

# HAND BOOK OF MEDICINAL PLANTS

24

VOLUME I



A bed of *Ocimum sanctum* Linn

DR P.N.V. KURUP

# **HAND BOOK OF MEDICINAL PLANTS**

**VOLUME I**



**DR. P.N.V. KURUP**

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New Delhi

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Published by CCRIMH, 1977/1000 copies  
Printed by Deepak Art Press, D-326, Laxmi Nagar, Delhi-110051

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By and large in India, medical needs of the rural population are catered mostly by the Indian systems of medicine-Ayurveda, Siddha and Unani. Plants are the natural and traditional sources of medication and the use of herbs has been the mainstay in therapeutics in spite of enormous changes in the therapeutic practices.

A number of single herbs, compound medicines prepared from herbs, herbal adjuncts, vehicles and dietary items have been extensively investigated to evaluate their main as well as supplementary, complimentary and synergistic actions and to assess their place in the treatment of a variety of clinical conditions and in the maintenance of health.

India with its wide climatic conditions and topographical features is perhaps unrivalled in the world and a wide variety of species of drugs can even be grown with ease. The hilly areas, valleys, dry and wet lands, forests and the climatic conditions varying from tropical to frigid zones provide this advantage. With these factors, naturally the Indian medicinal flora is one of the richest and cosmopolitan one with high therapeutic potentialities. By diligent efforts, it is possible to utilise the herbal wealth to the utmost advantage of a common man.

Efforts have been made to locate the herbs, identify and study them by utilising contemporary technological developments with the prime idea of rediscovering drugs from our ancient heritage. This stupendous and vital task has been taken up by Central Council for Research in Indian Medicine and Homoeopathy through its medico-botanical survey teams; the investigations utilising advances in the fields of pharmacognosy, chemistry, biochemistry, pharmacology and allied disciplines and at clinical levels are in progress in different centres under the Council. Efforts are made to make studies in the field of medicinal plants comprehensive and utilitarian. The present work which in pursuance of this objective, places in the hands a descriptive hand book of common drugs in use brought out by the Council. The succeeding volumes are proposed to be brought out with more drugs and the picture plates of the plants will be added to facilitate easy identification. This volume provides to the readers essential details of plant description helpful in identification, distribution, anatomical characters of part(s) used, pharmacodynamics and the therapeutic uses in traditional medicine for one hundred eleven commonly used/easily available drugs. This is considered to be of value to all those engaged in the study and utilisation of the plant wealth.

The assistance rendered by Shri Prajapati Joshi and Dr. V.N.K. Ramadas, both of the Council in editing this hand book is greatly acknowledged.

DR. P.N.V. KURUP  
DIRECTOR

7th September, 1977



## List of medicinal plants

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**Descriptive profile and Medicinal uses**

<b>Name : Sanskrit</b>	<i>Ahiphena</i>
<b>Hindi</b>	<i>Afim</i>
<b>Botanical</b>	<i>Papaver somniferum</i> Linn. ( <i>Papavaraceae</i> )
<b>Habit :</b>	A glaucous annual usually quite glabrous herb; leaves oblong; amplexical lobed; lobes dentate; flowers white, sometimes purple or scarlet; capsule stalked 2.5 cm in diameter, egg shaped glabrous; stigmatic rays 5-12 without pores under the stigma; seeds white or black.
<b>Part used :</b>	Milky juice of the immature capsules. Opium: dried or partly dried latex obtained from the unripe capsules of this plant. The dried latex is oily in nature.
<b>Distribution :</b>	Cultivated in U.P., Punjab, Rajasthan, Madhya Bharat, Jammu and Kashmir, Madras and West Bengal.
<b>Action and uses :</b>	Anodyne, antispasmodic, appetizer, cerebral depressant, diaphoretic, hypnotic, narcotic and sedative.  Used in abdominal pain, colic, conditions stimulating, diabetes, diarrhoea, enteritis, impotence, pain of sciatica, pleuresy, respiratory disorders and spermatorrhea.

<b>Name :</b> Sanskrit	<i>Ajamoda</i>
Hindi	<i>Ajwain</i>
Botanical	<i>Apium graveolens</i> Linn. ( <i>Umbellifereae</i> )
<b>Habit :</b>	<p>Biennial, aromatic herb; stem 30-240 cm. erect branched; peduncle 0.06 cm; leaf opposed, rays of the umbell 5.10, 1-25-3.75 cm; pedicles 6-16, 0.1-0.3 cm; fruit occurs as separated mericarps, cremocarp is brown, ovoid roundish, laterally compressed 1-1.5 mm long 1.55 mm wide, 0.5 mm thick; 5 scarcely prominent ridges and 6-12 vittae distinguish it. Seed is orthospermous.</p>
<b>Part used :</b>	<p>Seed (Fruit)</p> <p>Section of the fruit shows polyhedral epidermal cells, with slightly wavy anticlinal walls and outer walls radiately striated and frequently papillose; the conspicuous endocarp tissue of narrow, brown, thin walled, lignified, tangentially arranged cells; the brown vittae with a secretory epithelium and transverse walls at intervals; the large proportion of endosperm tissue is composed of thick walled polyhedral cells containing fixed oil and aleurone grains each of which encloses a rosette of calcium oxalate.</p>
<b>Distribution :</b>	Cultivated, sub-Himalayan regions and outlying hills.
<b>Action and uses :</b>	<p>Alterative, cardi tonic, diuretic, intestinal antiseptic and stimulant.</p> <p>Used in anorexia, asthma, bronchitis, hiccough, flatulence. liver and splenic disorders.</p> <p>In traditional medicine an infusion of the water made up of this seed is extensively used in diseases of the infants.</p>

<b>Name :</b> Sanskrit	<i>Amalaki</i>
Hindi	<i>Amla</i>
Botanical	<i>Embllica officinalis</i> Gaertn. ( <i>Euphorbiaceae</i> )

**Habit :** A medium sized deciduous tree; branchlets of 10-20cm, stipules minute; bark light grey, red inside; wood red, hard, close graind; leaves sub-sessile 1.3 cm linear oblong, acute, closely set and over lapping; flowers monoecious, greenish yellow in axillary clusters; male flowers many, slightly pedicellate; stamens 3 alternating with perianth segments or absent, female flowers few; styles 3, connate at base; ovary 3 celled; ovules 2 in each cell. Flowers February-March.

**Part used :** Fruit

**Fruit :** The outer most is the epidermis consisting of rectangular cells and a cuticular outer covering with several small openings. Below the epidermis is the hypodermis of 2-3 rows of rectangular cells. Mesocarp is composed of spherical to oblong cells. The peripheral cells of the mesocarp are , smaller and tangentially elongated and those towards the inner sides are larger. In mesocarp radial bands are present. The lines account for the outer six vertical ribs that are present in the surface of the fruit. Mesocarp is absent of starch. Tannin and vascular bundles are present. Towards the epicarp the vascular bundles are seen arranged in a line. Adjacent to the bundles 2-4-5 sclerenchymatous cells are present.

**Distribution :** Common in the mixed deciduous forests of India ascending to 1350. m.a.s.l. on the hills. Often cultivated in gardens.

**Action and uses :** Aperient, aphrodisiac, astringent, digestive, diuretic, laxative, refrigerant and tonic.

Used in anaemia, asthma, biliousness, diabetes, dyspepsia, emaciation, consumption, jaundice and haemorrhagic disorder.

In traditional medicine a preparation Cyavanprasha is very much valued for its restoration action.

<b>Name :</b> Sanskrit	<i>Amlavetasa</i>
Hindi	<i>Amlavetas</i>
Botanical	<i>Garcinia indica</i> Choiss ( <i>Clusiaceae</i> )

**Habit :** A slender tree with druping branches; leaves dark green, young, red, membranous mucronate, rarely obtuse; male flower 4-8, in axillary and terminal fascicles; buds as large as pea; sepals orbicular, outer smaller; petals rather larger; stamens membranous 12 to 20 forming a short capitate column; anthers oblong, 2 celled, opening longitudinally; female flowers solitary shortly terminal, shortly and strictly peduncled; staminods in 4 masses; ovary 4-8 celled; stigma of so many lobes; fruit spherical as large as small orange, purple throughout not, grooved; seeds 5-8, compressed, enclosed, in an acid pulp; fruit comes in brownishviolet shreds in the market.

**Part used :** Fruit

**Disribution :** Western peninsula, ghats of Konkan and Canara.

**Action and uses :** Antiscorbutic, astringent, cardiotonic, carminative, cholagogue, cooling, demulcent and emollient.

Used in anorexia, colic, dyspepsia, heart diseases, piles, skin diseases, thirst and ulcers.

<b>Name : Sanskrit</b>	<i>Amrita</i>
<b>Hindi</b>	<i>Giloy</i>
<b>Botanical</b>	<i>Tinospora cordifolia</i> (Willd.) Miers ( <i>Minispermaceae</i> )
<b>Habit :</b>	A climbing herb, Bark, corky, shoots glabrous; leaves 5-10 cm diam. acute, acuminate; petiole 3.75-7.50 cm; flower yellow in slender, racemes exceeding the leaves, axillary or terminal on the old wood; bracts subulate; males fewer fascicles, females usually solitary, glabrous; petals cuneate; anthers oblong; drupes size of a pea or a small cherry, red.
<b>Part used :</b>	Whole plant
	<p><b>Stem:</b> Transection showy few layers of cork cells. Adjacent to this area are 2-3 layers of thick walled parenchyma of the outer cortex. The inner cortex is composed of thin walled parenchymatous cells. Underneath the cortex is thick walled sclerenchyma corresponding to the pericycle in position and capping a ring of vascular bundles numbering 8-10. Single large tubular or rhomboidal crystal of calcium oxalate in the parenchyma cells of the cortical layer bordering on the sclerenchyma sheath in present. Vessel elements composing the metaxylem possess large lumen. Xylem rays are also seen. Leaf has a normal dicot structure. Trichomes absent, stomata of anomocyclic type.</p>
<b>Distribution :</b>	Throughout the country ascending to 1500 m.a.s.l
<b>Action and uses :</b>	<p>Alterative, antipyretic, aphrodisiac, bitter, diuretic, febrifuge, stomachic and tonic.</p> <p>Used in anaemia, consumption, diabetes, emaciation, enteric fever, gonorrhea, jaundice, leprosy, piles rheumatism, syphilis, vomiting and worms.</p> <p>Traditionally used in fevers simulating malaria extensively. Berberine has also been isolated in some fractions of the drug.</p>



<b>Name :</b> Sanskrit	<i>Aragvadha</i>
Hindi	<i>Amaltas</i>
Botanical	<i>Cassia fistula</i> Linn. ( <i>Fabaceae</i> )

**Habit :** A small sized deciduous tree, young shoot silky and glabrous when fully grown; bark smooth, 0.64 cm, pale when young, black rough and cracking off in flakes in old trees; wood bright, reddish brown, hard; leaves about 30.5 cm; leaflets 4-8 pairs, 5-15.2 x 19.5 cm. ovate; flowers large, bright yellow, 3-8.5 cm in lax, long, pendulous racemes; pod cylindrical black 30-91.4 cm long, 1.9 cm diam. with transverse partition walls; seeds 25-100 in pulp, orangebrown, ovoid 0.85 cm broad; flowers appearing with leaves,

*Flowers March-April.*

**Part used :** Pulp

**Pods** are upto 75 cm long 30 mm in diameter, slightly curved, subcylindrical green when young, chocolate brown when ripe, finely striated transversely. The rounded distal end bears mucro. Internally the pod is divided by thin transverse dissepiments. The dissepiments are 0.4-0.7 cm apart each compartment having one seed embedded in chocolate brown to black pulp. Seed are oval reddish brown, smooth and flattened.

**Distribution :** Throughout India ascending 1500 m.a.s.l. and also planted in avenues and gardens

**Action and uses :** Astringent, emetic, febrifuge, laxative, purgative and tonic.

Used in cardiac disorders, colic and flatulence.

Hydroxy-anthroquinone isolated from the bark showed antifungal potentiality.

<b>Name : Sanskrit</b>	<i>Arjuna</i>
<b>Hindi</b>	<i>Arjuna</i>
<b>Botanical</b>	<i>Terminalia arjuna</i> W. & A. ( <i>Combretaceae</i> )

**Habit :** A large, nearly evergreen often buttressed tree; branchlets drooping; bark light grey, 0.64 cm, smooth, exfoliating in thin irregular patches, blaze pink, wood brown, dark streaked, hard; leaves 7.6-15.2x3.8-7.6 cm, sub-opposite, oblong, crenulate, rounded at both ends; petiole glandular at top; flowers dull yellow 0.32 cm across, honey scented, in short lax spikes or small panicles; fruit 2.5 cm long, ovoid; wing 5-7, narrow, 0.64 cm broad. Flowers in April-May.

**Part used:** Bark.

The **bark** consists of cork with thick walled, radially arranged cells. The cells of the cork are filled with tannin. The phloem is deep and is traversed by uniseriate ray cells. Phloem consists of bast fibres, crystal fibers, sieve tubes with companion cells and phloem parenchyma. Bast fibres occur in groups and are surrounded by one or two layers of concentric crystal fibres. The calcium oxalate crystals are mostly spheroidal in form. Tannin is found in all the tissues of the bark.

**Distribution :** All over the country in deciduous forests.

**Action and uses :** Astringent, cardiotonic and febrifuge.

Used in diseases of heart.

The drug has indicated marked action on the heart.

<b>Name :</b> Sanskrit	<i>Arka</i>
Hindi	<i>Akh</i>
Botanical	<i>Calotropis gigantea</i> (L.) Dryand ( <i>Asclepidaceae</i> )

**Habit :** A woody undershrub with stout trunk, bark pale; shoots woody; leaves 10-20x2.5-7.5 cm cuneate obviate, base cordate, axils bearded, smooth above, cottony beneath, umbells peduncled, simple or compound, bracts oblong; corolla 1.25—5 cm diameter, pale purple, coronal scales hairy, segments ovate, lanceolate, revolute and twisted in age, folicles recurved, 7.5 to 10 cm; seeds 0.6 cm broadly ovate.

**Part used :** Root, Root bark, leaves, juice of the plant.

**Leaves:** found in variable length and sizes, branched cylindrical 7.5—10 cm in diameter. The epidermis in lamina is followed by three layers of closely packed palisade cells filled with chloroplasts multicellular, thin walled trichomes are distributed throughout the leaf. Half stomata are found in the lower epidermis, besides the rubioaceous type of stomata. Epidermal cells contain starch grains, fat and oils in parenchyma but tannin is absent.

**Root:** is curved, woody, light greyish white or yellow covered with thick bark. Surface is deeply and closely longitudinally furrowed giving it a rough appearance. On the cancan side of the bends in the root short yellow transverse cracks are characteristic.

**Distribution :** Wild throughout the country specially in river beds.

**Action and uses :** Anthelmintic, anti-malarial, antispasmodic, diaphoretic, emenagogue, emetic, expectrorant, febrifuge (for intermittant fevers) and purgative.

Used in ascites, asthma, cardiac diseases, cold, cough, diseases of spine, dropsy, dysentery, gonorrhoea, indigestion, leprosy, rheumatism and syphilis.

In traditional medicine it is used as a substitute for ipecacuanha in dysentery. Also used in elephantiasis and snake bite. Calcinated leaf is used in splenic and liver disorders.

<b>Name :</b> Sanskrit	<i>Asoka</i>
Hindi	<i>Asok</i>
Botanical	<i>Saraca asoca</i> (Roxb.) De Wilde ( <i>Fabaceae</i> )
<b>Habit :</b>	A small tree, wood reddish brown, soft; leaves compound; leaflets 8-12, opposite, lanceolate, glabrous; flowers 2.5 cm across, orange turning to scarlet, sweet scented, dense, corymb, 7-10 cm across; calyx petaloid; tubes long; lobes 4; petals absent; stamens 3-8, filaments long; ovary stalked; ovules many; pod 10-25 cm x 5 tapering at both ends; seeds 2-8 ovoid slightly compressed.
<b>Part used :</b>	Bark  <b>Bark :</b> Wood, soft, reddish brown (Wt 30 lbs). Bark is distinguished by the presence of warty protruberances and transverse lenticels on its outer surface, septate and non-septate crystal fibres and prisms of calcium oxalate.
<b>Distribution :</b>	Wild in Bengal and Western Peninsula.
<b>Action and uses :</b>	Astringent.  <i>Used in menorrhagia and uterine affections.</i>  In traditional medicine it is valued very much as a uterine tonic.

