously branched. Leaves opposite, ovate or obovate, 3-7 x 1.5-4 cm, obtuse or acute at apex, cuneate and long decurrent at base, serrate, glabrous; petioles slender, winged. Flowers in 8-12 cm long spikes. Calyx 4 mm long, 4-toothed, glabrous. Corolla-lobes 5 mm long: tube slightly curved, hairy. Fruits oblong or pyriform.

Flowering & Fruiting: February-June.

Distribution: In mixed forests, open forest, forest borders i.e. Bastar, Chhatarpur, Jashpur and Rajnandgaon districts.

Uses : Root part is used in purulent, ulcers, fevers and rheumatic pain.

Antimicrobial Properties: Leaves antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Stephania herandifolia (Willd.). Walp.

Family : Menispermaceae

Vern. name: Hirankhuri

Botanical description: Slender, glabrous, twininer, perennial herb. Leaves ovate, triangular – sub orbicular, truncate, sub cordate at base, apiculate at apex, 7–20 cm across. Flowers greenish, yellow; sepals 6-7, petals 3, oblong. Drups, obovoid, compressed, red.

Flowering & Fruiting: December –April.

Distribution: In mixed forests i.e. Bastar, Bilaspur, Chhatarpur, Jashpur and Rajnandgaon districts.

Uses : Plant has antiplasmodial, antiprotozoal, antipyretic activity and used in the treatment of malarial fever.

Antimicrobial Properties: Leaves possess antifungal (*Sclerotium rolfsii*) properties and antibacterial (*Xanthomonas campestris* pv. *campestris*) while roots possess and antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Stereospermum suaveolens (Roxb.) DC.

Family : Bignoniaceae

Vern. name : Garud

Botanical description: Large tree, branches and leaves glabrous. Leaves opposite; imparipinnate; leaflets broadly elliptic, shortly acuminate, often serrulate, rough, flowers trichotomous branched hairy panicles. Calyx campanulate. Corolla tubular, campanulate, 2-lipped; stamens-4, filaments without a tuft of wooly hairs, capsules 15-30 cm long, stout, straight, nearly terete. Seeds 3.5 cm long.

Flowering & Fruiting: April- January

Distribution : The plant is common in forest roads i.e. Balaghat, Bastar, Bilaspur, Durg, Jabalpur, Mandla, Raigarh, Raipur, Rajnandgaon, Seoni and Surguja districts.

Uses: Plant is bitter, astringent, cardiotoxic, cooling, tonic and diuretic. Root is bitter, heating and used in cough, vaat, inflammations, eructations, vomiting, asthma, fevers, affections of the brain and diseases of blood, stomach. It is used in anorexia, difficult breathing, anasarca, piles, vomiting, and thirst. Flowers are useful in bleeding diseases, diarrhea and high cough. Fruits are used in the treatment of high cough and blood diseases.

Antimicrobial Properties: Leaves possess antifungal (*Sclerotium rolfsii*) and antibacterial (*Xanthomonas campestris* pv. *campestris*) while bark possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through cuttings and seeds.

Strobilanthes asperimus Nees.

Family: Acanthaceae

Vern. name: Patia

Botanical description: Shrub; branches scabrous, glandular pubescent. Leaves broadly elliptic, up to 12 x 6 cm, coriaceous, scabrous with bulbous-based hairs above, white strigose beneath. Flowers in strobilate spikes; bracts white or pink, elliptic or orbicular, obtuse or emarginated, not glandular pubescent; bracteoles absent. Calyx-segments emarginated, subscarious. Corolla pale blue. Capsule 4-seeded.

Flowering & Fruiting: October-December.

Distribution : The plant is rare and found in forests of Bastar and Jashpur divisions.

Uses : The dried leaves of this plant have been used as antidiabetic, diuretic, antilithic, and laxative. Water extract of this plant inhibits proliferation of retroviruses an agent of viral disease. This species has been used traditionally to control many diseases i.e. in the treatment of swelling of the neck (goiter), tuberculosis etc. It is also used as antitumor drug.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Strychnos nux – vomica L.

Family: Loganiaceae

Vern. name: Kuchala

Botanical description: A medium size deciduous tree. Leaves simple, opposite, broadly ovate, acute, 7-12.5 x 5-8.5 cm, glabrous, 3-5 nerved; flowers greenish white in terminal many flowered cymes, calyx 5 lobed; pubescent, corolla tube cylindrical, slightly hairy near the base within, 4-5 lobed; stamens 5, ovary pubescent; berries orange-red when ripe, thick shelled, 5-6 cm across, seeds orbicular, or elliptical and discoid.

Flowering & Fruiting: March- January

Distribution : The plant is rare and found in forests of Bilaspur and Raipur districts.

Chemical Composition : Glucoside loganin from fruits. Brucine, strychnine, vomicine and methoxystrychnine from leaves and root bark. C-mavacurine in roots. Isostrychnine from seeds. Vanillic, p-hydroxybenzoic, 2-hydroxy-4-methoxybenzoic, sinapic and syringic acids and kaempferol, quercetin and 3'-O-methylquercetin in plant. A new alkaloid-

protostrychinine along with normacusine B and 4-hydroxy-3-methoxystrychnine isolated. Fixed oil 2-4%.

Uses : The drug is highly toxic to man and animals, producing stiffness of the muscles and convulsions, leading to death. Whereas, in small doses, it can serve as an efficacious cure for certain forms of paralysis and other nervous disorders, spinal, respiratory and cardiac stimulant. It is used as a remedy in intermittent fever, dyspepsia, chronic dysentery, paralytic and neuralgic affections, worms, epilepsy, chronic rheumatism, insomnia and colic. It is also useful in neuralgia of the face, heart disease, sperrnatorrhoea, skin diseases, toxins, wounds, emaciation, cough and cholera. Bark is employed as tonic and febrifuge. Root is bitter, useful in intermittent fevers. Root bark, ground up into fine paste with lime juice and made into pills are used for cholera. Leaves are applied as poultice to sloughing wounds and ulcers, specially in cases when maggots have formed. Seeds are bitter, atonic, nervine tonic, stomachic, antidiarrhoeal, antidysenteric, antispasmodic, emetic, febrifuge; respiratory and cardiac stimulant, aphrodisiac. They are used as general tonic, mostly in combination with other remedies, for neuralgia, dyspepsia, debility, impotence and in chronic constipation, as it increases peristalsis. With aromatics they are given in colic. Wood is used in dysentery, fevers and dyspepsia.

Antimicrobial Properties: The leaf extract contains n-butanol possess antimicrobial activities against gram-positive bacteria *Staphylococcus* and *Salmonella* and some gram negative bacteria *Klebsiella pneumoniae*. It also exhibits inhibition activity against fungal species namely *Aspergillus terreus*, *Aspergillus flavus* and *Aspergillus niger* (Gnanavel *et al.*, 2012).

Propagation : Through seeds.

Syzygium cumini L.

Family: Myrtaceae

Vern. name : Jamun

Botanical description: Tree; branchlets glabrous. Leaves simple, opposite, elliptic or ovate-lanceolate, acute or acuminate, entire, 5.5-11.5 x 2.5-6.5 cm, coriaceous, glabrous. Flowers numerous, small, sweet scented, dull white in axillary or terminal paniced cymes. Calyx tube persistent, cup-shaped or shortly turbinate, glabrous, lobes-4; petals 4, orbicular; stamens numerous, free anthers small; fruit an oblong, ellipsoid or globose berry, dark purplish black when ripe. Seed roundish, smooth.

Flowering & Fruiting: February – August

Distribution: Growing in sal forest margins, along road sides, streams and rivers i.e. Balaghat, Bilaspur, Damoh, Durg, Hoshangabad, Mandla, Raigarh, Raipur, Rajnandgaon, Shahdol, Seoni, Sidhi, Shivpuri and Surguja districts.

Chemical Composition : Seeds contain glycoside jambolin, ellagic acid, tannin, gallic acid, chlorophyll, fatty oil, starch, resin, sugar and traces of oil. Flowers give acetyl oleanolic acid two other triterpenoids, ellagic acid, isoquercitrin, quercetin, kaempferol and myricetin.

Uses: It is traditional medicine for diabetes and sore throat. The bark is considered a specific medicine for dysentery. It is astringent to bowels and alleviates kapha and pitta, cures haemorrhage, burning sensation, dysentery, diarrhoea, diabetes, excessive thirst, dyspepsia, cough and asthma. Juice of leaves is used in dysentery. Juice of ripe fruit, made into a vinegar used as a stomachic, carminative and as diuretic. Fruit is useful astringent in bilious diarrhoea. Seeds used in diabetes.

Antimicrobial Properties: The bark extract has antioxidant properties to reduce the glycemia and oxidative stress of diabetic (Mazzanti *et al.*, 2003). An extract possesses antimicrobial properties to hyphal development of *Fusarium sp.*, *Alternaria sp.*, *Aspergillus niger* and dermatophytes *Epidermophyton floccosum*, *Microsporus gypseum*, *Trichophyton mentagrophytes* and *T. rubrum* (Jatisatienr *et al.*, 1996).

Propagation : Through seeds.

Tamarindus indica L.

Family: Caesalpinaceae

Vern. name : Imli

Botanical description: Tree, leaves even-pinnate, leaflets 15-17 pairs, narrowly oblong-obtuse, entire, 1.5 x 0.7 cm, glabrous. Flowers creamy yellow in axillary racemes. Calyx tube narrowly turbinate, lobes 4, sub equal, oblong; petals 3, yellow, outer one reflexed, pink dotted, laterals clawed, sub equal, oblongoblanceolate; stamens 3; monodelphous, filaments pubescent at base, staminodes 2, bristly; ovary stipitate, style attenuate, stigma globose; pod oblong, thick torulose, subcompressed; seeds 2-10, obovoid or orbicular, compressed, brown.

Distribution: Usually planted in gardens, canal sides, cultivated fields, road sides, forest borders i.e. Balaghat, Bastar, Bhopal, Bilaspur, Damoh, Durg, Hoshangabad, Indore, Mandla, Raigarh, Raipur, Rajnandgaon, Shahdol, Seoni, Sidhi, Shivpuri and Surguja districts.

Uses: Fruit pulp is a refrigerant, carminative and laxative, given as infusion in biliousness and febrile condition.

Antimicrobial Properties: The fruit extract have bioavailability properties of aspirin (Mustapha *et al.*, 2003).

Propagation : Through seeds.

Tephrosia purpurea (L.) Pers.

Family : Papilionaceae

Vern. name : Sarphonka

Botanical description : Branched sub erect annual or perennial herb; 2-10 m high. Leaves pinnate, leaflets elliptic or oblanceolate, mucronate, 2 x 0.7 cm with numerous, closely parallel veins. Flowers small, reddish or purple in axillary or terminal racemes. Calyx tube campanulate, lobes many ovuled, style incurved, flattened, stigma terminal; pods falcate, compressed, glabrous, dehiscent by both sutures. Seeds 4-6, ovoid, glabrous.

Flowering & Fruiting: Throughout year.

Distribution: Widely spread in open places, bunds of cultivated fields, road sides, forest borders i.e. Balaghat, Bastar, Bhand, Bhopal, Bilaspur, Damoh, Dhar, Durg, Hoshangabad, Indore, Jabalpur, Mandla, Morena, Narsimhapur, Panna, Raigarh, Raipur, Raigarh, Rajnandgaon, Rewa, Sagar, Shahdol, Satna, Seoni, Sidhi, Shivpuri, Tikamgarh and Surguja districts.

Chemical Composition: Caffeic acid from dormant seeds. Gucoside rutin and osyritin, β -sitosterol and luprol from leaves. Delphinidin chloride and cyanidin chloride from flowers. Roots contain tephrosin, deguelin. Isotephrosin, villol, villinol, villosin, villosinol. Leaf extract exhibits dose dependent hypotensive activity and seed extract lowers blood glucose level considerably.

Uses: It is highly beneficial in inflammation and enlargement of spleen and liver hence the names plihasatru and plihhari. Plant is bitter, astringent, acrid, tonic, laxative, diuretic, anthelmintic, deobstruent and used in bronchitis and bilious febrile attacks, boils, pimples and bleeding piles. Herb is useful in inefficiency of liver. Roots and seeds have insecticidal and pesticidal potential. Decoctions of roots are given in dyspepsia, diarrhoea, rheumatism, asthma and urinary disorders. Leaves are useful in jaundice, dropsy and diabetes. Decoction of pods used as a vermifuge and stop vomiting. Seeds yield an oil which is effective against scabies, itch, eczema and other skin eruptions. Fresh root juice or decoction is reliable medicine for appendicitis.

Root is bitter and given in tympanitis, dyspepsia, chronic diarrhea and obstinate colic. It is very efficacious against hydro-cele, clinical studies have demonstrated the roots are effective against inflammations of tonsils and adenoids. Fresh root bark, ground and made into a pill with a little papper, is given in cases of obstinate colic. Seeds are employed as an anthelmintic for children.

Antimicrobial Properties: Roots possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties. The root posses antiulcer properties and thus enhancing mucosal defence (Deshpande *et al.*, 2003).

Propagation : Through seeds.

Terminalia arjuna Roxb.

Family : Combretaceae

Vern. name: Arjun, Anjan

Botanical description: Large, handsome, evergreen tree up to 25 m high, with fissured bark and numerous drooping branches. Bark greenish-white to black flaking off in flat pieces. Leaves alternate, 1-2 glands at base of the leaf lamina. Flowers minute, sessile, greenish yellow in short axillary spikes or terminal panicles. Drupe ovoid or obovoid oblong, 2.3-3.5 cm long, fibrous, woody brown, 5 angled, 5-winged, veins or wings curing upwards

Flowering & Fruiting: January-May

Distribution: Along banks of streams, road sides, canal sides, and rivers as well as in sal and mixed forests i.e. Balaghat, Bastar, Bhopal, Bilaspur, Damoh, Dhar, Durg, Hoshangabad, Indore, Jabalpur, Mandla, Morena, Narsimhapur, Panna, Raigarh, Raipur, Rajnandgaon, Raigarh, Rajnandgaon, Rewa, Sagar, Shahdol, Satna, Seoni, Sidhi, Shivpuri, Tikamgarh and Surguja districts.

Chemical Composition: Arjunolic acid, tomentosic acid, B-sitosterol, ellagic acid, saponin and (+) leucodelphinidin. Bark contains a crystalline compound arjunine, a lactone, arjunetin, essential oil, tannin (12%) pyrocatechol, large quantities of calcium salts and traces of aluminium and magnesium salts, reducing sugars and colouring matter.

Uses: Leaves are used in ulcers, sores and earache. Bark is astringent, antidysenteric, cardio tonic, styptic, febrifuge, cooling, stimulant, tonic and lithontriptic. It cures wounds and urinary diseases. It is major component of arjunarisht. It is also used of regulate the blood pressure, especially hypertension and purify the blood. Ashes of bark are prescribed in scorpion sting. Fruit is tonic and deobstruent.

Leaves are used externally as a cover for sores and ulcers. Juice of fresh leaves is used for earache. Bark is astringent, antidysenteric, cardiotonic, styptic, febrifuge, cooling internally and wholesome for heart. It is used in heart diseases as a cardiac tonic, and in bilious affections. It cures wounds and urinary diseases. Powdered bark relieves hypertension, has a diuretic and a general tonic effect in case of cirrhosis of liver; is given internally with milk in bone fractures and contusions with excessive ecchymosis. The decoction is used as a wash in ulcers and cancer.