Naime : Sanskrit	<i>Asvagandha</i>
Hindi	<i>Asgand nagori</i>
Botanical	<i>Withania somnifera</i> (L.) Dunal ( <i>Solanaceae</i> )

**Habit :** An erect herbaceous undershrub up to 1.5 m, minutely stellate tomentose, branching extensive; leaves ovate 5x7.5 cm subacute entire thin, base cuneate, densely hairy beneath; flowers about 5 together in sessile or subsessile axillary umbelligenous cymes, bisexual; fruit a berry 7 mm, across, red, globose, smooth enclosed in inflated membranous somewhat 5 angled, pubescent calyx.

Flowers July-September.

**Part used :** Root

**Root :** Transection of root shows only a narrow cork and cortex, enclosing a wide woody region which is parenchymatous for the most part and storage in function. Cork light brown in colour and composed of 12-16 rows of thin walled cubicle to slightly tangentially elongated cells. Inner to the cork is the phellogen composed of one row of narrow thin walled tangentially elongated cells. One or two rows of cork cells just outer to the phellogen have a yellow colour. The cortex is fairly wide for 2-3 mm in thickness and composed of fairly large, thin walled tangentially elongated cells. Most of the cortical cells are filled with starch grains. Several corticals are completely filled with micro-crystals of calcium oxalate. These very minute crystals are mostly triangular in shape. Phloem is in the form of narrow ring enclosing the wood and intercepted by the medullary rays. A distinct cambium is present, composed of one or two rows of narrow thin walled cells appearing broadly rectangular. Wood forms the major part of the root in 12-14 mm diameter, composed of secondary xylem and wood rays and with vessels.

**Distribution :** In the drier parts of India, Central India, Mysore and Coimbatore.

**Action and uses :** Abortifecient aphrodisiac, diuretic and nervine tonic.  
Used in consumption, dropsy, leucoderma and impotence.  
Antiarthritic activity has been identified in the drug.

**Name :** Sanskrit *Asvatha*

Hindi *Pepal*

Botanical *Ficus religiosa* Linn. (*Moraceae*)

**Habit :** A large tree without aerial roots often epiphytic; bark grey smooth, wood whitish, moderately hard; leaves alternate 8-17.8 cm, ovate, circular, long, acuminate, glabrous, shining, margins wavy, base truncate; petiole 5-12.7 cm, receptacles in axillary pairs, depressed, globose, 1.3 cm diameter, smooth with three broad basal spreading bracts, dark purple when ripe.

**Part used :** Bark, leaf.

**Distribution :** Throughout the country upto 1700 m.a.s.l.

**Action and uses :** Alterative, astringent, laxative and purgative.

Used in diabetes, diarrhea, hysteria, leucorrhea, menorrhagia, nervous disorders, sterility, tonic and vaginal disorders.

Used also in blood diseases, earache, fracture, diabetes, glandular diseases especially suppurating glands in the neck, soreness in the mouth, haemophilic conditions, swelling scabies, ulcers, urino-gonital disorders, vaginal discharge and vomiting.

Beta-sitosterol-D- glucoside found in the bark has showed hypoglycaemic activity comparing favourably with tolbutamide.

Sacred to Hindus.

<b>Name :</b> Sanskrit	<i>Atmagupta</i>
Hindi	<i>Konch</i>
Botanical	<i>Mucuna pruriens</i> (L.) DC. ( <i>Febaceae</i> )

**Habit :** Annual twining herb; leaves pinnately 3 foliate, stipellate; leaflets 7.6-20.3 cm long ovate or rhomboid, membranous, glabrescent above, adpressed silky, pubescent beneath, mucronate, rachis 15-25.4 cm racemes 10-20.3 cm long short peduncled, drooping 10-12 flowered; calyx 2 lipped with few irritating bristles; petals purplish, 3.2-4.1 cm long much exserted; stamens diadelphous; anthers alternately versatile and basifixed; ovary sessile; ovules many; pod 5-7.6x1.9 cm, 5-6 seeded, turgid, twined up at end, longitudinally ribbed, covered with dense pale brown irritating scales.

Flowers February-March.

**Part used :** Seed

**Distribution :** A twiner in hedges and bushes throughout the country.

**Action and uses :** Anthelmintic, aphrodisiac diuretic, nervine tonic and purgative.

Used in cholera, delirium, impotence, round worms, urinary troubles and vaginal flaccidity.

Traditionally a paste is applied in the body in dropsy.

<b>Name : Sanskrit</b>	<i>Ativisha</i>
<b>Hindi</b>	<i>Atis</i>
<b>Botanical</b>	<i>Aconitum heterophyllum</i> Wall. ( <i>Ranunculaceae</i> )
<b>Habit :</b>	Perennial erect herb, glabrous or the upper part downy, stem 30-90 cm, leafy, rarely branched; lower leaves stalked 5-10 cm, acute or obtuse, cauline sharply toothed, the lowest long petioled, and not amplexicaul; racemes often paniced; bracts sharply toothed, upper 3 fid or entire; flowers more than 2.5 cm long, bright blue dull, greenish blue with purple veins; helmet pointed in front half as high as long; follicles 5, downy.
<b>Part used :</b>	Root.  Root is 2-8 cm long 0.4 to 1.5 cm thick of the shape of a minute conch, grey brown outside with scallered pointed minute notches. Starchy white inside. 4-9 xylem bundles near the periphery embedded in secondary phloem tissue.
<b>Distribution :</b>	Scarcely distributed in Central and Western Himalaya from Kumaon to Hasara, up to 2600-3900 m.a.s.l.
<b>Action and uses :</b>	Anthelmintic, antipyretic, aphrodisiac, appetizer, astringent and carminative.  Useful in cough, diarrhea and indigestion.  A valuable drug for infants in dentition, diarrhea, fever and vomiting.  Traditionally used as an anti-dote to poisoning.



<b>Name :</b> Sanskrit	<i>Bakula</i>
Hindi	<i>Bakula</i>
Botanical	<i>Mimusops elengi</i> Linn. ( <i>Sapotaceae</i> )

**Habit :** Large evergreen tree, bark dark grey, scaly, rough, deeply furrowed, lenticles, verticle, blaze pink with red streaks; wood dark red, hard, close grained; leaves 7.6-17.8 x 3.8-7.6 cm shortly acuminate, elliptic, oblong, glabrous; (small in dry and large in damp localities); flowers white, fragrant, in fascicles of 2-6; calyx 8 lobed; corolla lobes with 24 appendages in two rows; stamens 8 standard 8 resembling petals, clothed on back and margins with white hair; ovary 8 celled; fruit berry, yellow, ovoid, about 2.5 cm long.

**Part used :** Bark, flower, fruit.

**Root :** in transection is normal dicot pattern, primary root tetra-arch with pith in centre. The pith cells are polygonal in outline. The secondary growth produces annual rings. The wood is composed of xylem vessels with a broad lumen and large numbers of fibres, interspersed in a ground tissue composed of parenchyma. From the protoxylem groups emerge one celled wide medullary rays, radially outward and extending upto the end of xylem region. Similar uniseriate, secondary xylem rays are abundantly present in the wood. Bordering secondary xylem is the cambium ring, followed by a zone of secondary phloem. Within cortex are found lignified fibrous cells. Crystal absent. Cambium 5-8 layered. Cork cells suberized. Stem have the usual dicot structure, showing formation of secondary growth. Pith broad.

**Distribution :** Throughout the country.

**Action and uses :** Anthelmintic, antihistaminic, astringent, aromatic, cardiotonic and tonic.

Used in heart diseases and leucoderma,  
Traditionally highly valued for teeth and gums.

<b>Name : Sanskrit</b>	<i>Bala</i>
<b>Hindi</b>	<i>Bala</i>
<b>Botanical</b>	<i>Sida cordifolia</i> Linn. ( <i>Malvaceae</i> )

**Habit :** A small erect downy shrub with long spreading hairs on the branches and petiole; leaves 1.5 x 1 cm long cordate, oblong, obtuse, crenate, downy on both surfaces; peduncles solitary jointed near the flower, lower ones distant and longer than the petiole; flowers small, yellow; calyx segments triangular acute; carpels 10 and reticulated on the sides, cocci 12, aristate, arista retrorsely ciliate.

Flowers July to December.

**Part used :** Root

Transverse section of the root show multilayered cork whose outermost few layers are indistinct, wide cortex, composed of periclenally elongated thin walled parenchymatous cells containing crystals of calcium oxalate and starch grains and groups of fibrous cells here and there in the cortex, phloem with horizontal bands of phloem fibres, medullary rays containing star shaped crystals of calcium oxalate and starch grains; wide secondary xylem region composed of vessels bearing pitted thickening, medullary rays containing food substance, xylem parenchyma and xylem fibres. Pith is absent.

**Distribution :** Throughout the hotter parts of India

**Action and uses :** Aphrodisiacs, febrifuge.

Used in emaciation fever, flatulence, haemophilic disorders, rheumatism, spondilitis, vague body pains.

Traditionally it is valued very much for its action in cleaning the body of waste products and correcting the metabolism.

<b>Name :</b> Sanskrit	<i>Bhallatak</i>
Hindi	<i>Bhilava</i>
<b>Botanical</b>	<i>Semecarpus anacardium</i> Linn. f. ( <i>Anacardiaceae</i> )
<b>Habit :</b>	<p>A moderate sized dioecious deciduous tree, exuding a dark juice, young parts, petioles, leaves (ventrally) and panicle clothed with a fine pale pubescence; leaves 9-30 x 5.2 cm, very coriaceous, flat, margin cartilaginous, rarely linear, oblong, usually contracted below the middle, nerves 16-25 pairs, stout, slightly arched; petiole 2.5-5 cm, rounded, not winged; panicle equalling or shorter than the leaves, stout; branches spreading; bracts lanceolate; flowers 0.6 to 0.8 cm diameter subsessile, fascicled; petals much longer than the calyx, oblong, greenish white; filaments subulate; drupe 2.5 cm long, obliquely ovoid or oblong, smooth, shining, black; cup orange red.</p> <p>Flowers December-January, Fruit February-June.</p>
<b>Part used :</b>	<p>Fruit</p> <p><b>Fruit :</b> In transverse section the pericarp of the fruit is differentiated into epicarp, mesocarp and endocarp. The epicarp consists of epidermis surrounded by thick cuticle. The mesocarp is a broad zone of thin walled parenchyma, having lysigenous cavities and fibrovascular bundles. The endocarp consists of outer and inner prismatic crystals which are radially elongated. Rosette crystals of calcium oxalate and oil are present in the mesocarp parenchyma.</p>
<b>Distribution :</b>	Throughout the hotter parts of India and also in Himalayas from Sirmore to Sikkim ascending to 1100 m.a.s.l.
<b>Action and uses :</b>	<p>Alterative, antirheumatic, aphrodisiac, astringent, caustic, carminative, counter irritant, demulcent, emollient, purgative, rubefacient and vesicant.</p> <p>Used in alopecia, asthma, corms, cough enlargement of spleen, indigestion, leprosy, leucoderma, piles, rheumatism and ulcers.</p> <p>In traditional medicine, it is valued for treatment of tumors and malignant growths.</p> <p>Anticarcinogenic activity has been reported in this drug.</p>

<b>Name :</b> Sanskrit	<i>Bharangi</i>
Hindi	<i>Bharangi</i>
Botanical	<i>Clerodendrum serratum</i> (L.) Moon ( <i>Verbenaceae</i> )
<b>Habit :</b>	<p>A shrub with annual shoots from a thick woody roots; leaves opposite or in whorls of 3; 10-20.3 x 3.8-6.4 cm oblong, elliptic oblong or oblanceolate, serrate, smooth puberulous or glabrate, cuneate base, sub-sessile; flowers bluish white in terminal panicles; bracts often colored; calyx cup shaped, shortly 5 lobed; corolla tube upto 1.3 cm, slightly constricted at neck, hairy within; stamens hairy at base; drupe black, pyreness upto 4.</p> <p>Flowers May-August</p>
<b>Part used :</b>	<p>Root</p> <p>Root is characterised by a stratified cork, secondary phloem, interspersed with sclareids and ring of porous xylem. Xylem rays and xylem parenchyma contain starch grains of the type found in phloem parenchyma, xylem rays and xylem parenchyma contains calcium oxalate crystals, powder of root is yellow brown.</p>
<b>Distribution :</b>	Throughout the country ascending to 1524 m.a.s.l.
<b>Action and uses :</b>	<p>Antispasmodic, carminative, expectorant, febrifuge, refrigerant and tonic.</p> <p>Used in anasarca, coryza, cough, dyspnoea, epilepsy, febrile conditions simulating malaria and indigestion</p> <p>Used in traditional medicine for respiratory diseases.</p> <p>Antihistaminic principle has been isolated from this drug.</p>

<b>Name :</b> Sanskrit	<i>Bhringaraja</i>
Hindi	<i>Bhringaraj</i>
Botanical	<i>Eclipta alba</i> (L.) Hassk. ( <i>Asteraceae</i> )

**Habit :** A slender usually erect hirsute or strigillose herb; leaves very variable sessile linear or oblong lanceolate, sub-entire, narrowed at both ends, peduncles 1-2, axillary short or long and slender, involucre bracts ovate obtuse or acute about equalling or exceeding the flowers white; pappus 2-5, minute teeth; aches narrowly oblong, ribbed tipped with the pappus teeth.

Flowers August-September.

**Part used :** Whole plant

The leaf epidermis is composed of a single layer of parenchyma cells with characteristic non-glandular trichomes on both the surfaces.

In transection, the stem is circular in outline with a ring of collateral endarch vascular bundles of varying sizes and a central parenchymatous pith. The root has a diarch structuar with normal and secondary growth, prominent multicellular secondary xylem rays are seen. The endodermis is distinct. Few layers of cork cells are present.

**Distribution :** Throughout India ascending to 1700 m.a.s.l.

**Action and uses :** Antiperiodic, antiseptic, cooling, cholagogue, deobstruent in hepatic and splenic enlargement, emetic, febrifuge, purgative, and tonic.

Used in anaemia, catarrh, cough and heart diseases.

Traditionally used extensively in jaundice. Oil used as a scalp tonic for promoting growth of hair and colouring of hair.