Antimicrobial Properties: The acetonetic extract of leave and bark extract possess most potential antimicrobial activity against *Staphylococcus aureus* and mild activity against *Acinetobacter sp.*, *Proteus mirabilis*, *Escherchia coli*, *Pseudomonas aeruginosa* and *Candida albicans*, pathogens causing ear infections (Aneja *et al.*, 2012). The fruit and root extract also exhibit antimicrobial activity against gram negative and gram positive bacterial strain (Ramya *et al.*, 2008).

Propagation : Through seeds.

Terminalia bellerica Gaertn.

Family: Combretaceae

Vern. name: Bahera

Botanical description: Deciduous tree; leaves clustered at the ends of branchlets, broadly elliptic to obovate, 10-24 x 5-8 cm, coriaceous, glabrous, entire, apex subacute, or shortly acuminate; flowers small, sessile, yellowish green in axillary spikes; calyx tube constricted above the ovary, pubescent outside; stamens 10; ovary 1-celled; drupe subglobose, 2.5x2 cm, softly tomentose, obscurely 5-ridge.

Flowering & Fruiting: April-May

Distribution: in sal and mixed forests i.e. Balaghat, Bastar, Bhopal, Bilaspur, Damoh, Dhar, Durg, Hoshangabad, Indore, Jabalpur, Mandla, Morena, Narsimhapur, Panna, Raigarh, Raipur, Rajnandgaon, Raigarh, Rajnandgaon, Rewa, Sagar, Shahdol, Satna, Seoni, Sidhi, Shivpuri, Tikamgarh and Surguja districts.

Uses: Fruits are used for tanning. Kernels yield edible oil used for soap manufacture. Ripe fruits used as an astringent in combination with chebulic myrobalan; half ripe fruits used a purgative due to presence of an oil having properties similar to those of castor oil. Bark is diuretic and gum yielded by the tree, demulcent and purgative. Fruit is bitter, astringent, tonic, laxative and antipyretic. Fruit are used in piles, dropsy, diarrhoea, headache, leprosy,

dyspepsia and biliousness, coughs, eye diseases, vomiting, bronchitis and corneal ulcers.

Antimicrobial Properties: The methanol extract dry fruit possesses potential broad spectrum antimicrobial activity against *S. aureus* (Elizabeth, 2005). The extract of fruit generally revealed anti-microbial activity against both gram-positive bacteria (*B. subtilis*, *S. aureus* and *S. epidermis*) and gram-negative bacteria (*E. coli*, *S. flexinaria* and *P.auriginosa*) (Kumar *et al.*, 2009)

Propagation : Through seeds.

Terminalia chebula Retz.

Family: Combretaceae

Vern. name : Harra

Botanical description: Tree; up to 18 m high, bark dark brown, branchlets rusty villous. Leaves simple, opposite or sub-opposite, short-petioled, ovate-elliptic or obovate, acute or obtuse, entire, glabrous, 8-13 x 4-6.5 cm, thinly coriaceous. Flowers small, cream-coloured in axillary spikes. Calyx tube villous, lobes 5, petals absent; stamens 10, ovary 1-celled, fruit a glabrous ovary 1-celled, fruit a glabrous obovoid ellipsoidal drupe, 4 x 2.5 cm, faintly 5 angled.

Flowering & Fruiting: April-June & winter season

Distribution: In dry deciduous and sal forests, along banks of streams and mixed forests i.e. Balaghat, Bastar, Betul, Bilaspur, Chhindhwara, Damoh, Dhar, Durg, Hoshangabad, Indore, Jabalpur, Mandla, Morena, Narsimhapur, Panna, Raipur, Raigarh, Rajnandgaon, Sagar, Shahdol, Satna, Seoni, Sidhi, Shivpuri, Tikamgarh and Surguja districts.

Uses: It is one of the drugs constitute *Triphala* (three fruits) of Ayurvedic medicine. It is rasayana drug capable of imparting youthful vitality and receptivity of mind and sense organs. It is astringent, light, digestive, antiseptic, laxative, diuretic, and carminative. It promotes digestive power, heals wounds, ulcers, cures local swellings, skin and eye diseases, diabetes, chronic and recurrent fever, anaemia, cardiac disorders, diarrhoea, dysentery and cough. It dispels diseases caused by the vitiation of vata, pitta, and kapha and is useful in spleen enlargement, piles, vomiting and blood pressure. *Terminalia chebula* has been found to be effective in treatment of simple constipation. The dried fruit powder used in dental care of teeth, bleeding and ulceration of gums.

Antimicrobial Properties: Fruits possess antibacterial (*Pseudomonas-aeruginosa*) in muga silkworm *Antheraea assama* (Yadav *et al.*, 2004). Fruit extract have antifungal properties against *Phytophthora infestans* (Cao-KeQiang *et al.*, 2003). Heartwood has an antioxidant properties (Naik *et al.*, 2003).

Propagation : Through seeds.

Thevetia peruviana (Pers.) K. Schum.

Family : Apocynaceae

Vern. name: Kannhera

Botanical description : An evergreen shrub or small tree with bell-shaped yellow flowers; glabrous, up to 6 m high; sap milky. Leaves often linear, 10-15 x 8 cm, glabrous, dark green and shining above. Flowers showy, fragrant. Calyx-lobes 8 mm long. Corolla crimson, white, orange or yellow; tube broadly campanulate above, cylindrical at base. Drupes 4-5 cm across, green, fleshy, bluntly 4-angled, glabrous.

Flowering & Fruiting: Throughout year.

Distribution : Cultivated in gardens and parks. Balaghat, Bilaspur, Chhatarpur, Damoh, Durg, Indore, Panna, Raigarh, Raipur, Sidhi and Surguja districts.

Uses : Plant is diuretic, cardiogenic and cures oedema. Roots in the form of plaster are applied to tumours. Leaves are emetic and purgative. Bark is bitter, is used as cathartic, febrifuge, useful in different kinds of intermittent fevers. The action of decoction of bark is strong and hence it is to be used in small quantity. In fevers, it is fifteen times stronger than bark of cinchona. This medicine should be taken only after food. It causes much perspiration, body becomes cold. Hot milk or liquor may be used if there is great fatigue. Apart from its usefulness in fevers action of the plant on heart is more important and is comparable with that of digitalis purpurea. Seeds are poisonous, abortifacient and alterative. They are used as purgative in dropsy and rheumatism. Kernel is acro-narcotic poison. Milky juice is highly poisonous and is used for suicide.

Antimicrobial Properties: Ethanol-extracted leaves of yellow oleander shows narrow zone of inhibition in the bacterial lawns of *Shigella flexneri*, *Salmonella typhi*, *Klebsiella sp.*, *Staphylococcus aureus* and *Shigella sonnei* (Hassan *et al.*, 2011). It is also reported to be effective against *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, where as, *Proteus vulgaris* shows susceptibility only at higher doses. The effect notices moderate against *Staphylococcus aureus*, *Candida albicans*, *Aspergillus niger*, *Mucor*, *Rhizopus* and *Penicillium species* (Reddy, 2010).

Propagation : Through seeds.

Thunbergia fragrans Roxb.

Family : Apocynaceae

Vern. name: Bhulan jadi

Botanical description : Climber, stem dilated at nodes. Leaves deltoid-ovate to ovate-lanceolate, 3-5 x 1-3 cm, acute at apex, rounded or cordate-

hastate at base, entire or undulate. Flowers axillary, solitary or paired, pediceal; bracts foliaceous; bracteoles oblong-lanceolate, acute. Calyx-teeth 12-15. Corolla white capsules up to 2.5 cm long, grey puberulous. Seeds hemispherical, rugose.

Flowering & Fruiting : November–April.

Distribution : In forests of Bastar, Bilaspur and Dhar districts.

Uses : Plant is used as antidiarrhoeal agent, analgesic activity, antipyretic, ulcerprotective, chemotherapeutic,

Antimicrobial Properties: Roots possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through cuttings and seeds.

Tinospora cordifolia (Willd.) Miers ex Hook.f.

Family : Menispermaceae

Vern. name : Amrita, Giloi

Botanical description : Large, glabrous, deciduous, perennial, extensive twinner, bark greyish-white, lenticellate often producing filiform aerial roots. Leaves single, alternate, cordate-ovate, shortly acuminate at apex, to 9 x 8 cm. Flowers green unisexual, in dioecious spikes, mostly in the axils of fallen leaves, sepals 3 + 3, free; petal 6, stamens in male 6; in female carpels 3, with 6 stamimodes. Fruit drupaceous, ovoid, ellipsoid, deep red.

Flowering & Fruiting: August-February

Distribution: Species found as climber on trees i.e. *Azadirachta indica*, *Ficus* spp. *Shorea robusta*, *Emblica officinalis*, *Terminalia* spp. etc. planted on road sides, in gardens, in side the forests and in villages i.e. Balaghat, Bastar, Bhopal, Bilaspur, Damoh, Dhar, Durg, Hoshangabad, Indore, Jabalpur, Mandla, Narsimhapur, Panna, Raigarh, Raipur, Raigarh, Rajnandgaon, Rewa, Shahdol, Satna, Seoni, Sidhi, Shivpuri and Surguja districts.

Chemical Composition: Furanodia bitter principle tinosporine and a furanoid diterpene tinosporide and tinosporidine, β -sitosterol from stems. Cordifol, heptacosanol and octacosanol from leaves.

Uses : Plant tonic, antiperiodic and diuretic in nature. It imparts in youthfulness, vitality, longevity and known as Amrita (Sanskrit). Mature stem is the medicinal part and it is acrid, bitter, hot, restorative, aphrodisiac and alleviative and a digestive tonic. It cures fever, jaundice, and thirst,

burning sensation, diabetes, piles, skin ailments, respiratory disorders and neurological diseases. It is used externally used for rheumatism. Roots and stems are used in chronic diarrhoea and dysentery. Juice of fresh plant is useful in gonorrhoea.

It is valuable in general debility and fevers and other exhausting diseases. It is remedy in secondary syphilitic affections, chronic rheumatism and mildforms of intermittents. Juice of fresh plant is diuretic and useful in gonorrhoea. Plant is a constituent of several Ayurvedic preparations used in general debility, dyspepsia, fevers and urinary diseases. Powdered and made into an infusion, used as altereated and aphrodisiac. Externally the drug is used against rheumatic complaints.

Antimicrobial Properties: Exattract shows effective (40-58%) against the gastrointestinal parasites (*Ascaris sp.* and *Paramphistomum sp.*) of cattle (Sharatkumar at al., 2004). It is also reported antimicrobial properties against *Fusarium spp.*, *Aspergillus spp.* and *Penicillium spp.* (Thippeswamy et al., 2003).

Propagation : Through cuttings.

Uraria alopecuroides (Roxb.) Wight.

Family : Papilionaceae

Vern. name: Jogilat

Botanical description: Erect or suberect herb or undershrub, 1-2 m high, usually woody at base. Stem and branches clothed with hooked hairs. Leaves 1 or 3 foliate, leaflets ovate – elliptic or oblong, lanceolate. Calyx teeth plumose, lower calyx teeth thrice as long as the upper ones. Corolla pink to deep purple or blue. Pods glabrous, 2 jointed, black.

Flowering & Fruiting: July – November.

Distribution : Growing as undergrowth of forests i.e. Growing as undergrowth in mixed forests i.e. Balaghat, Bastar, Bilaspur Hoshangabad, Jashpur, Mandla, Rajnandgaon and Seoni districts.

Uses : Used in the preparation of Dashmulkarha. Tribes and Baigas used for the treatment of snake bite and hydrophobia.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Alternaria solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Uraria picta (Jacq.) Desv.

Family : Papilionaceae

Vern. name: Chechek Jadi, Prasniparni

Botanical description: Erect, perennial suffruticose herb or undershrub, 40-80 cm high, with pubescent cylindrical branches. Lower leaves 1-3 foliolate, upper ones 5-9 foliolate, leaf rachis 10-15 cm long; petioles 2.5-5 cm long; stipules lanceolate; leaflets sublinear, very gradually narrowed from a rounded base, 3-20 x 0.4-3 cm, excurved at margins, glabrous above faintly pubescent below, variegated along the costa on the upper surface. Racemes cylindrical, 20-35 cm long, bristly. Flowers 15 mm long; pedicels 5-15 mm long, clothed with short hooked bristles, abruptly recurved at tip. Calyx bilipped, 4 mm long; lobes cordate, acuminate, hirsute. Corolla violet or purple, slightly exserted, standard with 2 yellow spots. Pods 8- 10 mm long, glabrous, 3-6 jointed, glabrescent, folded in one another, seeds shining white.

Flowering & Fruiting: August–January

Distribution : Growing as undergrowth of forests i.e. Balaghat, Bastar, Bilaspur, Damoh, Hoshangabad, Jashpur, Mandla, Raigarh, Raipur, Rajnandgaon, Raisen, Sagar, Satna, Seoni, Shahdol, Sidhi and Surguja districts.

Uses : Herb extract affected quicker healing of fractures in experimental animal due to early accumulation of phosphorous and more deposition of calcium. Plant considered to useful in snake bite. Decoction of root given for cough, chills, fevers, heart trouble and chicken pox. Roots and pods are employed for the treatment of prolapse of anus in infants; pods also used for sore mouth. Root sap mixed with mother's milk is used for Churna disease of the children.

Antimicrobial Properties: Leaves and tubers possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through rhizomes.

Urena lobata L.

Family: Malvaceae

Vern. name: Latangari, Bachita

Botanical description: Woody herb, 0.5-1.5 m high, stellate, tomentose. Leaves simple, alternate, digitately lobed, lobes again pinnately toothed or incised. Flowers pink, axillary, solitary; ovary 5-celled, stiff-hirsute;

schizocarp globose, mericarp 5, covered with glochidiate bristles. Epicalyx adnate to the calyx at base, 7-8 mm long. Calyx 5-6 mm long, corolla rotate, 2-3 cm across, pink with purple centre, often hairy. Seeds reniform.

Flowering & Fruiting: Throughout year

Distribution: Growing in wasteland, fallow fields, along shady forest margins of mixed and sal forests i.e. Balaghat, Bastar, Bilaspur, Hoshangabad, Narsimhapur, Panna, Raigarh, Raipur, Satna, Seoni, Shahdol, Sidhi and Surguja districts.

Uses: The root is considered diuretic, tonic, aphrodisiac and used in cough, dysuria, diabetes, piles, diarrhoea, worms, fever, thirst, etc.

Antimicrobial Properties: The methanolic extract of root has antibacterial activity against Gram positive and gram negative organisms (Mathappm *et al.*, 2010).

Propagation : Through seeds.

Urginea indica (Roxb.) Kunth.

Family : Liliaceae

Vern. name: Ban payaj

Botanical description : Herb, bulbs pale, ovoid, 3-5 cm across, thick, with a long neck. Leaves linear, ensiform, flat, 15-40 cm long, acute, appearing after the flowers. Racemes erect, 15-30 cm long, scape erect, 30-40 cm long, brittle. Flowers distant, dingy brown; pedicels 3-7 cm long, spreading or decurved; bracts evanescent. Perianth greenish white; segments linear-oblong. Filaments flattened at base. Capsules ellipsoid, 6-9 seeded in each cell.