<b>Name :</b> Sanskrit	<i>Bibhitaka</i>
Hindi	<i>Bibhitaka</i>
<b>Botanical</b>	<i>Terminalia bellirica</i> (Gaertn.) Roxb. ( <i>C'ombretaceae</i> )
<b>Habit :</b>	<p>A large deciduous tree, tall, straight, growing to a height of 24-30 m with the girth of 2.4-3.5 m, easily recognised from a distance by its characteristic bark and massive crown; bark bluish grey, covered with numerous fine, longitudinal cracks, blaze yellow; wood yellowish grey, hard, coarse, not durable; leaves alternate crowded towards tips of branches 7.6-20.3 cm long ovate, elliptic, coriaceous, greyish green, pale beneath; base acute, often unequal, petiole 3-6 cm glandular, spikes 7.6-15 cm simple, slender; interrupted flowers about 0.5 cm across, pale white or greenish yellow with an offensive smell, the upper often male, bracts caducous; calyx lobed, triangular woody inside; ovary tomentose; fruit ovoid, ellipsoid, or globose, 2.5 cm long obscurely 5 angled, grey-velvety, thick walled, hard.</p> <p>Flowers February-April.</p>
<b>Part used :</b>	<p>Fruit</p> <p><b>Fruit :</b> Epicarp has numerous smooth unicellular pointed trichomes, mesocarp and endocarp made up of parenchymatous cells in which there are numerous elongated as well as rounded stone cells and conducting elements. Crystals of calcium oxalate are abundantly present in pericarp as well as cotyledonous cells, endospermic cells are absent. Cotyledon made up of angular parenchyma containing food material.</p>
<b>Distribution :</b>	Throughout India in the deciduous forests.
<b>Action and uses :</b>	<p>Antipyretic, antiseptic, astringent, bitter, laxative, narcotic and purgative.</p> <p>Used in cough, biliousness, diarrhea, dysentery, dyspepsia, dropsy, headache, inflammatory affections of small intestine and sore throat.</p>

<b>Name :</b> Sanskrit	<i>Bilva</i>
Hindi	<i>Bel</i>
Botanical	<i>Aegle marmelos</i> (L.) Corr. ( <i>Rutaceae</i> )
<b>Habit :</b>	<p>A small glabrous, spiny, deciduous tree, armed with sharp straight, axillary about 2.5 cm long spines; bark grey; wood yellowish white. hard, tough, strong, strongly aromatic, scented when cut; leaves glabrous, alternate, 3 foliate with a resinous odour; rachis 2.5-6.4 cm long, terete; leaflets 2.5-5 cm, ovate, lanceolate or rhomboidal, anuminat, crenate; gland dotted, the lateral sessile or sub-sessile opposite, terminal stalked; stalks 1.3-2.5 cm long flattened above; flowers greenish white, about 2.5 cm diameter; fragrant in short lateral panicles; calyx small obscurely 4-5 toothed, pubescent. deciduous; petals 4-5 imbricate, oblong, gland dotted; stamens numerous; filaments short often fascicled; anthers long, narrow; ovary 1-20 celled; ovules many in each cell; style short deciduous; fruit a globose; berry 8-16 celled, 8-17.8 cm diameter; rind smooth, grey or yellow, woody; seeds numerous embedded in thick orange coloured aromatic sweet pulp.</p> <p>Flowers-May.</p>
<b>Part used :</b>	<p>Root, bark, leaves, fruit pulp.</p> <p>The leaf is dorsy-ventral, in transverse section, the epidermis on both the sides consists of rectangular to tangentially elongated cells covered with thick cuticle. The cells are polygonal in surface view, stomata are the anomocytic type present on both sides in which, cells are squarish to radially elongated and palisade and contains many idioblasts containing a single prism of calcium oxalate.</p> <p><b>Root :</b> Transverse section shows a pentaheptarch stele-cork cambium arises in the pericycle.</p> <p><b>Bark :</b> In the mature bark cork is lignified and stratified. Phelloderm consists of a broad zone of parenchymatus cells and strands of stone cells. The medullary group is in the inner region are uni or triseriate while in the outer region bi to pentaseriate.</p>
<b>Distribution :</b>	Common throughout the country ascending to 1200 m.a.s.l. and cultivated widely.
<b>Action and uses :</b>	<p>Appetizer, aromatic, astringent, carminative cooling, laxative, febrifuge, restorative and stomachic.</p> <p>Used in colitis, dysentery, diarrhoea and flatulence.</p>

<b>Name :</b> Sanskrit	<i>Brahmi</i>
Hindi	<i>Brahmi</i>
Botanical	<i>Bacopa monnieri</i> (L.) Wettst. ( <i>Scrophulariaceae</i> )
<b>Habit :</b>	A quite glabrous, succulent, herb, much branched rooting at the joints; branches 10-25 cm long; leaves 1.25-1.85 cm, opposite fleshy, sessile, obtuse, entire, nerves very obscure; peduncles usually longer than the leaves, calyx 0.4-0.8 cm long; corolla twice as long, lobes sub equal, purple veined, ovoid, acute; capsule included; seeds pale, irregular.
<b>Part used :</b>	Whole Plant.
	<p><b>Leaf :</b> Weak venation. Both the epidermises with straight anticlinal walls are provided with thin cuticle sunken spherical, multicellular, sessile, glandular trichomes filled with yellowish green content, surrounded by a radiating row of cells. Stomata are anamocytic type present on both surface of the epidermis, numerous in the lower surface. Mesophyll is composed of homogenous tissue. Palisade cells are cylindrical and closely packed. The mid rib is surrounded by a single layer of parenchyma within which 3 or more rows of xylem and phloem occur towards the upper epidermis.</p> <p><b>Stem :</b> Herbaceous stem provided with epidermis and cuticle. Ground tissue is parenchymatous. The primary cortex is lacunar and endodermis separates the stele. Xylem is in the form of a closed cylinder. Medullary rays in between the xylem and the phloem forms a continuous band outside the xylem.</p>
<b>Distribution :</b>	Quite frequent in marshes throughout India ascending to 1600 m.a.s.l. from Punjab to Ceylon and in all warm parts of the country.
<b>Action and uses :</b>	<p>Astringent, cardiotonic, diuretic and nerve tonic.</p> <p>Used for restoring loss of memory, enhancing power of speech and poetic imagination; ameliorating conditions of stress resulting from over work and mental strain.</p> <p>Extracts in various solvents have shown sedative and tranquilising activity.</p> <p>Alcoholic extract has showed to have anticancer activity against Walker carcinosarcoma (intramuscular) in rat.</p>



<b>Name :</b> Sanskrit	<i>Brihati</i>
Hindi	<i>Brihati</i>
Botanical	<i>Solanum violaceum</i> Ortega ( <i>Solanaceae</i> )
<b>Habit :</b>	A much branched prickly undershrub, 30.5-183 cm high; branches minutely stellate; tomentose, armed with recurved, small prickles; leaves 5-15.2x2.5-7.6 cm, ovate, acute, sub-entire or shallowly, lobed ovate, oblong, sometimes sub-cordate at base, often unequal sides, sparsely prickly and stellate pubescent; flowers 3-8, in extra axillary racemes; cymes 3.8-5 cm; pedicels tomentose, prickly; corolla blue, 0.85-1.3 cm diameter, stellate, pubescent outside; berry 0.85 cm diameter, globose, yellow when ripe, glabrous.
<b>Part used :</b>	Whole plant, root.
	<p><b>Root :</b> The root is somewhat circular in outline and has periderm, phloem, cambium, and xylem. Periderm has two rings, the outer ring has 10 layers of corky cells, the inner ring has thin walled rectangular cells, functioning like the cork cambium. The cortex consists of 4-5 layers of irregular flattened cells, resembling compact parenchyma containing starch grains. Phloem tissue extending over 6-8 layers of typical phloem elements is traversed by medullary rays. Cambium within the phloem ring and without the xylem region is of 2 layer cells of uncertain nature resembling cambium in its function. Xylem consists of pitted somewhat scanty wood parenchyma, wood fibres, pitted tracheids and vessels.</p>
<b>Distribution :</b>	Common throughout India on roadsides and rubbish heaps.
<b>Action and uses :</b>	<p>Anti-inflammatory, aphrodisiac, cardiac stimulant, diuretic and febrifuge.</p> <p>Used in alopecia, anorexia, asthma, catarrh, calculus, cardiac weakness, cough, dysmenorrhoea, fever, impotence, leprosy, skin diseases, respiratory disorders, urinary diseases, vomiting and vulvitis.</p>

**Name : Sanskrit** *Candan*

**Hindi** *Candan*

**Botanical** *Santalum album* Linn. (*Santalaceae*)

**Habit :** A small evergreen glabrous tree; root parasitic; branchlets slender, dropping; leaves opposite, 3.75-5 cm long, pale brown when dry, thin, narrowed into slender petiole 0.8-1.25 cm glaucous beneath; nerves faint; racemes much shorter than the leaves; pedicels opposite, flowers 0.4 cm diameter at first straw coloured than blood red, inodorous even when bruised; drupe globose, size of a cherry, black when ripe; flesh juicy; endocarp hard, with 3 short ribs from the tip downwards.

**Parts used :** Heartwood.

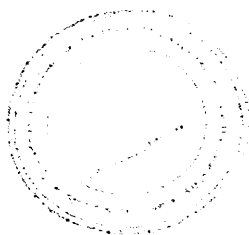
**Stem :** Bark black, rough, deeply corrugated on account of vertical fissures. Blaze red, wood hard close grained. Sapwood white devoid of scent, heartwood yellow brown strongly scented (Wt. 30-35 kg.)

**Distribution :** Dry open scrub forests of Karnatic hills of South Arcot, Salem, Mysore, Coorg, Coimbatore, Nilgiris upto 900 m.a.s.l.

**Action and uses :** Antiphlogistic, antiseptic, cooling and styptic.

Used in cystitis, diarrhoea, gleet, gonorrhea, haemorrhagia hiccough, leucorrhoea, ulcers, and urinary disorders.

Ethnologically finds place in toiletary.



<b>Name :</b> Sanskrit	<i>Citraka</i>
Hindi	<i>Citrak</i>
Botanical	<i>Plumbago zeylanica</i> Linn. ( <i>Plumbaginaceae</i> )
<b>Habit :</b>	A diffuse rambling undershrub; stems glabrous; leaves several 0.50 to 1.50 cm alternate glabrous, ovate, acute; stalks short stem clasping, glandular spikes, calyx inferior, tubular, glandular; corolla hypogynous, salver shaped; lobes and stamens 5, free, dilated at the base; anthers protruded 2 celled, ovary superior 1 celled.
<b>Parts used :</b>	Root.
	<b>Roots :</b> In section shows 5-7 rows of small cubical or rectangular cells with yellow walls in the cork. Cortex consists of cells packed with starch. Phloem consists of groups of fibres. Medullary rays are few and narrow, 1-4 seriate. Ray cells contain grains.
<b>Distribution :</b>	Throughout India, sometimes also cultivated in gardens.
<b>Action and uses :</b>	Abortifacient, appetizer, carminative, digestive, diuretic, febrifuge, germicidal, renal stimulant, soporific and vessicant.  Used in anasarca, dyspepsia, elephantiasis, leprosy, leucoderma, piles, purpural fever, septicemia in fevers, sinusitis, skin diseases and ulcers.  Plumbagin isolated from the plant was found to possesses anti-implantation, anti-ovulatory and abortifacient-actions in varying doses.

<b>Name :</b> Sanskrit	<i>Dadima</i>
Hindi	<i>Dadim</i>
Botanical	<i>Punica granatum</i> Linn. ( <i>Punicaceae</i> )
<b>Habit :</b>	<p>A deciduous shrub; branches spinescent; bark grey, thin, peeling off in small flakes, wood light-yellow; leaves opposite on arrested branchlets; calyx 5-7 lobed, petals 5-7; stamens many; ovary inferior; seeds rosy full of juice.</p> <p>Flower April-May, fruits July-September</p>
<b>Part used :</b>	<p>Root bark, stem bark, rind of fruit, seeds and pulp.</p> <p><b>Fruit bark</b> occurs in thin curved pieces upto 1.5 mm in thickness showing remnants of woody or a scar left by stalks. Outer surface is yellow brownish with reddish mottling. Inner surface bears impressions of the seeds.</p> <p><b>Root bark</b> is curved in channelled in pieces, 12 cm long and 1-3.5 cm wide. Outer surface of the bark shows longitudinal corky furrows. Bark is smooth and yellow on the inside. Fracture short and granular.</p>
<b>Distribution :</b>	Cultivated and naturalised in India.
<b>Action and uses :</b>	<p>Anthelmintic, antipyretic, appetizer, astringent, cardiotonic, cooling, refrigerant and stomachic. Seed is very nutritious.</p> <p>Used in diarrhoea, dystentey, epistaxis, fever, indigestion and piles.</p> <p>Seed syrup is used in traditional medicine in disorders of dentition.</p>

<b>Name :</b> Sanskrit	<i>Danti</i>
Hindi	<i>Danti</i>
Botanical	<i>Baliospermum montenum</i> Muell.-Arg. ( <i>Euphorbiaceae</i> )

**Habit :** A stout sub herbaceous leafy shrub, 1.8-3.6 m branching from the root, nearly glabrous except the shoots and sometimes the leaves beneath; leaves upper 5-7 cm, lower 15-30 cm and sometimes as broad, biglandular at the base, rigid, strongly veined, base, acute, obtuse or cordate; petiole stout, of upper leaves short of lower sometimes as long as the blade; stipules of 2 glands, racemes 0.4 cm, interrupted, all male or a few female below; bracts small; male flowers 0.4 cm in diam.; sepals 4-5, membranous, orbicular, concave disc, glands soft, lobulate, stamens 15-20; anthers broad, subreniform cells sub-confluent at the tips; female flowers, subsessile, sepals 5, ovate, acute toothed, disc short, cupular crenate; ovary 2-3 lobed, styles stout, smooth, deeply bifid, arms recurved; capsule 0.8-1.25 cm, long obovoidly 3 dymous; cocci-oblong, crustaceous, sparsely strigose, or glabrous, seeds 0.8 cm long, oblong, smooth mottled.

**Part used :** Root, bark.

**Root :** closely resembles the root stock. Cork is composed of 4-12 layers of cells suberised or lignified Phelloderm is quite big consists of outer 2-3 layers of flattened collenchyma followed by parenchymatous zone. Phloem is distinct composed of sieve area and phloem parenchyma. Rarely phloem fibres are visible. Xylem consists of vessel fibres and xylem parenchyma of the same type as those of root stock. Medullary rays are uniseriate or rarely biseriate. Brown pigment present in cork but less in phelloderm and phloem. Starch is present throughout the section.

**Distribution :** Widely found throughout India ascending to 1000 m.a.s.l.

**Action and uses :** Anodyne, anthelmintic, carminative, purgative and rubifacient.

Used in abdominal pain, calculus, general anasarca, helminthic manifestations, scabies, skin disorders and suppurative ulcers.

<b>Name :</b> Sanskrit	<i>Daruharidra</i>
Hindi	<i>Dar hald</i>
<b>Botanical</b>	<i>Berberis aristata</i> DC. ( <i>Berberidaceae</i> )
<b>Habit :</b>	An erect glabrous shrub, bark light brown corky soft with young branches red; wood yellow hard; leaves simple, sessile fascicled in the axils of spines, pentate, oblanceolare 2.5-5 cm teeth; flowers yellow in panicles or racemos carpels 1-3 rarely more oblong; fruit spindle shaped red shining; seeds few. Flowers March-April; Fruit May.
<b>Parts used :</b>	Root, bark, fruit.
<b>Distribution :</b>	Nilgiri hills, Palany hills of Western Ghats, Hills of Salem and Himalayas ascending upto 2600 m.a.s.l.
<b>Action and uses :</b>	Alterative, antimalarial, antiphlogestic, antiseptic, blood purifier, diuretic, and sedative. Used in conjunctivitis, erysipelas, jaundice, haemorrhoids, itching, menorrhagia urino-genital disorders and ulcerative conditions.

<b>Name* :</b> Sanskrit	<i>Devadaru</i>
Hindi	<i>Deodar</i>
Botanical	<i>Cedrus libani</i> var <i>deodara</i> Hook f. ( <i>Pinaceae</i> )
<b>Habit :</b>	<p>An exotic all evergreen tree, crown pyramidal in early life: bark greyish brown with numerous, shallow vertical fissures; wood moderately hard, strongly scented oil; sap wood white; heart wood light yellowish brown, annual rings, clearly marked by darker autumn wood; medullary rays many fine, irregular, not deep, causing a silver grey of small plates; flowers-male catkins; female ones erect ovoid or pyramidal; ovaries pendulous.</p> <p>Flowers : August-October.</p>
<b>Part used :</b>	Wood, oil.
<b>Distribution :</b>	North Western Himalayas from Kashmir to Garhwal, cultivated in Nilgiris above 2000 m.a.s.l.
<b>Action and uses :</b>	<p>Antidysenteric, antiphlogistic, antiseptic, aromatic, astringent, blood purifier, carminative, diaphoretic and diuretic.</p> <p>Used in consumption, fever, glandular diseases, skin diseases and urinogenital disorders.</p>

<b>Name :</b> Sanskrit	<i>Dhanyaka</i>
Hindi	<i>Dhaniya</i>
Botanical	<i>Coriandrum sativum</i> Linn. ( <i>Umbelliferae</i> )

**Habit :** A glabrous erect rarely procumbent herb 15-45 cm high, emitting a very disagreeable odor when rubbed; leaves pinnately divided; segments of the lower leaf broadly ovate, lobed and toothed; of the upper thread like, umbels compound; flowers white; calyx unequal, acute; petal obovate, emarginate, white, of purplish, of the outer flowers unequal, often radiant; fruit subglobose, ridges not prominent, dorsal primary and adjacent secondary strongest, lateral primary and secondary obscure, vittae obscure, solitary under the secondary ridges; carpels slightly concave on the inner face, commissure distinctly 2 vittae; carpophore 2 partite; seed convexo concave about thrice as broad as thick

Flowers : May to October.

**Part used :** Fruits and leaves.

**Fruit :** Two vittae in each mericarp, both on the commissural surface. Exterior of pericarp has stomata and calcium oxalate prisms. Within the vittae bearing region there is a thick layer of sclerenchyma of pitted fusiform cells. Traversing the band of sclerenchyma and corresponding in position to the primary ridges are small vascular strands composed of spiral vessels. The mesocarp within the sclerenchymatous band is composed of irregular polygonal cells with lignified walls. The inner epidermis of the pericarp is composed of parquetry cells, which in the powder are often seen united to the cells of the inner mesocarp. The testa is composed of brown flattened cells. The endosperm is curved and consists of parenchymatous cells containing fixed oil and aleurone grains.

**Distribution :** Cultivated all over India.

**Action and uses :** Antibilious, antipyretic, aphrodisiac, aromatic, carminative, cooling, digestive, diuretic, expectorant, refrigerant, stomachic and tonic.

It is used in anorexia, burning sensation in body, diarrhea, fever, respiratory disorders, thirst, worms and vomiting.

In traditional medicine, it is used in disorders arising out of humoral disbalances. A cold decoction of seed is considered prophylactic against conjunctivitis.



<b>Naam :</b> Sanskrit	<i>Dhataki</i>
Hindi	<i>Dhataki</i>
Botanical	<i>Woodfordia fruticosa</i> (L.) Kurz. ( <i>Lythraceae</i> )

**Habit :** A large deciduous shrub, more or less pubescent, stem much fluted; bark very thin grey, peeling off in their scales; wood reddish white, hard, close grained; leaves opposite, sometimes whorls of 3, sessile from a broad base 5-10.2 cm. lanceolate underside white with black dots; flowers numerous, slightly zygomorphic, bright brick red, in around lateral clusters from axis of fallen leaves; pedicels dilated above; calyx tubular, curved, mouth oblique; segments 6, short; petals 6, short, linear lanceolate; stamens 12, at base of calyx; filaments long, exserted; ovary 2 celled; capsule 0.85-1.3 cm, enclosed by calyx tube, splitting irregularly.

Flowers : February to April.

**Distribution :** Throughout the country ascending upto 1500 m.a.s.l.

**Action and uses :** Antipyretic, astringent styptic and a safe stimulant during pregnancy.

Diseases of mucous membrane, dysentery liver disease, haemophilic disorders, haemorrhoids, influenza, uterine diseases, specially menorrhagia and leucorrhea.

<b>Name :</b> Sanskrit	<i>Dhatura</i>
Hindi	<i>Dhatura</i>
Botanical	<i>Datura metel</i> Linn. ( <i>Solanaceae</i> )

**Habit :** Undershrub, attaining height of 1.5 m; leaf blade entire, angled or irregularly toothed, ovate, oblique to 12 x 9 cm, minutely grey, pubescent; flower white; corolla funnel shaped upto 15 cm long spreading limbs, 5 lobed; calyx herbaceous, terete, 7 cm long, filaments hairy at base; capsule with deltoid spines, a recurved pedicel and distinct, enlarged calyx base dehiscing irregularly, seeds thickened but compressed, auricled, pale brown upto 6 mm long.

**Parts used :** Seed, leaf.

Leaves are triangular ovate, apex acute, base asymmetrical margin angular or enteric with 2-4 broad lobes, upper epidermis darker than lower, prominent in lower surface. Covering trichomes are usually less than 3-5 in diameter at the base, basal cell being seldom above 50 mm long. Arisocytic stomata number per sq. mm about 6-140 on upper surface and 140-250 on lower. Seeds are yellow brown ear-shaped about 4-5 mm 3 to 4 mm broad and 1 to 1.5 mm thick, flattened, finely pitted, thickened towards the curved margin which is wavy. Near the microphyte there is a large pale strophiole.

**Distribution :** Wildly grown throughout India

**Action and uses :** Anodyne, anti-phlogistic, antiseptic, narcotic and sedative.

Used in asthma, ear-ache, elephantiasis, fever (complicated), insanity, itching, inflammation, difficulty micturition and rheumatism.

Traditionally used externally in rabid dog bite and poisonous insect bite.

<b>Name :</b> Sanskrit	<i>Draksha</i>
Hindi	<i>Draksha</i>
Botanical	<i>Vitis vinifera</i> Linn. ( <i>Vitaceae</i> )
<b>Habit :</b>	A climber, stems weak, hollow, far climbing, striate, generally quite glabrous, but often tomentose, leaves 15-20 x 15-20 cm; glossy; flowers very small somewhat compact; thyrsoid cymes; peduncles destitute of tendrils; petals united at the apex; style very short, thick fruit, the size of a current, black, 2 seeded; 0.8-0.6 cm, elliptical with a linear tubercle on the back and the margins transversely rugose, bluntly ridged on the face; ovary 2, very rarely 3-4 celled; style 0, or short; ovules 2 in each cell; berry ovoid or globose, 1-2 style; cells one 2 seeded.
<b>Part used :</b>	Fruit
<b>Distribution :</b>	Cultivated in some parts of India in the Deccan, Mysore and Andhra (Kurnool).
<b>Action and uses :</b>	<p>Cooling, demulcent diuretic, febrifuge, mild laxative, soporific and tonic.</p> <p>Used in anaemia, consumption, diabetes, haemophilic disorders, liver disorders and insomnia.</p> <p>Traditionally used as a nutrient for infants.</p> <p>Ethnologically noteworthy for its place in religious and ceremonial practices.</p>

<b>Name :</b> Sanskrit	<i>Duralabha</i>
Hindi	<i>Dhavayasa</i>
Botanical	<i>Fagonia arabica</i> Linn ( <i>Zygophyllaceae</i> )
<b>Habit :</b>	<p>A small green spiny undershrub, woody, erect, more or less quadrangular; leaves 1-3 foliate, opposite; leaflets entire elliptic or linear acute; petiole; often foliaceous; stipule often spiny; flowers small, pink, solitary pseudo axillary; sepals 5, imbricate, deciduous. petals-5 clawed, imbricate, caducous, disc small; stamens 10 on disc; ovary sessile, 5 angled, 5 celled; cells 2 ovuled; stigma simple; capsule 5 celled with one seed in each cell, globular, immersed in copious thin straight spines.</p> <p>Flowers : at irregular intervals.</p>
<b>Parts used :</b>	Whole plant
<b>Distribution :</b>	Throughout India specially in black soil areas.
<b>Action and uses :</b>	<p>Astringent, febrifuge and tonic.</p> <p>Used in burning sensation, enteric fever, thirst, vomiting and urinogenital disorders.</p> <p>In traditional medicine it is used as a prophylactic agent against small pox.</p>

<b>Name :</b> Sanskrit	<i>Ela</i>
Hindi	<i>Ilaichi</i>
<b>Botanical</b>	<i>Elettaria cardamomum</i> (L.) Maton ( <i>Zingiberaceae</i> )

**Habit :** A leafy dense herb with leafy stem attaining a height of 2-3 m with thick horizontal perennial rootstock; leaves 60-75 cm long, 2.5-5x7.5 cm wide, pubescent beneath; panicles several to one leafy stem. 2.5-5 cm bracts linear, oblong, persistent, 3.75-5; calyx 1.25 cm; corolla tube shortly exerted, segments 1.25 cm lip longer than the corolla segments white sheathed and violet; capsule sub-globose or oblong marked with many five verticle ribs.

**Part used :** Seed

**Seed :** Outermost epidermal layer is testa. The epidermal cells are fusiiform. Beneath this is a single layer of small flattened parenchyma and long rectangular cells and oil cells. The inner seed coat has the beak shaped polygonal prisms and the lumen filled by a noddle of silica. The inner layer appears as a hyaline band. In hilum region a vaneul trace is visible with a few cells of xylem and a small group of phloem cells. The perisperm following the inner coat is parenchymatous. Cells are circular or polyhedral with starch grains along with crystals. Next to perisperm is endosperm, containing a hyaline yellowish mass and devoid of starch grains. The embryo is placed at the centre of the seed constituting simple parenchymatous cells.

**Distribution :** Malabar in the western ghats from Coorg Southwards extensively cultivated in the country upto 1500 m.a.s.l.

**Action and uses :** Aromatic, cardiotonic, carminative, cooling, diuretic, expectorant, stimulant and stomachic.

Used in cosumption, difficulty in micturition, piles, respiratory diseases and in retarded mental faculties.

<b>Name :</b> Sanskrit	<i>Eranda</i>
Hindi	<i>Rendi</i>
Botanical	<i>Ricinus communis</i> Linn. ( <i>Euphorbiaceae</i> )

**Habit :** An evergreen bush or small tree; shoots and panicles glaucous; leaves green or reddish 30-60 cm diameter membranous, lobes from oblong to linear acute or acuminate gland serrated; petiole 10-30 cm; racemes stout erect; male flower 1.5 cm diameter; female calyx nearly as long styles, often highly coloured; capsule 1.5-2.5 cm long, oblong, smooth or echinate; seeds oblong, smooth, mottled.

**Part used :** Root, bark, Leaves, seed (oil).

**Root bark :** Cork cells are polygonal and are seen brick shaped in transverse section. These are lignified and suberised. Cork development is irregular due to which rhytidoma formation occurs, which is seen as crescent shaped patches, pheloderm is a narrow zone of tangentially placed oils with pits. Phloem consists of phloem fibres, medullary rays, sieve tissue and phloem parenchyma. Fibres have concentric thickening with a small lumen, which is in tangential bands and are strongly lignified. Simple spherical starch grains are present throughout the parenchymatous cells. Cluster crystals are present in pheloderm and medullary ray cells. Medullary rays are much wider on the outer side, while narrow on the inner side.

**Distribution :** Cultivated throughout India and naturalised near habitations.

**Action and uses :** Counter irritant, nervine tonic and purgative.

Used in apathae, boils, headache, hernia, hydrocile, dysentery, glandular diseases, inflammation, lumbago, nervous disorders, purgative, rheumatism, sciatica, skin disorders, sprue and urinary disorders.

In Traditional practice decoction of root is valued for treatment of hydrocile.

<b>Name:</b> Sanskrit	<i>Gambhari</i>
Hindi	<i>Gambhari</i>
Botanical	<i>Gmelina arborea</i> Roxb. ( <i>Verbenaceae</i> )

**Habit :** A medium sized to large tree; branchlets with white spikes; bark smooth, white or whitish grey 0.64 cm, lenticellate, corky, exfoliating in scurfy flakes; blaze yellow; wood pale yellow, greyish or reddish white with glossy lusture, even grained soft, light, strong, durable, especially under water having a low shrinkage figure, leaves 7-6-25. 4 cm x 6.4-20 3 cm, deltoid ovate, base rounded or cordate, entire, green and glabrous above, fulvous, tomentose beneath with two glands at base of blade on upper side; petiole 5-12.7 cm, obscurely channelled above; flowers yellow tinged with brown, in terminal dichotomous cymose panicles; calyx small, 0.5 cm; corolla 2.5-3.8 cm; 2 lipped. oblique, brownish yellow, densely soft tomentose outside; lobes 5-4; stamens 4. didynamous; ovary 4 celled; ovules 4; style slender unequally bifid, drupe ovoid, yellow, 2 celled; 2 seeded.

Flowers : March-May.

**Parts used :** Bark

**Distribution :** Throughout the country ascending to 500 m.a.s.l.

**Action and uses :** Cardiotonic, carminative, demulcent, diuretic, febrifuge, laxative and pulmonary and nerve tonic.

Used in anorexia, fevers, haemophilic conditions, headache, heart diseases, nervous disorders, mental retardation, piles and tuberculosis.

<b>Name : Sanskrit</b>	<i>Gokshura</i>
<b>Hindi</b>	<i>Gokharu</i>
<b>Botanical</b>	<i>Tribulus terrestris</i> Linn. ( <i>Zygophyllaceae</i> )
<b>Habit :</b>	<p>A prostrate, silky or hirsute herb, branches 30-61 cm; leaves sometimes alternative, pinnate, stipulate, pinnate or alternate, leaflets 5-7 pairs, 0.5-1.3 cm long, oblong, silky, mucronate; flowers solitary, axillary, 1.3-2.5 cm across, petals often not exceeding calyx, 5 imbricate, spreading disc annular 10 lobed, stamens 10-5; ovary sessile, hirsute, 5-12 lobed, 5-12 celled, ovules 1-5 in each cells; stigmas as many as cells; fruit of 5 woody cocci, each with 2 long and 2 short spines.</p> <p>Flowers and fruits at irregular intervals.</p>
<b>Part used :</b>	<p>Fruit.</p> <p>The entire fruit in transvers section represents five cocci, separated at the top but united below. Epidermal cells of each coccus are small, rectangular, bearing unicellular trichomes in abundance. The mesocarp consists of 6-10 layers of large parenchymatous cells. Rosette of calcium oxalate crystals are abundantly present. Mesocarp is followed by 3-4 compact layers of small cells, each containing prismatic crystals which surround the embryonic part of the fruit. Embryo represents a typical dicot structure.</p>
<b>Distribution :</b>	Throughout the country in hot dry localities occurs as a troublesome weed.
<b>Action and uses :</b>	<p>Aphrodisiac, demulcent, diuretic, nervine tonic and urinary antiseptic.</p> <p>Used in consumption, dropsy, diabetes, gonorrhea, impotence, kidney diseases, painful micturition and urinary discharge.</p>



<b>Name :</b> Sanskrit	<i>Guggulu</i>
Hindi	<i>Guggal</i>
<b>Botanical</b>	<i>Commiphora mukul</i> (Hook, ex Stocks) Engl. ( <i>Burseraceae</i> )

**Habit :** A small tree 1.2-1.8 m. branches slightly ascending; flowers nearly sessile, a few in each fascicle, unisexual; the male with small abortive ovary; the female with short barren stamens; calyx forming a cylindrical cup, glandular hairy; petals 4-5, ligulate, brownish red, recurved at the tip, 3 times as long as calyx; disc 8-10 toothed; stamens 8-10; stigma obscurely lobed; drupe red; ovules acuminate containing two; 2 celled stones, rarely four valved.

**Part used :** Oleo resin obtained from the stem of the plant.

**Stem:** The transverse section of the mature stem shows the outer cork zone. Cork cells are two to many layer arranged in a row without any intercellular spaces the wall of cells are thick after the cork cell layer, there are one or three rows of cells of cork cambium, which is tangentially elongated, filled with starch grains. Phelloderm are two to five or more layered with granulated and some crystalline masses. Cortex zone consists of 4 to 5 or more layers of parenchymatous cells with intercellular spaces. The cell walls are thin and filled with starch grains and prismatic or rounded calcium oxalate crystals. In thick stem cortex zone is much crushed. The phloem parenchyma is embedded with schizolysigenous canals. The epithelium cells break down forming on oily secretion. The canals develop near the cambium in the phloem region and shift towards the cortex side as soon as the new canals are originated. Medullary rays are clear. Crystals of calcium oxalate and starch grains are also present. Cambium consists of 3-5 layers of crushed cells, xylem tracheids, fibres and xylem parenchyma are noted. Pith is formed of rounded cells of parenchyma with intercellular spaces, contains granules, calcium oxalate crystals and starch grains. The calcium oxalate crystals are of rosette, rectangular and triangular in shape.

**Distribution :** Wild in semiarid and arid zones, hot dry parts of the country, specially in Kutch, Sindh and Rajasthan.

**Action and uses :** Alternative, analgesic, antiphlogistic, antiseptic, antispasmodic, aphrodisiac, astringent, cardiotonic, emmanagogue, laxative, stimulant, stomachic and tonic.

Used in arthritis, ascites, calculus, fractures, fistula, glandular diseases, leucoderma, gout, neurological disorders, persistent low fevers, piles, respiratory diseases, rheumatism, skin disorders, tumors, ulcers and urinary disorders including diabetes.