Flowering & Fruiting: March–May

Distribution : In open dry situations, sometimes amongst stones and gravels in open places or shades of sal and mixed forests i.e. Bastar, Bilaspur, Rewa, Satna and Surguja districts.

Uses : Bulbs are tonic, stimulant, expectorant, diuretic, deobstruent and used for rheumatism and cardiac diseases but in large doses they are emetic and may cause depression. The alcoholic extract of bulbs are referred to possess some anticancerous properties. Leaves are eaten during the time of scarcity.

Antimicrobial Properties: Bulb possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*) properties.

Propagation : Through seeds.

Urtica dioica L.

Family : Urticaceae

Vern. name: Urtica

Botanical description: Herb, perennial; stems 1 m high, slender, angular, sparingly branched; stinging hairs copious. Leaves ovate-lanceolate, oblong or lanceolate, 1.5-6 cm long, acute-acuminate at apex, cordate at base, serrate; stipules free. Flowers in axillary, unisexual, rarely androgynous cymes, whitish or pale green. Inner fruiting tepals than the outer. Achenes ovoid-ellipsoid.

Flowering & Fruiting: August–September

Distribution : In moist habitats found in rocky places of Bastar and Bhopal forests.

Uses : The plant is referred to check excessive menstrual flow.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties. It induces antioxidative in the kidney, lung and forestomach and biotransform enzyme such as glutathione S-transferase, DT-diaphorase, superoxide dismutase and catalase the lung (Ozen and Korkmaz, 2003).

Propagation : Through seeds.

Vernonia divergens (Roxb.) Edgew.

Family : Asteraceae

Vern. name : Kodgi

Botanical description : Perennial erect under shrub, 1-1.5 m high. Leaves 6-15 x 2.5 -6 cm, elliptic-ovate or lanceolate, acute, serrate; petiole 1 cm long. Heads 2.5 mm in diameter, in corymbose panicles; involucral bracts numerous, imbricate; outer bracts 1 mm long, ovate; inner bracts 3 mm long, oblong, obtuse, scarious. Corolla 5–6 mm long, tubular, glabrous, 5-fid, purple. Achenes 2.5 mm long, truncate at both ends, 10-ribbed, minutely hairy; pappus 6 mm long, pale, reddish or dirty white.

Flowering & Fruiting: January–February

Distribution : Species is common in shaded places and stream bank i.e Balaghat, Bastar, Bilaspur, Rajnandgaon, Shahdol, Sidhi, Seoni and Surguja districts.

Uses: Various parts are used in constipation, syphilis and cholera. Seeds are tonic, stomachic, diuretic, anthelmintic and are used in asthma, skin diseases, scorpion sting and destroying pediculi.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds.

Vitex leucoxydon L.

Family : Verbenaceae

Vern. name: Mayurpakh

Botanical description : Tree up to 10 m high. Leaves 3-7 foliolate; leaflets obovate-oblong, 7-15 x 2-4 cm, acute at apex and base, entire to dentate. Flowers in axillary, 10 cm long, corymbose cymes. Calyx 3 mm long, 5-toothed, appressed pubescent. Corolla cream-coloured, purplish inside, 1.5 cm across, 5-lobed; tube 5 mm long. Drupes ellipsoid-oblong, 1.5 x 0.8 cm.

Flowering & Fruiting: April–June.

Distribution : In dried river beds, rocky slopes and along river bank i.e. Bastar, Bilaspur, Raigarh, Raipur districts.

Uses : The leaves are used to treat anaemia. Decoction of leaves are being used for the control of malaria fever.

Antimicrobial Properties: Leaves possess antifungal (*Colletotrichum capsici*, *Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds & cuttings.

Vitex negundo L.

Family : Verbenaceae

Vern. name : Nirgundi

Botanical description: A aromatic shrub with quadrangular, densely whitish tomentose branchlets, up to 4.5 m in height, or some times a small, slender tree, bark thin grey, leaves 3-5 foliolate, leaflets lanceolate, entire or rarely crenate, terminal leaflets 5-10 cm x 1.6–3.2 cm. lateral leaflets smaller all nearly glabrous above, white tomentose beneath. Flowers bluish purple, small in peduncled cymes, forming large terminal often compound pyramidal panicles. Drupes globose black when ripe, 5-6 mm in diameter.

Flowering & Fruiting: June-December

Distribution: Common along roadsides, river bank and bunds of cultivated fields i.e. Balaghat, Bastar, Betul, Bilaspur, Chhatarpur, Damoh, Jabalpur, Hosangabad, Indore, Mandla, Panna, Raigarh, Raipur, Rajnandgaon, Sagar, Satna, Shivpuri, Sidhi, Surguja and Tikamgarh districts.

Chemical Composition : Leaves contain two alkaloid nishindine and hydrocotylene. Fresh leaves yield a pale greenish yellow oil.

Uses : The plant is astringent, bitter, cephalic and stomachic. It has germicidal properties. The leaves are aromatic and are considered tonic and vermifuge. A decoction of the leaves, with the addition of long-pepper is given in catarrhal fever with heaviness of the head and dulness of hearing. The leaves are also smoked for the relief of headache and catarrh. A decoction of the leaves and the vapours are employed in baths for the treatment of febrile, catarrhal, swelling of joints and rheumatic affections. The juice of leaves is said to be used for the treatment of foetid discharges. An ointment made from the juice is applied as a hair tonic. An extract of the leaves showed anti-cancer activity. The roots possess tonic, febrifugal, expectorant and diuretic properties and are used in dyspepsia and rheumatism and also for boils. The powdered root is prescribed as an anthelmintic, and as a demulcent in dysentery and also given for piles. The flowers are astringent and are used in fever, diarrhoea and liver complaints. The fruits are prescribed in headache, catarrh and watery eyes, when dried they are considered vermifuge. An aqueous extract of the fruit was found to have good analgesic action. The shrub is one of the most common plant used in Indian medicine and all its parts are employed, but the leaves and the roots are more important and are sold as drugs.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties. The leaf extract is most toxic against seed borne fungi, *Colletotrichum graminicola*, *Drechslera sorokiniana*, *Fusarium solani*, *Macrophomina phaseolina* and *Phomopsis sojae* Nor-Afandy et al., 2002).

Propagation : Through seeds & cuttings.

Wedelia chinensis (Osbeck.) Merr.

Family : Asteraceae

Vern. name : Bhringaraja, Pila bringaraj

Botanical description: A procumbent perennial herb, stem terete, appressed hairy. Leaves simple, opposite, short petioled, linear to oblanceolate, acute, up to 9 x 2.5 cm, entire or crenate-serrate, scabrous

above. Flower heads axillary, solitary, long peduncled, yellow, ray florets pistillate, disc florets bisexual; involucre campanulate, bracts biseriate, receptacle flat; corolla of ray florets ligulate, entire or 2-3 toothed, spreading, those of disc florets tubular, 5-lobed; stamens 5, epipetalous, anthers cyngeneccious; pistil bicarpellary, ovary inferior, unilocular, 1-ovuled; ray achenes triquetrous, pubescent and disc achenes compressed and tuberculate.

Flowering & Fruiting: Throughout year.

Distribution : Plant is generally found in costal area of India.

Uses : It is acrid, bitter, hot, dry and used to reduce Kapha and Vaata. It is used for the hair diseases, skin, worms, cough, asthma and strengthens body. It is also used in liver and gall bladder ailments and reported to have antihepatotoxic effect (activity against liver damage induced by chemicals). Leaves and their juice used in scorpion sting, catarrh infants. Root is emetic and purgative and used to cure ulcers and wounds in cattle.

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) and leaves posses antifungal (*Sclerotium rolfsii*) properties.