Used exclusively in traditional medicine for arthritis, diabetes and obesity.

Anti-inflammatory, hypo cholesteromic activity in the drug has been found out.

Name : Sanskrit	<i>Haridra</i>
Hindi	<i>Halbi</i>
Botanical	<i>Curcuma longa</i> Linn. (Zingiberaceae)

**Habit :** A tall 1 m high herb, rootstock large, cylindric tubers, orange coloured; inside leaves very large, in tufts, oblong lanceolate tapering to the base; flowers in spikes 10-15 cm long concealed by the sheathing petiole, flowering bracts pale green.

**Part used :** Rhizome:

**Rhizome :** The rhizome consists of outer zone of cork followed by a wide zone of cortex and endodermal layer covering a discontinuous ring of vascular bundles. A large number of vascular bundles without any sclerenchymatous sheath are scattered throughout the rhizome. The parenchymatous cells of pith and cortex are full of starch grains, the yellow pigment being widely distributed.

**Distribution :** Cultivated in almost all the states in India particularly in Bengal, Bombay, Madras and Uttar Pradesh.

**Action and uses :** Alterative, antiperiodic, antiseptic, aromatic, carminative, stimulant, tonic, and vermifuge.

Used in anorexia, biliary disorders, coryza, cough, diabetic wounds, hepatic disorders, rheumatism and sinusitis.

Traditionally a draught with alum is given in external and internal wounds and with milk it is given for eosinophilia.

Ethnologically it occupies an important position in as much as that every food should contain it in India. Every religious ceremony makes use of turmeric in one or the other form. Also applied to face as a depilatory and facial tonic.

<b>Name :</b> Sanskrit	<i>Haritaki</i>
Hindi	<i>Harad</i>
Botanical	<i>Terminalia chebula</i> (Gaertn.) Retz. ( <i>Combretaceae</i> )

**Habit :** A middle sized to large deciduous tree, crown round, young parts covered with rusty layers; bark, dark brown with numerous shallow vertical cracks exfoliating in woody scales; sapwood brownish grey with greenish tinge; heart wood pale or dark brown mottled with hard close grain; leaves-sub-opposite, ovate elliptic or oblong ovate, acuminate, base acute or rounded; spikes terminal clusters; flowers offensive smell; fruit nuts variable; ovoid, greenish yellow, 5 angled or ribbed, hard surface rough grooved.

Flowers March-April. Fruits : November-January.

**Part used :** Bark and fruit (pericarp)

**Pericarp :** The outermost epidermis is composed of row of cubical cells. It has a thick cuticular lining followed by hypodermis, consisting of one or two rows of tangentially elongated thick walled cells and stone cells. Mesocarp consists of thin walled parenchyma cells with inter-cellular space. All the cells are loaded with simple starch grains and tannin. Stone cells are seen scattered among the parenchymatous cells of the mesocarp and are rounded or elongated and are thin walled with a large lumen vascular bundles. The endocarp is made of stone cells.

**Distribution :** Occures extensively in India and specially in North Circars, Deccan, West Coast, Western Ghats, South Travancore, Belgaum, Bengal, Kanara to Kumaon.

**Action and uses :** Antiseptic, alterative, astringent, caustic, diuretic, febrifuge, cardi tonic, laxative and tonic.

Used in burns, digestive disorders, diabetes, eye diseases, fever, sour throat, skin diseases and weak eye sight.

It is one of the most coveted laxatives used by traditional practitioners.

<b>Name :</b> Sanskrit	<i>Hingu</i>
Hindi	<i>Hing</i>
Botanical	<i>Ferula jaeschkeana</i> Vatke ( <i>Umbellifereae</i> )

**Habit :** An aromatic herb 1-2 m with oleoresinous thick roots; stem; leaves closely crenate or doubly crenate or almost serrate; simple or scarcely compound umbells; fruiting corymbs often appears elongate sub-paniculate, sometimes divericate and corymbose; peduncles bearing nearly simple, umbels also proceed from the large sheaths of the cauline leaves; fruit is comparatively large and thick; vittae much the largest of any Indian umbellifer; the commissural often 2, only near the medial line, sometimes 4 or 6.

**Part used :** Dried latex.

**Dried latex** is in the form of tears aggluniated together, rounded or flat of dull yellow colour, opaque having intensely penetrating allinaeous odour.

**Distribution :** Kashmir altitude 1900-2800 m.a.s.l.

**Action and uses :** Anthelmintic, antispasmodic, carminative, emmenagogue and intestinal antiseptic.

Used in abdominal disorders, bronchitis, colic, cough, epilepsy, flatulence, hysteria, nervous disorders, uterine disorders specially amenorrhea.

Traditionally used extensively in all types of abdominal discomfort. An application made in water is applied around umbelical region in abdominal disorders of the infants.

<b>Name :</b> Sanskrit	<i>Jatamansi</i>
Hindi	<i>Mansi</i>
Botanical	<i>Nardostachys jatamansi</i> DC. ( <i>Valarianaceae</i> )
<b>Habit :</b>	Perennial herb; rootstock woody, long, stout; covered with fibres from the petioles of withered leaves; stem 10-16 cm, more or less pubescent, upwards, often glabrate below, subscopose; radical leaves 15-20 x 2.5 cm, longitudinally nerved, glabrous or slightly pubescent, narrowed into the petiole. Cauline 1 or 2 pairs, 2.5-7.5 cm long, sessile, oblong or sub-ovate; flower heads usually 1, 3 or 5 bracts, 0.6 cm long, somewhat hairy within, as are the filaments below; fruit 0.6 cm long, covered with ascending white hairs, crowned by the ovate, acute often dentate calyx teeth.
<b>Part used :</b>	Root/rhizome.
<b>Distribution :</b>	Alpine Himalayas from Kumaon to Sikkim and Bhutan 3000-4000 m.a.s.l.
<b>Action and uses :</b>	<p>Anti-bacterial, anti-convulsant, antiarrhythmic, hypotensive, anti-spasmodic and sedative (C.N.S.) activity have been found in the drug.</p> <p>Used in circulatory disorders, erysipelas, nervous disorders, septicaemia and skin diseases.</p> <p>Traditional medicine values it for its characteristic property of sharpening the intellect as well as an efficient soporific.</p>

<b>Name:</b> Sanskrit	<i>Jatiphala patre</i>
Hindi	<i>Jaiphal Jabitri</i>
Botanical	<i>Myristica fragrans</i> Houtt. ( <i>Myristicaceae</i> )

**Habit :** A lofty tree; branches slender; leaves coriaceous, sometimes oblanceolate, tip cordate, base acute, pale yellow brown, paler with red brown nerves beneath; petiole 0.6-1.25 cm; male racemes 2.5-5 cm; flowers 0.6 cm long ellipsoid or urceolate, nodding bracteole a scale under the glabrate perianth; anthers 9-12, cornate in a cylindric stipitate column; fruit ovoid, subglobose or pyriform 3.75-5 cm long.

**Part used :** Fruit and aril.

**Fruits :** are broadly oval, 2-3 x 2 cm brown or greyish brown and reticulately furrowed. A patch of lighter colour with brown lines surrounded by a ring is seen at one end of the fruit. From this a furrow runs to the chalaza at the opposite end of the kernel where there is a small depression. In longitudinal section a marble like lusterous appearance is given. The dark brown perisperm forming the outer tissue penetrates the light brown endosperm. Fibrovascular bundles are also seen in the perisperm.

The dried arillus is of bright red or coral colour. Section shows thick walled epidermis and large amount of parenchyma in which fibrovascular bundles and large oil cells are seen.

**Distribution :** Mostly cultivated in Kerala State and wild in Western ghats and South India.

**Action and uses :** Anodyne, aphrodisiac, appetizer, astringent, carminative, narcotic, stimulant, and stomachic.

Used in anorexia, diarrhoea, dysentery, flatulence, headache, impotence, nausea respiratory disorders, rheumatism, urogenital disorders and vomiting.

Traditionally used extensively for diarrhoea of infants and pigmental disorders of the face. Ethnologically considered as an important item of toiletry.

<b>Name :</b> Sanskrit	<i>Jiraka</i>
Hindi	<i>Jira</i>
<b>Botanical</b>	<i>Cuminum cyminum</i> Linn. ( <i>Umbellifereae</i> )

**Habit :** A slender annual herb, glabrous except fruit; leaves twice or thrice partite, ultimate segments, filiform; umbels compound, rays few; bracts and bracteoles several, linear, rigid; calyx teeth small, subulate, un-equal; petals oblong or obvate, emarginate, white often unequal; fruit cylindric, tip narrowed, primary ridges filiform, distinct, secondary usually hispidulous, vittae large, solitary, under each secondary bridge, carpophore 2 partite or 2 fid, seeds somewhat dorsally compressed convexo-concave.

**Part used :** Fruit.

**Fruits** are about 6 mm long and resemble caraway at first glance. The mericarps are, however, straighter than those of caraway and are densely covered with short, bristly hairs, whole cremocarps attached to short pedicels occur, as well as isolated mericarps. Each mericarp has 4 dorsal vittae and two commissural ones.

**Distribution :** Wildly cultivated.

**Action and uses :** Astringent, carminative, digestive, febrifuge, nervine tonic, stimulant, stomachic and uterine tonic.

Used in diarrhoea, dyspepsia, fever, glandular diseases and uterine disorders.

Traditionally used with buttermilk and salt in abdominal discomfort.



<b>Name :</b> Sanskrit	<i>Kampillaka</i>
Hindi	<i>Kampillaka</i>
Botanical	<i>Mallotus philippensis</i> (Lam.) Muel. ( <i>Euphorbiaceae</i> )

**Habit :** A small branched evergreen tree, trunk irregular; young branches rustly pubescent; petiole tip curved and blade is set at an angle, bark grey or pale brown 0.64 cm irregularly cracked; blaze red; wood grey to light red, smooth, close grained; leaves 7.6-20.3x3.8-11.5 cm ovate lanceolate, strongly 3 nerved, upper side glabrous, lower side with numerous minute red glands, dentate serrate, acuminate; petiole 5-6.7 cm; flowers dioecious in terminal brick red spikes; perianth 3 cleft; male flowers clustered; female flowers solitary; ovary 3 celled; ovule-1 in each cell; style-3; capsule loculicidal, 3 valved, 3 lobed, 0.85-1.3 cm diameter with conspicuous red glands and hair on surface in the form of crimson powder; seeds black.

**Part used :** Crimson powder consisting of hair on the fruit.

**Distribution :** Throughout India ascending to 1600 m.a.s.l.

**Action and uses :** Anthelmintic, bitter, cathartic and styptic.

Used in abdominal disorders, blood diseases, calculus, flatulence, leprosy and skin diseases.

Traditionally it is used for expelling worms in children with curd.

<b>Name : Sanskrit</b>	<i>Kankola</i>
<b>Hindi</b>	<i>Kankola, Kababchini</i>
<b>Botanical</b>	<i>Piper cubeba</i> Linn. f ( <i>Piperaceae</i> )
<b>Habit :</b>	Leaves glabrous, ovate, oblong with cordate, or rounded base, fruit subglobose, 6-8 meredial somewhat apiculate, stalked; the fruit is almost globular (diam. 3-6 mm), with a slender stalk like portion (upto 7 mm) attached to its base hence cubebs are also known as tailed pepper; the upper part of the fruit is globular covered with greyish brown reticulated pericarp which is extended at the base into a straight stalk upto 7 mm in length; anatomically structure of pericarp distinguishes it from black pepper and the adulterants; flower exotic.
<b>Parts used :</b>	Fruit
<b>Distribution :</b>	Exotic and cultivated to a limited extent in South India.
<b>Action and uses :</b>	<p>Appetizer, aromatic, cardi tonic, carminative, emenagogue, diuretic and urinogenital antiseptic.</p> <p>Used in cardiac weakness, constipation, cough, cystitis, dysmehorrhea, gonorrhea, lack of appetite, piles respiratory disorders and urinogenital disorders.</p>

<b>Name :</b> Sanskrit	<i>Kantakari</i>
Hindi	<i>Kantkari</i>
Botanical	<i>Solanum xanthocarpum</i> Schrad & Wendl. ( <i>Solanaceae</i> )
<b>Habit :</b>	A very prickly, diffuse herb, 1.3 m diam., bright green, mature, nearly glabrous; leaves 10-12.5x5-7.5 cm, spine 0.6 cm straight; petiole 2.5 cm; peduncles short, mostly extra axillary; flowers few, all perfect, pedicels and calyx stellately pubescent or at length glabrous; calyx in flower 0.12 cm, lobes ovate, oblong, usually prickly hardly enlarged in fruit; corolla 2.5 cm diam., pubescent with lobes shallow; berry yellow or whitish and green blotched seeds 0.2 cm in diam. glabrous.
<b>Part used :</b>	Whole plant.
	<p><b>Root :</b> The outer cork layer consists of 3-6 layers of thin walled rectangular, tangentially elongated cells arranged one above the other in radial rows. The phellogen is a single layer followed by 6-15 layers of thin walled parenchymatous cells with intracellular spaces. Some of the cortical cells contain a characteristic black powdery mass. The medullary rays seen in the phloem are thin walled, radially elongated and many of them possess the black powdery mass. The central region is wood or xylem. The vessels are quit uniformly distributed throughout the xylem. Wood parenchyma is thick walled and wood fibres occupy the major portion of the wood. Medullary rays which are uni or biseriate and radially elongated are thick walled and contain starch grain.</p>
<b>Distribution :</b>	Wildly growing throughout India.
<b>Action and uses :</b>	Cardiotonic, diuretic, expectorant, febrifuge, laxative and stimulant.
	Used in asthma, bronchities and enteric fever.
	Used traditionally very extensively for influenza and allied conditions. Invaluable therapeutic agent for dislodging tenacious phlegm.

**Name :** Sanskrit  
Hindi  
Botanical

*Karavira*  
*Kaner*  
*Nerium indicum* Miller (*Apocynaceae*)

**Habit :**

An evergreen shrub; bark silvery grey, white, soft; leaves 10-15.2 cm, linear, lanceolate or oblong, rigid, leathery; mid rib stout; nerves many at right angles to mid rib, parallel; flowers in terminal cymes; corolla red, pink or white, 4.5 cm across, broadly funnel shaped, sweet scented, lobes twisted to right; coronal appendage, lacinate, into numerous irregular segments; anthers joined together adnate to stigma; cells long spurred at base; fruit of 2 follicles, cylindrical 1.5-17.8 cm rigid, straight; seeds linear, ribbed, villous; coma greyish brown tip.

**Part used :**

Root Bark.

Root is characterised by a highly developed vascular cylinder in the centre occupying about a 2/3 of a well matured root. The vessels are arranged in a row and medullary rays are normally single cell thick.

**Distribution :**

Throughout the country ascending upto 1800 m.a.s.l. in river beds, also planted in gardens.

**Action and uses :**

Anthelmintic, antipyretic and antiseptic.

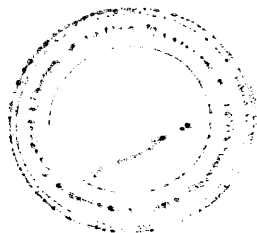
Used in cardiac asthma, circulatory disorders, fever, leprosy, respiratory disorders, skin diseases and worms.

Traditional medicine values it for improving eye sight.

Pharmacological study has corroborated its cardiotonic properties.

<b>Name :</b> Sanskrit	<i>Karcur</i>
Hindi	<i>Amba Haldi</i>
Botanical	<i>Curcuma zedoaria</i> Rosc. (Zingiberaceae)
<b>Habit :</b>	Root stock ovoid, tubers many, some 2.5 cm in diam., sessile, cylindric and many oblong terminating long fibres; leaves 30-60 cm oblong, acuminate, narrowed to the base; petiole longer than the blade; spikes vernal 15X7.5 cm broad; flowering bracts 3.75 cm, ovate green, often slightly tinged with red; bracts of the coma many, spreading bright red; flowers pale yellow, rather shorter than the bracts; calyx whitish, obtusely toothed, scarcely half as long as the corolla tube; corolla tube funnel shaped; lateral segments oblong, upper rather longer ovate, convex; lip 1.25 cm broad orbicular, deflexed, obscurely 3 lobed, emarginate; capsule ovoid, trigonous, smooth, dehiscing irregularly; seeds oblong, aril, lanceolate, white.
<b>Part used :</b>	Rhizome
	<b>Rhizome :</b> Transection shows a few layers of periderm, well differentiated wide cortex with scattered large and small vascular bundles, thin walled suberized endodermoid layer, followed immediately by a plexus of irregular congested vascular bundles at the periphery of the central cylinder. The parenchymatous ground tissue is studded with scattered tannins containing cells and large conspicuous oil ducts. The parenchyma cells are densely packed with simple starch grains pointed end and eccentric hilum.
<b>Distribution :</b>	Wild in Eastern Himalayas, also cultivated in some parts of South India.
<b>Action and uses :</b>	Anthelmintic, aromatic, cardiotonic, carminative, cooling, diuretic, stomachic and stimulant. Used in cough, hiccough, piles, respiratory disorders, skin diseases, splenic disorders, worms and wounds.

<b>Name :</b> Sanskrit	<i>Karpura</i>
Hindi	<i>Kapur</i>
Botanical	<i>Cinnamomum camphora</i> Nees & Eberm. ( <i>Lauraceae</i> )
<b>Habit :</b>	A small tree, bark aromatic; leaves long acuminate, blade 2-4; petiole 1.5 to 4 cm; secondary nerves 2-3 paired, lowest proceeding from leaf base; flowers small bisexual in cymes; fruits berry.
<b>Part used :</b>	Camphor and oil.  All parts of tree contains camphor which is obtained by distillation of wood chips, leaves etc. Camphor is a crystalline ketonic substance obtained from the wood.
<b>Distribution :</b>	Cultivated to a limited extent at Nilgiris, Mysore and Northern Malabar.
<b>Action and uses :</b>	Anodyne, aromatic, anthelmintic, antispasmodic, anti-pyretic, aphrodisiac, carminative, diuretic, diaphoretic, cardiac stimulant, cooling, depressent, expectorant, insecticidal and rubifaciant.  Used in asthma, bronchitis, diarrhoea, eye diseases, fever, female diseases, headache, inflammatory conditions, pneumonia, skin diseases, toothache and urinogenital disorders.



<b>Name : Sanskrit</b>	<i>Katuki</i>
<b>Hindi</b>	<i>Kutki</i>
<b>Botanical</b>	<i>Picrorhiza kurroa</i> Royle ex Benth. ( <i>Scrophulariaceae</i> )

**Habit :** A ground clasping hairy herb with perinnial root stock, as thick as the little finger, 15-25 cm long clothed with withered leaf bases; leaves 5-20 cm rather coriaceous, tip rounded, base narrowed into a winged sheathing petiole; flowering stems or scapes ascending; stout longer than the leaves, naked or with a few bracts below the inflorescence; spikes 5-10 cm long sub-cylindric, obtuse; many flowered, sub-hirsute; bracts oblong or lanceolate as long as the calyx; sepals 0.6 cm long, ciliate; corolla of short stamens from 0.60-0.80 cm long with longer filaments 0.8 cm long of the longer stamens from 0.6 cm with filament 1.75 long; capsule 1.25 cm long.

**Part used :** Rhizome.

Periderm of the rhizome consists of 8-10 layers of thin walled cork cells flattened and filled with yellowish to brownish cell contents, the cortical cells are more or less rounded below. With a large intercellular spaces at intervals, secondary phloem many layered, xylem consists of trachieds vessels and wood fibres, the stelar ring is broken into 5-10 parts transversed by parenchyma cells. Pith is characterised by thick porous, parenchymatous cells.

**Distribution :** Alpine Himalayas from Kashmir to Sikkim Altitude 3000-4300 m.a.s.l.

**Action and uses :** Anthelmintic, antipyretic, astringent, bitter, cardi tonic, carminative, cathartic, purgative and stomachic.

Used in fever, gout, leprosy, liver diseases loss of appetite, respiratory disorders and urinogenital disorders. Antispasmodic action has been recorded in alcohol extract. Regression of transaminase and serum alkaline phosphatase values in experimentally induced abnormalities of liver have also been shown.

Kutkin was found to be a potent Cholera tic agent.

<b>Name :</b> Sanskrit	<i>Khadira</i>
Hindi	<i>Kattha</i>
Botanical	<i>Acacia catechu</i> Willd. ( <i>Fabaceae</i> )
<b>Habit :</b>	<p>A moderate sized 10-12 m deciduous, thorny tree; bark brown or greyish brown, rough, about 1.3 cm, exfoliating in long, narrow rectangular plates; blaze brown and red; wood reddish, hard, close grained white and teredo proof; leaves pubescent; rachis 7.6 10.2 cm, prickled, a pair of flattened recurved prickles inserted below the leaf base, pinnae 10-20 pairs; leaflets 30-50 pairs, 0.25 cm, pubescent, nerves not prominent; flowers pale yellow in long spikes; calyx villous; petals villous; pod thin, brown, shining, dehiscent.</p> <p>Flowers : May-October.</p>
<b>Part used :</b>	Twigs, wood, (extract of heart wood), bark.
<b>Distribution :</b>	Almost all parts of the country ascending to 1100 m.a.s.l. often cultivated.
<b>Action and uses :</b>	<p>Anthelmintic, antiseptic, astringent, bitter, cooling, dentifrice, demulcent and tonic.</p> <p>Useful in anaemia, anorexia, diarrhea, dysentery, fever, haemophilic disorders, leprosy, leucoderma, loose teeth, gum troubles, skin disorders, swelling, ulcers, urinogenital disorders (including diabetes) and vaginal irritation.</p> <p>Traditionally used for obesity.</p> <p>Ethnologically it occupies an important position in Indian culture by way of use in making betel chew (<i>Tambul</i>).</p>



<b>Name :</b> Sanskrit	<i>Kiratatikta</i>
Hindi	<i>Ciraita</i>
<b>Botanical</b>	<i>Swertia chirata</i> Buch.—Ham. ( <i>Gentianaceae</i> )
<b>Habit :</b>	An erect herbaceous robust herb; stems 1-1.5 m branching, terete except near the top; leaves broadly lanceolate 10 x 3.75 cm acute; flowers in paniculate or corymbose cymes; calyx and corolla 4 lobed; corolla green yellow tinged with purple, two glands on each lobe, green, fringed with long hairs; ovary 1 celled; flower style short; stigma 2 lobed; capsule sessile, oblong.  Flowers : September-November.
<b>Part used:</b>	Whole plant.
<b>Distribution :</b>	Eastern temperate Himalayas 1500-3000 m.a.s.l.
<b>Action and uses :</b>	Biliary tonic, bitter, carminative, expectorant, febrifuge, laxative, stomachic and tonic.  Used in anorexia, biliary disorders, cough, constipation, fevers skin diseases, wounds and worms.

<b>Name :</b> Sanskrit	<i>Krishna Sariva</i>
Hindi	<i>Kala Sariba</i>
Botanical	<i>Ichnocarpus frutescens</i> (L.) R. Br. ( <i>Apocynaceae</i> )
<b>Habit:</b>	A woody twining vine; bark dark brown with shallow vertical clefts, sometimes greyish white; wood soft; leaves lanceolate to ovate, 4-8 cm. glabrous to sparsely pubescent below, base acute, apex acute to acuminate; corolla white or rose 3-4 mm long; lobes pubescent along margins and at base, 6-7 mm, long, follicles 5-15 cm long.  Flowers October-December, Fruit in March-May.
<b>Part used :</b>	Whole plant
<b>Distribution :</b>	Throughout India
<b>Action and uses :</b>	Alterative and febrifuge  Uses as of <i>Hemidesmus indicus</i> (L.) R.Br.

<b>Naṁé :</b> Sanskrit	<i>Kumari</i>
Hindi	<i>Ghee Kunvar</i>
Botanical	<i>Aloe barbedensis</i> Mill ( <i>Liliaceae</i> )

**Habit :** Dwarf succulent plants upto 30-60 cm in height; leaves dense, glaucous aggregated, insiform 30-61 x 5-10 cm with horny pickles on perpendicular to margin on the scape 61-91.5 cm; perianth reddish yellow and green, cylindrical, 1.9-2.5 cm; fruit a loculicidal capsule.

**Part used :** Leaf (juice and dried juice)

**Leaf :** transection shows highly centralised epidermis full of stomata on both the surfaces. Parenchyma is rich in chlorophyll, cells show starch and bundles of needles of calcium oxalate. Central portion consists of mucilage containing parenchyma. A double row of vascular bundles is located at the junction of the two preceding areas and have well marked pericycle and endodermis.

The **dried juice** varies in colour from yellow brown to chocolate brown. It breaks with a waxy fracture giving a sour odour. Taste is bitter. Examined in lactophenol under the microscope, the drug shows crystals of aloin embedded in masses of resin. For purity the drug is to be tested chemically by Schontetus reaction, Klunge's Isobarbaloin reaction etc.

**Distribution :** Widely occurs throughout India ascending to 1500 m.a.s.l. in Himalayas, and also planted in gardens.

**Action and uses :** Anthelmintic, aphrodisiac, bitter, cathartic, cooling emmenagogue, hepatic stimulant, purgative and vermifuge.

Traditionally used in haemophilic, skin and uterine disorders, and locally applied in burns.

<b>Name : Sanskrit</b>	<i>Kupihu</i>
<b>Hindi</b>	<i>Kuchila</i>
<b>Botanical</b>	<i>Strychnos nuxvomica</i> Linn. ( <i>Loganiaceae</i> )
<b>Habit :</b>	A moderate sized or large deciduous tree; bark thin, smooth, yellowish or blackish grey covered with minute tubercles wood yellowish grey, hard; leaves 10-15 cm elliptic or ovate elliptic, 5 nerved, 3 central ones being prominents; flowers greenish white, 1-3 cm long in terminal cymes; berry 3-8.5 cm diam. orbicular in white pulp.
<b>Part used :</b>	Seed
	Seeds are disc shaped upto 25 mm diam. and 4 mm thick, ash grey or yellow green in colour, depressed on one face and arched on the other, seed is clothed with adpressed hair. In the margin there is a raised prominence running to the centre. Hilum is on the depressed or raised side.
<b>Distribution :</b>	Common in Southern parts of the country, Orissa.
<b>Action and uses :</b>	Cardiac stimulant Carminative and nervine tonic. Used in diseases of bladder, cholera, colic, cough, emaciation, enteric fever, heart diseases, impotence, spermatorrhea and wounds.

<b>Name :</b> Sanskrit	<i>Kutaja</i>
Hindi	<i>Kurchi</i>
Botanical	<i>Holarrhena antidysenterica</i> (Roth) DC. ( <i>Apocynaceae</i> )

**Habit :** A small deciduous tree, bark rough brown 0.64 cm exfoliating in small flakes wood white, soft even grained; leaves 10-30.5 x 3.8-12.7 cm opposite obovate, oblong rounded at the base, membranous sub-sessile; flowers white 2.5-3.8 cm in terminal corymbose cymes, paired follicles, 20-40 cm long, 1.6 cm diameter; seeds with tuft of long silky hairs at apex;

*Flowers - June-July, Fruits February-March.*

**Parts used :** Root, bark and seeds.

**Root bark :** Outermost tissue is cork, which is thin. Cork cells are thin walled, tangentially elongated with dark brown contents. Inside the cork is phellogen consisting of single row of thin walled narrow rectangular cells. Secondary cortex is seen inner to the phellogen and is composed of smaller parenchyma cells, and most of them are packed with rhomboidal crystals of calcium oxalate. Corticle cells are large, slightly rectangular and thin walled and contain starch grains. The stone cells vary in size and shape and at the middle bark they form a continuous ring. Occasionally more than one ring is met with same bark. Inner bark consists of stone cells and phloem elements, medullary rays and latex tubes. Some of the stone cells contains rhomboidal calcium oxalate crystals. Phloem is of phloem parenchyma, little sieve tubes and several latex tubes. In inner phloem layer the parenchyma cells are thin walled, polygonal and regularly arranged. Starch is absent. Crystals are seen rarely. Medullary rays are many and one to two three seriate. All the ray cells are radially elongated, three walled and contain starch grains. Bark contains maximum alkaloidal contents after rains.

**Distribution :** Throughout India ascending to 1000 m.a.s.l. in the Himalayas.

**Action and uses :** Anthelmintic, antidysenteric, antiperiodic, astringent, bitter, carminative and febrifuge.

Used in dysentery, hemophilic disorders, lack of appetite, leprosy, piles, skin diseases and thirst.

<b>Name :</b> Sanskrit	<i>Lavanga</i>
Hindi	<i>Long</i>
Botanical	<i>Syzygium caryophyllatum</i> (L.) Alston ( <i>Myrtaceae</i> )

**Habit :** Small handsome evergreen tree attaining a height of 8-10 metres; leaves short; petiolate, elliptic, obovate, sub-acute at both ends 6.8 x 25.4 cm coriaceous; venation distinct beneath; cyme terminal; panicle corymbose; flowers in umbellules, small; calyx 0.3 cm long obscurely lobed; corolla calyptrate, white; staminal disc absent; berry globose, purple, 0.5 cm across.

**Part used :** Flower bud.

**Flower bud :** Microscopically it shows the epidermis of the hypanthium and calyx teeth composed of straight walled cells with large stomata, the tetra hydral polan grains, the fibrous layer of the anther walls, the schizolysigenous oil glands founds in all parts of the drug, occasional isolated pericyclic fibres, the spongy tissue of the hypanthium, bi-colletaral vascular bundles arranged in ring, the central parenchymatous columella, the cluster crystals of calcium oxalate, the absence of store cells, starch and prismatic crystals of calcium oxalate.

**Distribution :** Cultivated in Western ghats and Kerala.

**Action and uses :** Anaesthetic, anodyne, antispasmodic, antiseptic, aphrodisiac, aromatic, carminative, circulatory stimulant, expectorant, rubifacient and stimulant.

Used in aches, colic, cough, indigestion, pain, respiratory disorders, sore throat, spasm and weak eye sight.

<b>Name :</b> Sanskrit	<i>Lodhra</i>
Hindi	<i>Lodhra (Patham)</i>
Botanical	<i>Symplocos racemosa</i> Roxb. ( <i>Symplocaceae</i> )

**Habit :** A small evergreen tree or more frequently a shrub; branchlets soon glabrous; leaves 9-18 x 3.2.5 cm, sometimes almost orbicular leaves, obtuse, coriaceous; nerves distant not conspicuous; petiole 7.5-17 mm, recemes 5-10 cm; bracts 0.4 cm, ovate, hairy, deciduous; lower pedicle often distant 0.1 cm-0.6 cm; bracteoles 0.2 cm, ovate; calyx tube usually glabrous, lobes 0.2 cm, ovate, minutely pubescent; corolla 0.4 cm; stamens sometimes 115; fruit barely 1.25 x 0.6 cm subcylindric, smooth; calyx rim nearly as wide as the fruit, with erect teeth; embryo straight.

**Part used :** Bark

Transection of the bark shows cork of numerous layers of rectangular cells arranged end to end in radial rows, the cell walls lignified and suberized, upper cortex cells contain wax like bodies; lower cortex composed of polygonal cells which are pitted. Stone cells scattered all over the cortex. Phloem is traversed by medullary rays of varying thickness, the broader rays diverging towards the cortex and giving a wedge shaped appearance to the strip of phloem tissue between them; the phloem fibres are few either isolated or found in groups of stone cells. Sieve tube element characteristic, sieve plates producing a pronounced sclariform lattice work. Phloem parenchyma consists of rectangular longitudinally elongated cells, larger than sieve tube element in size; the parenchyma near fibres contain a number of prismatic crystals in longitudinal rows and provides a crystal sheath to the fibre; starch found mostly in cortex and phloem regions; calcium oxalate mostly near stone cells and fibres.

**Distribution :** Throughout North-East India, 0.750 m.a.s.l. common from the Tarai of Kumaon to Assam, common throughout Chota Nagpur plateau.