Propagation : Through seeds.

Withania somnifera (L.) Dunal.

Family : Solanaceae

Vern. name : Aswagandha, Asgandh

Botanical description : Erect, greyish tomentose, undershrub with fairly long tuberous roots. Leaves alternate or sub-opposite, broadly ovate, ovate, subacute, entire, 5-10 x 2.5-7 cm. Flowers small greenish, axillary, solitary or in few-flowered fascicles. Calyx gamosepalous, campanulate, 5-lobed, lobes acute from a broad base, crescent and inflated in fruit. Corolla campanulate, greenish yellow, lobes 5, triangular-oblong, stamens 5, included; ovary ovoid or globose, glabrous, many ovuled, style filiform, stigma two lobed. Fruit a globose berry, orange-red when ripe and enclosed within the enlarged calyx; seeds many, discoid.

Flowering & Fruiting: July-December

Distribution : In dry and wastelands i.e Gwalior, Indore, Morena and Raisen districts. Plant is also cultivated in drier parts of several districts of Chhattisgarh and Madhya Pradesh.

Chemical Composition : Roots contain several pyrazole alkaloids. Withasomnine, somniferine, and steroidal lactones, withaferin A and withanolides. They also contain starch, reducing sugars, hentriacontane, glycosides, dulcitol, withaniol, an acid and a neutral compound. Withaferin is a bacteriostatic and antitumorous agent.

Uses : Plant is sedative, tonic, stimulant and aphrodisiac. It is capable of imparting long life, youthful vigour and good intellectual powers. The drug is a good tonic thus, prescribed in all cases of general debility. The drug has been found to possess significant anti-tumour activity and reported to cure the psychotropic efficacy in the treatment of anxiety neurosis. The root is the medicinal part and it is bitter in taste, hot in action, germicidal and cures ulcers, fever, cough, dyspnoea, consumption, dropsy, impotence, rheumatism, toxicosis and leucoderma. Fruit is sweet and used in wounds, asthma, biliousness and strangury. Seeds are aphrodisiac, diuretic, alleviative of Vaata and Kapha and useful in piles, urine disorders, diabetes and rheumatic pain of joints. It is also able to retard the formation of cold cataract causing blindness (Geetha et al., 2003)

Antimicrobial Properties: Root possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties. The ethanolic extract of the root observed protective against cancer cell number and tumour weight (Christina et al., 2004). It has immune potentiating effects on the foot and mouth disease

vaccie induced immunity (Rajesh kumar et al., 2003) and antistress adaptogenic activity (Bhattacharya and Muruganandam, 2003). There is evidences that the leaves is effective in focal ischemia as a prophylactic treatment in the middle cerebral artery (Geeta Chaudhary et al., 2003).

Propagation : Through seeds and cuttings.

Woodfordia fruticosa (L.) Kurz.

Family : Lythraceae

Vern. name: Dhawai

Botanical description: Woody shrub, young branches clothed with fine white pubescence. Leaves simple, opposite, short-petioled, ovate-lanceolate acuminate, entire, to 11 x 3 cm, subcoriaceous, green glabrescent above, pale, hairy beneath. Flowers numerous, short-pedicelled deep orange-red, borne in cymose fascicles or paniced cymes arising from the older leafless portions of the branches. Calyx 1.5 cm long, orange-red, slightly curved and striate, ending in a 6-toothed oblique mouth; petals small, narrowly linear, alternating with calyx teeth; stamens 12, filaments free, exserted; ovary sessile, cylindric, 2-celled, many ovuled style long, ending in a punctiform stigma. Fruits an ellipsoid capsule enclosed within the calyx tube. Seeds minute, smooth.

Flowering & Fruiting: January–May

Distribution : The plant is growing on rocky places and distributed in sal and mixed forests, forest borders, field bunds of adjoining villages to forests i.e. Bastar, Betul, Bilaspur, Gwalior, Panna, Raigarh, Raipur, Rajnandgaon, Satna, Shivpuri, Sidhi, Surguja and Tikamgarh districts.

Chemical Composition: Extract of flowers possessed significant abortifacient activity in mice. Flower contain ellagic acid, β -sitosterol polystachoside, octacosanol, myricetin-3-galactoside, cyanidin-3, 5-diglucoside, pelaegonidin-3,5-diglucoside, chrysophanol-8-O-B-D-glucopyranoside.

Uses : It is acrid, bitter, astringent, cold, light and intoxicant and drug is used in headache and fever. Leaves used for asthma and cough. The dried flowers are the most important medicinal part and used in preparation of arista and asavas, as it helps fermentations. Flowers, fruits and buds are used in bowel complaints, hemorrhage, menorrhagea, and seminal weakness. Flower alone used for sprains, injuries, dysentery, cough, smallpox. It is also used as tonic during pregnancy. It kills germs, purifies blood, heals ulcers

and cures haematemesis, diarrhoea and uterine diseases. Roots used in rheumatism and in spleen complaints.

Bark is pungent, acrid, cooling anthelmintic, toxic, uterine sedative. In Konkan, leaves are used in bilious sickness. Dried flowers are used in the preparation of asavaas and aristaas as it helps fermentation. They are stimulant, astringent, used in dysentery, menorrhagia, in derangement of liver, disorders of mucous membrane, in derangement of liver, disorders of mucous membrane and in haemorrhoids; it is considered a safe stimulant in pregnancy, it averts abortion. The drug is also used in headache and fever.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*) while, flower possess antifungal (*Alternaria solani*) properties.

Propagation : Through seeds and cuttings.

Zanthoxylum armatum DC.

Family : Rutaceae

Vern. name : Tejbal, Tumbaru

Botanical description : A spiny branched shrub or small tree, all parts pungent, aromatic branches and stem prickly, the older with corky base. Leaves unequally pinnate, leaflets 2 -6 pairs, lanceolate, glabrous. Petiole and rachis usually winged. Flowers small, yellow in lax. Calyx with 6-8 acute segments. Petals 0. Stamens 6-8. The ripe carpels 1-3, radish when fresh, tuberced.

Flowering & Fruiting: April-October.

Distribution : Plant grows in high altitude and recorded from hilly forest area i.e. Jashpur districts.

Chemical Composition : It contains Pipevine.

Uses : The bark, fruits and seeds are carminative, stomachic and anthelmintic. Tejbal is stimulant, alterative, tonic and diaphoretic. Berries are more active and are also carminative and antispasmodic, useful in rheumatism and skin diseases. *Xanthophyllum* acts upon skin and female sexual organs. Bearing down sensatio; vulva inflamed with furious itching. Increased sexual desire, used in muscular lameness, ovarian and uterine pains, leucorrhoea, skin erythema with vesicles and intense itching, stinging, burning and dermatitis around knees. Stem stick is useful in maintaining blood pressure.

Antimicrobial Properties: Leaves possess antibacterial (*Xanthomonas campestris* pv. *campestris*) as well as antifungal (*Rhizoctonia solani*, *Sclerotium rolfsii*) properties.

Propagation : Through seeds and cuttings.

Zingiber roseum (Roxb.) Roscoe.

Family : Zingiberaceae

Vern. name : Jangali Adrak

Botanical description : Herb 1 m high. Leaves oblong-lanceolate, 25-55 x 6-12 cm, entire pubescent beneath. Flowers in radical, oblong, up to 5 cm long spikes; peduncles very short; bracts bright red, outer ones hairy. Calyx tubular, lobes yellow or with red tinge. Corolla bright red; tube pubescent. Labellum white with pale red streaks throughout, pale yellow on margins, oblong, recurved, crisped; basal lobe small. Stamens yellow, as long as labellum. Capsules bright red, ellipsoid-ovoid.

Flowering & Fruiting: September–January.