**Action and uses :** Astrigent, carminative and uterine tonic.  
Used in dysentery, haemorrhage and uterine disorders.  
Traditionally it finds place in almost all diseases wherein uterus is involved. Mouthwash is recommended for strengthening the gum and to check bleeding. As a plaster for softening boils,

<b>Name :</b> Sanskrit	<i>Mandukaparni</i>
Hindi	<i>Brahmi/Mandukaparni</i>
Botanical	<i>Centella asiatica</i> (L.) Urb. ( <i>Apiaceae</i> )
<b>Habit :</b>	Small herb, stem prostrate, rooting at the joints; leaves orbicular 1-5-6.5 cm diameter, usually glabrous or nearly so; petiole pubescent or glabrous; peduncles about 0.6 cm often 2-3 nate; flowers small; fruit carpels oblong, sub cylindric, curved; slightly; compressed much longer than broad; seed compressed laterally.
<b>Part used :</b>	Whole plant
<b>Distribution :</b>	Throughout India near water
<b>Action and uses :</b>	Astringent. For uses please refer <i>Bacopa monnieri</i> (L.) wettst.



**Name :** Sanskrit *Manjishtha*

Hindi *Manjith*

Botanical *Rubia cordifolia* Linn. (*Rubiaceae*)

**Habit :** A climbing herb; root stock perennial; branches stout, four angled, smooth or more often with the nerves beneath, retrorsely scabrid, leaves smooth or scabrid; lower 5-10 cm; petiole 2.5-7.5 cm, 2 often longer and with larger blades; upper leaves sometimes acute at the base; shorter petioled; cymes panicked; terminal branches trichotomous, spreading with opposite, sessile, leafy cordate bracts; flowers minute 5, rarely 4 merous; corolla lobes lanceolate, tips incurved; anthers globose; fruit 0.3-0.4 cm diameter, succulent, globose, black; seeds-2.

**Part used :** Root

**Root :** In transverse section of the root the cork does not consist of an organised zone but two to three layers of irregular cells, with blackish cell walls and some cells filled with cell contents. The secondary phloem cell consists of wavy walls with scattered starch grains, some cells with cell contents and others with crystalline matter, followed by actively dividing cells of the cambium, xylem. Cylinder consists of the scattered tracheal elements surrounded by thick walled parenchyma and sclerenchyma. Two primary xylem bundles are present in the centre of the root. In maceration crystalline substance appears. The vessel elements are mainly tubular type and tracheids.

**Distribution :** Throughout the hilly districts of India from the North West Himalaya, eastwards ascending to 2600 m.a.s.l.

**Action and uses :** Alterative, antiseptic, astringent, bitter, blood purifier, pigment stimulator and tonic.

Used in diseases of blood dysentery, ear and eye diseases, inflammation and urino-genital disorders.

Traditional medicine recognises it as an efficient blood purifier like sarsaparilla and hence used extensively for blood, skin and urinary diseases. Externally applied to leucoderma patches.

**Name :** Sanskrit

*Marica*

Hindi

*Kalimirc*

Botanical

*Piper nigrum* Linn. (*Piperaceae*)

**Habit :**

A strong woody glabrous climber; branches stout, trailing and rooting at the nodes; leaves variable in length, breadth 18 x 1.2 cm, sometimes glaucous beneath; base acute, rounded or cordate, equal or un-equal; nerves stout. 5-7 pairs basal, with another pair higher up, which run to the tip; petiole 1.25 to 4 cm stout; flowers usually dioecious, but often female bears two anthers or the male a pistillode; anthers 2 celled; fruiting spikes vary variable in length and robustness; rachis glabrous; fruit globose berry sessile, red, pulp thin; fruits are 3-6 mm in diameter, surface dark brown or grey black strongly reticulated; apex shows remains of sessile stigmas.

Flowers : July-September.

**Parts used :**

Fruit (seed).

**Fruit :** Outer epidermis is composed of single row of thin walled rectangular cells. Next to the epidermis is two or three layers of thick stone cells. Inner to this is a parenchymatous region consisting of numerous oil secretory cells. Then follow 5 or 6 fibrovascular bundles arranged almost at equal distance from one another, and prominent secretory cells forming a ring, pericarp is thick which is brown and one to two rowed brown pigmented cells forming the seed coat, and part of the seed is the perisperm. Outer part of the perisperm is one smaller and polygonal in shape, next to this are smaller cells and filled with aleurone grains, few contain calcium oxalate. Internal cells of the perisperm are polyhydral and heavily packed with starch grains and scattered greenish yellow oil globule cells. The endosperm is small and placed at the apex of the fruit within the perisperm. Endosperm consists of small polygonal cells greenish white in colour. At the centre of the endosperm is a small embryo.

**Distribution :**

Native of the forests of Assam, Malabar and also cultivated in hot damp parts in South India.

**Action and uses :**

Alterative, anthelmintic, appetizer, carminative, febrifuge, stimulant and tonic.

Used in blood diseases, bronchitis, cataract, coryza, cold, cough, eczema, headache, heart diseases, influenza, intermittent

fevers, neuritis, night blindness, respiratory diseases, syphilis, urinary antiseptic and worms.

Traditionally it is claimed to have excellent value in conditions simulating malaria. Also used occasionally as a family secret by indigenous practitioners in appendicitis, cholera and elephantiasis.

<b>Name :</b> Sanskrit	<i>Musta</i>
Hindi	<i>Nagarmota</i>
Botanical	<i>Cyperus rotundus</i> Linn. ( <i>Cyperaceae</i> )

**Habit :** Perennial glabrous tufted herb, rhizome wiry, often thickened into ovoid black, woody tubers; stems 15-75 cm, 3 angled at the top; leaves nearly as long as the stem; sometimes longer 0.5-0.8 cm broad, umbels simple or compound 2.5-10 cm diam. or more, primary rays 5-20 cm spikelets 2-3.75 cm red brown in short spikes. Glumes 20-50 obtuse, margins, narrowly scarious; stamens-3; nut one third length of the glume, narrowly ovoid, pale brown.

**Part used :** Root, rhizome.

**Rhizome :** Transection of the rhizome shows the outer surface is curved with 4-5 layers of cork. Cells are irregular rectangular brown walls. Below the cork is sclerenchymatous band, followed by a large cortex. Cortex is characterised by the presence of special cells containing brownish oleoresinous matter, abundant starch grains and few cortical vascular bundles.

**Root :** Transverse section of the root shows epiblemma, the cells being irregular typical parenchymatous cells, followed by large band of cortex, then followed by large band of typical parenchymatous tissue with large inter cellular spaces. The inner cortex is made up of four to five layers of sclerenchymatous fibres. The endodermis is a single layer of thick walled cells. Pericycle is a thick layer of walled cells. The stellar region is thick consisting of alternate groups of phloem and xylem strands. Phloem strands consist of protoxylem and metaxylem. The protoxylem situated towards periphery while metaxylem situated towards the centre.

**Distribution :** Throughout India ascending to 1800 m.a.s.l.

**Action and uses :** Anthelmintic, aromatic, astringent, demulcent, diaphoretic, diuretic, emmenagogue, galactagogue and stimulant.

Used in anorexia, cough, diarrhoea, fever and haemophilic conditions.

Traditionally an infusion in water is valued for its antipyretic action.

<b>Name :</b> Sanskrit	<i>Nagakesara</i>
Hindi	<i>Nagakesar</i>
Botanical	<i>Mesua ferrea</i> Linn. ( <i>Guttifereae</i> )

**Habit :** A lofty evergreen tree; bark reddish brown, 0.63 cm thick, scaling off in thin flakes, 5-7.6 cm long; blaze pink streaked with white, exudes a yellow gum; wood red, strong hard, heavy; leaves in young shoots, at first bright red, then pink, gradually passing into dark green. 5-15x1.9-5 cm thick, lanceolate, oblong or linear, often with transperant dots, nerves slender many, at right angles to mid rib green glabrous on upper side; glaucous (bluish grey) with waxy bloom on lower side; flowers white fragrant 2.5 to 10 cm across solitary or in pairs, sepals 4, petals 4, stamens many; anther 5, large, elongated, erect; ovary 2 celled; ovules 2 in each cell, erect; fruit ovoid 2.5-6.4 cm long, woody, greenish; seeds 1-4 dark brown, flattened on one side.

Flowers : April-June.

**Part uscd :** Flowers and anthers.

**Distribution :** Eastern Himalayas, Bengal, Assam, evergreen rain forests of North Kanara, Konkan, Western Ghats and some parts of U. P. ascending to 1000 m a.s.l.

**Action and uses :** Astringent, aromatic, bitter, cooling, expectorant and soporific.

Used in blood dysentery, fevers, leucorrhea and piles.

The phenolic constituents isolated from the seed oil showed bronchodialator effect.

<b>Name :</b> Sanskrit	<i>Narikela</i>
Hindi	<i>Nariyal</i>
Botanical	<i>Cocos nucifera</i> Linn. ( <i>Arecaceae</i> )
<b>Habit :</b>	A tall palm, stem 12-24 m, often curved, smooth, grey with indistinctly annulate leaf scars, base swollen, covered with rootlets, wood hard, red outside, reddish brown but softer inside; leaves pinnate, 3.5-4.67 m; leaflets 61,91x5 cm linear, lanceolate, acuminate, bright green, smooth, shining; petiole 91 to 152 cm, stout; spathe 45-61 cm narrowly oblong, tapering at both ends, springing from within leaves; spadix about 46 cm, when in flower, extending to 91-122 cm when in fruit, monoecious, divided into numerous drooping spikes, bearing at base female with few male flowers; upper part being densely covered with male flowers; flowers straw coloured; male 1.9 cm; female 2.5 cm; fruit yellowish green, ovoid, drupe 23-38 cm, fibrous, trigonous; endocarp hard ovoid, 10-12 cm diam, endosperm oily, mucilagenous with high glucose content.
<b>Part used :</b>	Water, milk of endosperm, tender coconut.
<b>Distribution :</b>	Cultivated in the groves and gardens of coastal regions of the country.
<b>Action and uses :</b>	<p>Aphrodesiac, cardi tonic, carminative, cooling, diuretic, refrigerant and tonic.</p> <p>Used in burning sensation in the body, consumption, diarrhea, emaciation, heart diseases, spermatorrhea. and urinogenital diseases.</p> <p>In traditional medicine water from tender cocount provides source of glucose supply in acute dehydration.</p>

<b>Name' : Sanskrit</b>	<i>Nimba</i>
<b>Hindi</b>	<i>Neem</i>
<b>Botanical</b>	<i>Azadirachta indica</i> A. Juss. ( <i>Meliaceae</i> )
<b>Habit :</b>	A medium sized deciduous tree; bark grey or greyish brown with long shallow vertical fissures; wood soft; sapwood yellowish white; heart wood light red, pores prominent, filled with resin, annual rings 1-2; leaves 2-3 pinnate, pinnate 3-4 pairs, opposite; leaflets 3-12 ovate lanceolate, serrate, sometimes lobed; flowers lilac scented; stamens tube purple, laciniate, 0.85 cm long, teeth 20-30; anthers glabrous, shorter than or as long as teeth; stigma 5 toothed; drupe 1.9 cm long, yellow when ripe.
<b>Part used :</b>	All parts
<b>Distribution :</b>	Throughout India
<b>Action and uses :</b>	<p>Anthelmintic, antiseptic, bitter, deoderant, diuretic, emmenagogue and febrifuge.</p> <p>Used in blood disorders, consmption, eye diseases, useful in intermittent fevers as well as persistant low fever, leprosy, scrofula, skin diseases, ulcers and wounds.</p> <p>Nimbidine obtained from the bark and the oil was found useful in tropical eosiniphilia.</p>

<b>Name :</b> Sanskrit	<i>Nimbu</i>
Hindi	<i>Nimbu</i>
Botanical	<i>Citrus medica</i> Linn. (var <i>medica</i> proper) ( <i>Rutaceae</i> )
<b>Habit :</b>	A shrub or small tree, flowering and fruiting at most seasons; leaflets 7.5-15 cm elliptic, ovate or ovate lanceolate; petiole naked or winged; flowers 5-10 in a raceme, small or middle sized; stamens 20-40, ovoid or obovoid; fruit a globose berry yellow turning to purple smooth 6-12 x 4-7 cm wide with a nipple shaped apex and a dry disc like nectary at the base. It consists of 8-10 carpels with similar number of loculi filled with pulp.
<b>Part used :</b>	Fruit
<b>Distribution :</b>	Cultivated throughout India.
<b>Action and uses :</b>	Anthelmintic, appetizer, astringent, refrigerant and tonic. Used in anorexia, cough, rheumatism, vomiting and weak eyesight. Traditionally used in dehydration.



<b>Name :</b> Sanskrit	<i>Nirgundi</i>
<b>Hindi</b>	<i>Nirgundi</i>
<b>Botanical</b>	<i>Vitex negundo</i> Linn. ( <i>Verbenaceae</i> )

**Habit :** An aromatic large shrub much branched; bark grey, thin; wood greyish, white, hard; leaflets 3-5, middle one 5-10 cm side one smaller lanceolate, drawn out at apex white with hairs below; flowers small, bluish purple in terminal panicles; calyx cerpular, toothed subaccrescent; corolla blue bilabiate, tube short with hairy ring at the base of staminal filament; upper lip 2 lobed, lower 3 lobed, middle one larger; stamens four didinamous exerted filaments smooth or hairy; anthers cells divaricate; brownly pilose at apex, 4 ovulate; stigma bifid at apex (sometimes); seed drupe black, 0.64 cm in diam.

**Part used :** Leaves

Leaf: Upper and lower epidermis provided with glandular and non-glandular trichomes. Stomata is present in the lower epidermis. All the trichomes are transparent. Veins are prominent. Mesophyl is differentiated into 2-3 layers of palaside and loosely arranged spongy parenchyma. Palaside is not continuous over the mid rib and veins. The menstele is in the form of an arc. Xylem radiate towards the lower surface. Medullary rays are present. Phloem is present as a continuous band above the xylem towards the lower surface and in 3 patches towards the upper surface known as perimedullary phloem.

**Distribution :** Throughout the country

**Action and uses :** Alterative, anodyne, antipyretic and antiperiodic.

Used in alternate fevers, colic, dyspepsia, haemophilic disorders, nervous disorders, rheumatism, skin diseases, splenic enlargement and worms.

Traditionally used in conditions simulating malaria.

<b>Name :</b> Sanskrit	<i>Parasika yavani</i>
Hindi	<i>Khurasani ajavayan</i>
Botanical	<i>Hyoscyamus niger</i> Linn. ( <i>Solanaceae</i> )

**Habit :** An erect hairy biennial or annual herb with heavy disagreeable odour; pubescent and more or less hairy; leaves 12.5 x 5 cm; stems robust 1 mm; radical leaves spreading, stalked, oblong, ovate 15-25 cm, coarsely serrate toothed; stem leaves smaller, sessile, ovate, irregular, pinnatifid, passing into bracts; flower pale yellow green, nearly sessile; calyx in flower 1.6 cm, teeth short, triangular in fruit 2.5x1.25 cm; corolla purple at the base; capsule 0.6 cm diameter; seeds 1 mm diam.

Flowers : July-September.

**Parts used :** Seed

Seeds are dark grey reniform 1.5 cm long with a minutely reticulated testa. Epidermal cells of testa with thick lignified wavy anticlinal walls, showing crystals of silicic acid; sclereids in pericarps and testa. The seeds give tobacco like smell.

**Distribution :** Western Himalayas-Kashmir to Garhwal.

**Action and uses :** Anodyne, antiphlogistic, antiseptic, carminative, narcotic, sudorific, mydriatic and sedative.

Used in amenorrhea, asthma, calculus, colic, insomnia, nervous affections, spermatorrhea and whooping cough.

Traditionally used for inducing sleep and relief from shock and pain.

<b>Name : Sanskrit</b>	<i>Parpata</i>
<b>Hindi</b>	<i>Khet papra</i>
<b>Botanical</b>	<i>Fumaria indica</i> Pugsley ( <i>Fumariaceae</i> )

**Habit :** A diffuse annual 10-60 cm high; leaf pale green, segments flat; racemes lax scented; flowers pale pink in 0.5-1.25 cm; sepals lanceolate, much smaller than the corolla tube; pedicles exceeding the bracts; fruit globose, rugose when dry, rounded at the top with 2 pits, pale green much branched; racemes 2.5 cm; fruit 1 seeded small globose nutlet.