Distribution : In shady places of sal and mixed forests i.e. Balaghat, Bastar, Bilaspur, Hoshangabad, Raipur and Surguja districts.

Uses : It is stimulant, aromatic and carminative. Rhizomes are used in cough, digestive complaints, pains, headache and in dyspepsia.

Antimicrobial Properties: Rhizome possess antibacterial (*Xanthomonas campestris* pv. *campestris*) properties.

Propagation : Through seeds and rhizomes.

Ziziphus mauritiana Lamk.

Family : Rhamnaceae

Vern. name: Ber

Botanical description : A small evergreen tree of variable size, up to 15 m or even more in height, with a spreading crown and stipular spines, bark rough, grey or dull black. Leaves variable, oblong-elliptic, ovate or suborbicular, closely serrulate or entire, rounded at both ends, prominently 3-nerved. Flower greenish yellow, in axillary cymes. Drupes oblong globose or ovoid, red, orange or yellowish.

Distribution : Along banks of streams, road sides, canal sides, and rivers and mixed forests i.e. Balaghat, Bastar, Bhopal, Bilaspur, Damoh, Dhar, Durg, Hoshangabad, Indore, Jabalpur, Mandla, Morena, Narsimhapur,

Panna, Raigarh, Raipur, Rajnandgaon, Rewa, Sagar, Shahdol, Satna, Seoni, Sidhi, Shivpuri, Tikamgarh and Surguja districts.

Uses: Medicinally, the fruit of wild trees considered as cooling, anodyne and tonic. They enter into the preparation of Joshanda, a medicine used in chest complaints. The kernels are reported to have a sedative effect and are recommended as a soporific. They are used in pain in pregnancy. They are also given as an antidote to aconite-poisoning and used as poultices and other application of wounds, the seeds are used for the treatment of diarrhoea used or oral contraceptives.

Antimicrobial Properties: The phytochemicals identified were cardiac glycosides, polyphenols, saponins and tannins. Extracts from these plants could be useful in the treatment of nosocomial infections, opportunistic infection of the urinary tract (UTI), infantile gastroenteritis, travelers diarrhea, wound infection, meningitis, and wounds infection which are diseases caused by some of these organisms (Abalaka *et al.*, 2010). The plant extract found to have potential antibacterial and antifungal activity against four medically important bacterial and fungal strains respectively *Staphylococcus aureus*, *Streptococcus pyogenes*, *Bacillus subtilis*, *Pseudomonas aeruginosa*, *Aspergillus niger*, *Aspergillus flavus*, *Candida albicans* and *Trichophyton rubrum* (Gautam *et al.*, 2011).

Propagation : Through seeds and cuttings.

Ziziphus oenopia (L.) Mill.

Family: Rhamnaceae

Vern. name: Mokoy

Botanical description: A straggling shrub, often semiscandent by its prickles found throughout the hotter parts of India, branches rusty-pubescent, prickles paired, one straight, the other recurved. Leaves distichous, ovate to ovate-lanceolate often oblique, acute, entire or crenate, glabrous except for the nerves, white or red-bluish beneath, 3.3-6.3 cm x 1.8-3.2 cm, tree prominent nerves with numerous transverse nervules. Flowers green, in short axillary cymes, drupes globose or obovoid, black, shining.

Distribution: Throughout drier parts of the country.

Uses: Roots are used in cases of hyperacidity and in ascariis infection. A decoction of the bark is said to promote healing of the wounds. The fruits form constituents of a medicine used by the Mundas for a stomachache. Ethanolic extract of the aerial parts of the plant exhibits hypotensive effect also low diuretic activity.

Antimicrobial Properties: The root extract on ethanol shows significant antibacterial activities against two gram-positive (*Staphylococcus aureus* and *Enterococci*) and six gram-negative (*Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella typhi*, *Vibrio cholerae*, *Serratia* and *Klebsella pneumoniae*) bacteria. The antifungal activities are found to be strong properties against four fungi (*Aspergillus niger*, *Aspergillus flavus*, *Candida albicans*, *Rhizopus oryzae*) (Dhunmati *et al.*, 2013).

Propagation : Through seeds and rhizomes.

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1. Ablemoschus manihot L.
2. Abelmoschus moschatus Medic
3. Abroma augusta L.
4. Abrus precatorius L.
5. Abutilon indicum L.
6. Acacia catechu L.
7. Acacia nilotica (L.) Willd. ex Delile.
8. Achyranthes aspera L.
9. Achyranthes bidenata Blume.
10. Acorus calamus L.
11. Adhatoda vasica P. Miller.
12. Adiantum philippense L.
13. Aegle marmelos L.
14. Aerva lanata (L.) Juss.
15. Ageratum conyzoides L.
16. Alangium atrifolium L.F.

17. *Aloe vera* L.
18. *Alpinia galanga* Burm. f.
19. *Amorphophallus campanulatus* (Roxb.) Blume.
20. *Amorphophallus sylvaticus* (Roxb.) Kunth.
21. *Ampelocissus latifolia* Roxb.
22. *Andrographis paniculata* Burm.f.
23. *Antidesma diandrum* Roxb.
24. *Ardisia solanacea* Roxb.
25. *Argemone mexicana* L.
26. *Argyrea nervosa* Sweet
27. *Argyrea speciosa* Burm.f.
28. *Argyria strigosa* (Roth.) Roberty.
29. *Arisaema tortuosum* (Wallich.) Schott.
30. *Aristolochia indica* L.
31. *Asparagus racemosus* Willd.
32. *Athyrium falcatum* Bedd.
33. *Azadirachta indica* A. Juss.
34. *Bacopa monnieri* (L.) Wettst.
35. *Baliospermum montanum* (Willd.) Muell.
36. *Barleria cristata* L.
37. *Barleria prionitis* L.
38. *Bauhinia variegata* L.
39. *Bixa orellana* L.
40. *Boerhavia diffusa* L.
41. *Brassica* sp. L.
42. *Butea monosperma* (Lam.) Taub.
43. *Caesalpinia bonduc* (L.) Roxb.
44. *Calotropis gigantea* L.
45. *Calotropis procera* (Aiton.) R.
46. *Canavalia gladiata* (Jacq.) DC.
47. *Cardiospermum helicacabum* L.
48. *Carissa opaca* Stapf ex Hains.
49. *Cassia alata* L.
50. *Cassia angustifolia* Vahl.
51. *Cassia auriculata* L.
52. *Cassia fistula* L.
53. *Cassia glauca* Lamk.
54. *Cassia hirsuta* L.
55. *Cassia occidentalis* L.
56. *Cassia tora* L.
57. *Catharanthus pusillus* (Murr.) G.
58. *Catharanthus roseus* (L.) G.
59. *Celastrus paniculatus* Willd.
60. *Centella asiatica* (L.) Urb.
61. *Centratherum anthelminticum* (L.) Kuntze.
62. *Chlorophytum arundinaceum* Baker.
63. *Chlorophytum tuberosum* Sant. Et.
64. *Chorozophora rotteri* (Geiseler.) Adr.
65. *Cissampelos pareira* L.

66. *Cissus quadrangularis* L.
67. *Citrullus colocynthis* (L.) Schrader.
68. *Clematis smilacifolia* Wall.
69. *Cleome viscosa* L.
70. *Clerodendrum indicum* (L.) Kuntze.
71. *Clerodendrum serratum* (L.) Moon.
72. *Clitoria ternatea* L.
73. *Coleus forskohlii* Briq.
74. *Colocasia esculenta* L.
75. *Convolvulus prostratus* Forssk.
76. *Costus speciosus* (J. Koenig.) Sm.
77. *Crinum asiaticum* L.
78. *Crinum defixum* Ker-Gawl.
79. *Crinum latifolium* L.
80. *Crotalaria sericea* Roth.
81. *Cryptolepis buchananii* Roem. & Schult.
82. *Curculigo orchioides* Gaertn.
83. *Curcuma amada* Roxb.
84. *Curcuma angustifolia* Roxb.
85. *Curcuma aromatica* Salib.
86. *Curcuma caesia* Roxb.
87. *Cymbopogon flexuosus* Steud.
88. *Cymbopogon martinii* (Roxb.) Wats.
89. *Cymbopogon winterianus* Jowitt.
90. *Cynodon dactylon* (L.) Pers.
91. *Datura stramonium* L.
92. *Desmodium gangeticum* (L.) DC.
93. *Desmodium heterocarpon* (L.) DC.
94. *Desmodium laxiflorum* DC.
95. *Desmodium motorium* (Houtt.) Merr.
96. *Desmodium pulchellum* (L.) Benth.
97. *Dioscorea bulbifera* L.
98. *Dioscorea hispida* Dennst.
99. *Dioscorea pentaphylla* L.
100. *Dioscorea wightii* Hook.
101. *Diplocyclos palmatus* L.
102. *Eclipta prostrata* (L.) L.
103. *Elephantopus scaber* L.
104. *Elettaria cardamomum* (L.) Maton.
105. *Embllica officinalis* Gaertn.
106. *Embelia tsjeriam* (Roem. & Schult.) A. DC.
107. *Equisetum diffusum* D. Don.
108. *Eucalyptus tereticornis* Haines.
109. *Euphorbia hirta* L.
110. *Ficus benghalensis* L.
111. *Ficus racemosa* L.
112. *Ficus religiosa* L.
113. *Flemingia bracteata* (Roxb.) Wight.
114. *Flemingia nana* Roxb.

115. *Flemingia praecox* Clarke.
116. *Gardenia gummifera* L.
117. *Gardenia spinosa* Thunb.
118. *Globba recemosa* Sm.
119. *Gloriosa superba* L.
120. *Glycyrriza glabra* L.
121. *Gmelina arborea* Roxb.
122. *Grewia hirsuta* Vahl.
123. *Grewia tiliaefolia* Vahl.
124. *Gymnema sylvaestre* (Retz.) R. Br.
125. *Harbenaria marginata* Colebr.
126. *Hedychium coronarium* J. Koenig.
127. *Helicteres isora* L.
128. *Heliotropium indicum* L.
129. *Hemidesmus indicus* L.
130. *Hibiscus vitifolius* L.
131. *Hiptage madolobata* Gaertn.
132. *Holostemma annulare* (Roth.) K. Schum.
133. *Hydrocotyle sibthorpiodes* Lamk.
134. *Hygrophila auriculata* (Schumach.) Heine.
135. *Hymenodictyon orixense* (Roxb.) Mabb.
136. *Hyptis suaveolens* (L.) Poit.
137. *Ipomoea mauritiana* Jacq.
138. *Jasminum grandiflorum* L.
139. *Jatropha curcas* L.
140. *Jatropha gossypifolia* L.
141. *Kaempferia galanga* L.
142. *Kalanchoe heterophylla* Prain.
143. *Kalanchoe pinnata* (Lamk.) Pers.
144. *Lasia spinosa* (L.) Thwaites.
145. *Lavandula bipinnata* (Roth.) Kuntze.
146. *Leea asiatica* Edgew.
147. *Leea macrophylla* Roxb.
148. *Leea robusta* Roxb.
149. *Lepidium sativum* L.
150. *Lippia javanica* (Burm.f.) Spreng.
151. *Loranthus philippensis* Cham. & Schlechtend.
152. *Malaxis latifolia* Sm.
153. *Marsdenia tenacissima* (Roxb) Moon.
154. *Martynia annua* L.
155. *Melia azedarach* L.
156. *Mentha arvensis* L.
157. *Mentha spicata* L.
158. *Millingtonia hortensis* L. f.
159. *Mimosa pudica* L.
160. *Mimusops elengi* L.
161. *Mirabilis jalapa* L.
162. *Moringa oleifera* Lank.
163. *Mucuna pruriens* (L.). DC.

164. *Murraya paniculata* (L.) Jacq.
165. *Nelsonia canescens* (Lam.) Spreng.
166. *Nervilia aragoana* Gaud.
167. *Nervilia prainiana* (King. & Pantl.) Scidenf. & Smitin.
168. *Nyctanthes arbor-tristis* L.
169. *Ocimum basilicum* L.
170. *Ocimum gratissimum* L.
171. *Ocimum sanctum* L.
172. *Ocimum sanctum* L.
173. *Operculina turpethum* (L.) Manso.
174. *Paederia foetida* Linn.
175. *Pergularia daemia* (Forsk.) Chiov.
176. *Peucedanum nagpurensis* (Clarke.) Prain.
177. *Phyllanthus amarus* Schumacher. & Thonn.
178. *Pimpinella bracteata* Haines.
179. *Piper longum* L.
180. *Plantago ovata* Forsk.
181. *Plumbago zeylanica* L.
182. *Polygala crotalarioides* Buch-Ham ex DC.
183. *Pongamia pinnata* (L.) Pierre.
184. *Psoralea corylifolia* L.
185. *Pueraria tuberosa* (Roxb. Ex. Willd) DC.
186. *Putranjiva roxburghii* Wallich.
187. *Pygmaeopremna herbacea* (Roxb.) Moldenke.
188. *Rauvolfia serpentina* (L.) Benth ex Kurz.
189. *Rauvolfia tetraphylla* L.
190. *Rubia cordifolia* L. var. *munjista* (Roxb.)
191. *Ruta graveolans* L.
192. *Sagittaria sagittifolia* L.
193. *Salvia plebeja* R. Br.
194. *Sansevieria cylindrica* Thunb., nom. cons.
195. *Saraca indica* Linn.
196. *Scoparia dulcis* L.
197. *Sida acuta* Burm. f.
198. *Smilax perfoliata* Lour.
199. *Smilax zeylanica* L.
200. *Solanum incanum* L.
201. *Solanum nigrum* L.
202. *Solanum torvum* Sw.
203. *Solanum violaceum* Ortega.
204. *Solanum xanthocarpum* Schrad. & Wendl.
205. *Sphaeranthus indicus* L.
206. *Spilanthus oleracea* (DC.) Clarke.
207. *Stachytarpheta jamaicensis* (L.) Vahl.
208. *Stephania herandifolia* (Willd.) Walp.
209. *Stereospermum suaveolens* (Roxb.) DC.
210. *Strobilanthes asperimus* Nees.
211. *Strychnos nux – vomica* L.
212. *Syzygium cumini* L.

213. *Tamarindus indica* L.
214. *Tephrosia purpurea* (L.) Pers.
215. *Terminalia arjuna* Roxb.
216. *Terminalia bellerica* Gaertn.
217. *Terminalia chebula* Retz.
218. *Thevetia peruviana* (Pers.) K. Schum.
219. *Thunbergia fragrans* Roxb.
220. *Tinospora cordifolia* (Willd.) Miers ex Hook.f.
221. *Uraria alopecuroides* (Roxb.) Wight.
222. *Uraria picta* (Jacq.) Desv.
223. *Urena lobata* L.
224. *Urginea indica* (Roxb.) Kunth.
225. *Urtica dioica* L.
226. *Vernonia divergens* (Roxb.) Edgew.
227. *Vitex leucoxydon* L.
228. *Vitex negundo* L.
229. *Wedelia chinensis* (Osbeck.) Merr.
230. *Withania somnifera* (L.) Dunal.
231. *Woodfordia fruticosa* (L.) Kurz.
232. *Zanthoxylum armatum* DC.
233. *Zingiber roseum* (Roxb.) Roscoe.
234. *Ziziphus mauritiana* Lamk.
235. *Ziziphus oenoplia* (L.) Mill.