Flowers : June.

**Part used :** Whole plant.

The **root** is diarch. In mature root with secondary growth broad medullary rays are observed radiating outwards opposite two xylem poles, the secondary wood is laid alternating the xylem pole and fan shaped. The secondary wood elements are arranged in radiating rows embedded in parenchyma. Phloem is laid outside the xylem and is composed of sieve tubes, companion cells and phloem parenchyma, followed towards the periphery by a few layers of cork cells.

**Stem :** Transverse section is pentagonal in outline with fairly prominent angles under which collenchyma lies. The epidermis is a single layer of oblong rectangular cells with outer well developed tangential walls. The cortex is narrow, composed of 3-4 layers of chlorenchymatous cells. Endodermis is not discernible. Vascular bundles present under neath the ridges, the bundles are collateral, endarch and open. Capping the bundles are 1-3 layered sclerenchymatous patches. The xylem is composed of vessels, tracheid, fibres and xylem parenchyma. The protoxylem elements are tracheids with annular or spiral thickening.

**Petiole :** Circular to oval in transection. The epidermis is formed of single layered thin walled parenchyma. Vascular bundles are joined at the xylem ends to form a V shaped structure. The ground tissue is composed of thin walled parenchyma.

**Leaf :** Transverse section shows in distinctly bifacial organisation. The upper and lower epidermis are single layered, formed of large hyaline cells, oblong to rectangular shape, the

stomata are of the anomocytic type. Epidermal cell show the presence of aggregate crystals of calcium oxalate.

**Fruit:** The characteristic feature in its structure is the presence of a thick C shaped sclerenchymatous zone in the wall of the pericarp. A single seed is present inside.

**Distribution :** A weed found throughout the country ascending to 1800 m.a.s.l specially in cultivated fields.

**Action and uses :** Anthelmintic, aperient, cooling, diaphoretic, diuretic and febrifuge.

Used in burning sensation in the body, fever, giddiness, thirst, urinogenital disorders including cystitis gonorrhoea and vomiting.

**Name : Sanskrit** *Patala*

**Hindi** *Patala*

**Botanical** *Stereospermum suaveolens* DC. (*Bignoniaceae*)

**Habit :** A tree, 9-18 m, innovatious, viscous, hairy, leaves, 30-45 cm, leaflets 7-9, 14x7.5 cm, petiole hardly 0.25 cm; calyx 0.8 cm, hairy lobes 3-5, very short, broad; corolla pale or dark purple, puberulous without hairy in the throat; lobes rounded; crisped crenate; capsule 45x0.8 cm, slightly rough with tubercles, obscurely 4 ribbed, glabrous; seeds 3x0.6 cm, deeply notched at the middle.

**Part used :** Root.

**Root :** In transverse section of the root outermost zone is cork, which is narrow and possesses 6-11 rows of narrow rectangular cells. Next is phelloderm consisting of thin walled rectangular cells. Cortex is many rows of cubical to rectangular thin walled cells. The bast is composed of phloem with narrow strips of sclerenchyma and the medullary rays. The wood or xylem shows narrow annular stripes of dark brown, shiny, thick walled, fibres elements alternating with lighter coloured bands of softer thin walled parenchyma. Vessels are big, scattered, isolated. Pith absent. No starch grains.

**Distribution :** Throughout India in dry regions.

**Action and uses :** Appetizer, biliary stimulant, cardiotonic (flower), cooling, diuretic, febrifuge and tonic.

Used in anasarca, calculus, cough, diarrhea, emaciation, hemi-crania, hyperacidity, nervous disorders and piles.

<b>Name :</b> Sanskrit	<i>Patha</i>
Hindi	<i>Patha</i>
Botanical	<i>Cissampelos pareira</i> Linn. ( <i>Menispermaceae</i> )

**Habit :** A tomentose sub-erect or climbing shrub with woody root; wood brown, medullary rays broad; leaves 3.8-10 cm, nearly circular in outline, base cordate, 2.5-5 cm. long, branched; sepals-4, obovate oblong, hairy outside; petals-4, united, forming a 4 lobed cup; stamens 4; anthers connate round, flattened top of staminal column bursting horizontally; female in long racemes; sepals and petals 2 nerved adnate to bracts imbricate; carpels 1; style short, 3 fid, or toothed; fruit ovoid, red, drupe; style scar, sub-basal.

Flowering : May-August.

**Part used :** Whole plant

**Distribution :** Throughout the country

**Action and uses :** Anthelmintic, antihistaminic, antipyretic, astringent, bitter, cardiogenic, diuretic, refrigerant and stomachic.

Used in abdominal pain, anorexia, cystitis, dropsy, fever, heart diseases, internal rupture, respiratory disorders and skin diseases.

Used in traditional medicine for combating toxicosis and toxemia arising out of systemic disorders, ingested poisons and stings, bites etc.

<b>Name :</b> Sanskrit	<i>Pippali</i>
Hindi	<i>Pippi</i>
Botanical	<i>Piper longum</i> Linn. ( <i>Piperaceae</i> )

**Habit :** Stems creeping below; young shoots downy; branches prostrate or creeping with broad leaves; flowering shoots erect; lower leaves 5-7.5 cm, often rounded ovate, acuminate, 7 nerved, sinus rounded but narrow, basal lobes, equal; petiole 2.5-7.15 cm; upper leaves much narrower with often unequal basal lobes; male spikes 2.5-7.5 cm, female 1.25-2 cm; fruit about 0.22 cm.

**Part used :** Fruit, root.

**Fruit :** In transaction of the fruiting spike are seen one seeded fruitlets arranged in a circle on the main axis. The pericarp of the fruit has zones of epicarp, mesocarp and endocarp. Secretory cells are present in the outer part of epicarp and round and oval type cells of sclerenchyma. Mesocarp has thin walled collapsed parenchymatous cells. Endocarp is wavy and filled with dark brown contents. Sometimes the outer end of endocarp forms a dome like structure covering a few cells of endosperm and embryo. The major portion of the fruit under endocarp consists of perisperm, the cells of which are stocked with starch grain.

**Distribution :** Throughout the country extending upto 1800 m.a.s.l. specially in sub-mountain tracts. Cultivated to some extent.

**Action and uses :** Alterative, digestive, febrifuge, stimulant and tonic.

Used in abdominal distention, ascitis, colic, consumption, cough, emaciation, fever, piles, weakness and worms.

Traditionally valued very much for consumption. The study has shown antitubercular activity in the active constituents derived from the drug. Piperine, isolated from the drug possesses anabolic and analeptic potentiality.

<b>Name : Sanskrit</b>	<i>Prisniparni</i>
<b>Hindi</b>	<i>Prasniparni</i>
<b>Botanical</b>	<i>Uraria picta</i> Desv. ( <i>Leguminosae</i> )

**Habit :** An erect little branched, suffruticose, perennial 1-2 m high herb; stems robust, finely downy, petioles 2.25-4 cm; leaflets 4-6, rarely 9, rigidly subcoriaceous, glabrous above, reticulato-venulose, minutely pubescent below, 9-20 cm long, 0.6-2.25 cm broad; lowest simple round or oblong; flowers in dense, cylindrical racemes 1.10-2.25 cm long, 1.75-2 cm broad; bracts brown, scariose, deciduous, not distinctly ciliated, upper lanceolate, lower ovate, acuminate; pedicels 0.5-1 cm, abruptly recurved at the tip after flowering; corolla, purple slightly exerted; joints 3-6, glabrescent, polished, often whitish.

**Part used :** Root

**Root :** A transection of the root shows the surface of the root is smooth and light yellow to greyish buff in colour. The primary structure of the root is di to tri arch. The primary phloem is characterised by the possession of a large amount of phloem fibres. Cork cambium arises in the normal way, the mature root shows 5,6 layered cork, followed by a single layered phellogen, a wide phelloderm and phloem regions. Medullary rays are 1-4 cells wide in phloem region. The central portion of root is occupied by a compact mass of wood. The xylem rays are 1.2 cells wide. All the elements of xylem are thick walled and lignified. Prismatic crystals of calcium oxalate are found in all the regions.

**Distribution :** Throughout the country ascending to 1900 m.a.s.l.

**Action and uses :** Cardiotonic, expectorant, diuretic, febrifuge and nervine tonic. Used in general anasarca, blood diseases, bleeding piles, colitis, cough, difficult micturition, fever and respiratory disorders.



<b>Name : Sanskrit</b>	<i>Punarnava</i>
<b>Hindi</b>	<i>Punarnava</i>
<b>Botanical</b>	<i>Boerhaavia diffusa</i> Linn. ( <i>Nyctaginaceae</i> )
<b>Habit :</b>	A spreading diffusely branched pubescent or nearly glabrous herb; root stout; leaves stalked upto 5 cm, rather thick in unequal pairs, broadly ovate or somewhat circular, rounded at tip, green and glabrous above, white beneath; petiole about 2.5 cm; flowers in umbels of 4-10, arranged in panicles, perianth pink, funnel shaped, 5 lobed; stamens 2-3; fruit 5 ribbed with glands on ribs.
<b>Part used :</b>	Whole plant
<b>Distribution :</b>	A weed near water in all parts of the country ascending to 1500 m.a.s.l. in the Himalayas.
<b>Action and uses :</b>	<p>Antibiliary, antipyretic, cardiostonic, diuretic, expectorant, laxative, soporific, and stomachic.</p> <p>Used in anaemia, calculus, cough, colic, haemorrhage, heart diseases, insomnia, internal inflammation, jaundice, leprosy and edema.</p> <p>Used in traditional medicine as an antidote for <i>Datura</i>, (<i>Datura metel</i> Linn ) spider and snake bite poisons. The studies with petroleum-ether ether extract and their fractions revealed diuretic action.</p>

<b>Name :</b> Sanskrit	<i>Pushkaramuta</i>
Hindi	<i>Pushkaramula</i>
Botanical	<i>Inula racemosa</i> Hook. f. ( <i>Compositae</i> )
<b>Habit :</b>	A tale stout herb, 50 cm-1.5 m, stem grooved; leaves coriaceous, radical 20-45x12.5-20 cm narrowed into a petiole as long, cauline often deeply lobed at the base; heads many outer involucre, bracts broad, with recurved triangular tips, ligules slender, 1.5 cm achenes 0.4 cm, glabrous, slender, pappus 0.6 cm, reddish.
<b>Part used :</b>	Root
	<p><b>Root:</b> The transection of the root shows 4-6 layered phelloderm, brownish and wavy in outline, cortex composed of variable number of layers depending upon the thickness, cells are thin walled periclenally elongated due to the pressure of underlying conjunctive tissues with resinous cavities and elements of secondary phloem opposite to secondary xylem consisting of groups of vessels and other tissues arranged radially, distinct-resinous cavities filled with yellowish substance and 4-5 primary xylem bundles in the centre, xylem fibres are few and occur in small patches adnate to some vessel groups as well as in central parts of the xylem. Vessels mostly bear slit like horizontal parts and few with rounded boarded pits.</p>
<b>Distribution :</b>	Western Himalayas, Kashmir up to 1700-2600 m.a.s.l.
<b>Action and uses :</b>	<p>Anti-inflammatory, anthelmintic, carminative, diuretic and febrifuge.</p> <p>Used in anaemia, catarrh, coryza, cough, dysmenorrhea, loss of appetite, weak heart and skin diseases.</p> <p>The extracts revealed anti-inflammatory, antipyretic and antispasmodic activity.</p>

**Name :** Sanskrit      *Raktacandan*

Hindi      *Lalcandan*

Botanical      *Pterocarpus santalinus* Linn f. (*Leguminosae*)

**Habit :** A moderate sized deciduous tree; bark blackish brown deeply cut into elevated rectangular patches, blaze exudes red juice; wood dark red or maroon extremely hard (weight 35 kg) when rubbed against hard surface provides a red coloured aromatic paste; branches obscurely grey downy; leaflets 3 in all the specimens but said to be sometimes 5-10 cm long, rounded at both ends. slightly emarginate, clothed with obscure adpressed grey hairs below; racemes shorter and less copious, the pedicles shorter; calyx 0.5-0.6 cm toothed, deltoid, minute, limb of standard not longer than the calyx; pod silky at first, centre more turgid, wing narrower and style brought down to the basal corner.

**Part used:** Wood

**Distribution :** Confined to hills of Deccan.

**Action and uses :** Antiperiodic, antipyretic, aphrodisiac, astringent, bitter, cooling, diaphoretic and febrifuge.

Used in abscesses, boils, eye troubles, fever, headache, haemophilic disorders, inflammation and vomiting.

<b>Name : Sanskrit</b>	<i>Rasna</i>
<b>Hindi</b>	<i>Rasna</i>
<b>Botanical</b>	<i>Pluchea lanceolata</i> Oliver & Hiern. ( <i>Compositae</i> )
<b>Habit :</b>	A shrub; branches rather slender; leaves 2.5-5 cm pale when dry with strong very oblique nerves on both surfaces; heads longer than broad involucre contracted at the mouth; outer bracts hoary.
<b>Part used :</b>	Whole plant, root.  <b>Root:</b> shows a triarch stele surrounded by a layer of pericycle and endodermis followed by a wide layer of cortex, the cork cambium arises in the subepidermal layer. The leaf shows an isobilateral structure with a single layer of epidermis and palisade tissues on both surfaces. Mesophyll parenchyma is 3-5 layered vascular bundles are much reduced, each surrounded by sclerenchymatous fibres, non-glandular trichomes, stomata are present on both sides. The root bark and the stem are of same structures. Resin and oil is present in parenchymatic cells with crystals of calcium oxalate.
<b>Distribution :</b>	Occurs wild throughout India.
<b>Action and uses :</b>	Anodyne, carminative, expectorant and nerve tonic.  Used in cough, hernia, hydrocele, intestinal distention, pulmonary disease, rheumatism and sciatica.  In traditional medicine it is a drug of choice for nervous and neurological disorders, specially sciatica.  Extracts of whole drug have shown acetylcholine like activity, relaxant action on smooth muscles and spasmolytic action (in different muscle preparations).

<b>Name :</b> Sanskrit	<i>Rasna</i>
Hindi	<i>Rasna</i>
Botanical	<i>Vanda roxburghii</i> R. Br. (Orchidaceae)
<b>Habit :</b>	Stem 30-60 cm climbing; leaves 15-20 cm narrow complicate; peduncle 15-20 cm; 6-10 flowered; sepals and petals yellowish green, or bluish except from the clathrate brown nerves, margins white; lip leaf as long as the sepals or more; disc of midlobe convex with fleshy ridges and white margine and mesial lines, spur conical.
<b>Part used :</b>	Whole plant.  Presence of velamen and extremely thick walled endodermis with passage cells in the root. The leaves are characterised by the presence of fibrous thick walled hypodermis. Stomata are present on both the surfaces. Raphides and volatile oils are present in the parenchymatous tissues of the leaf, stem and root. The ground tissue of the stem consists of large thick walled lignified cells and small thin walled non-lignified cells with scattered vascular bundles.
<b>Distribution :</b>	Found mostly in southern parts of the country.
<b>Action and uses :</b>	Same as of <i>Pluchea lanceolata</i> Oliver & Hiern.

<b>Name : Sanskrit</b>	<i>Rasona</i>
<b>Hindi</b>	<i>Lasuna</i>
<b>Botanical</b>	<i>Allium sativum</i> Linn. ( <i>Liliaceae</i> )
<b>Habit :</b>	Glabrous, bulbous herb with pungent odour; leaves radical, sometimes, sheathing the scape; scapes erect bearing a terminal umbel of small flowers surrounded by an involucre of 2 or 3 thin, membranous bracts sometimes united to form a spathe; <i>perianth</i> bell shaped or rotate, 6 parted; stamens 6 at the base of the segments; ovary 3 celled, 3 angled; style straight; stigma minute terminal; ovules few; capsule 3 valved; seeds 1 or 2 in each cell, black.
<b>Part used :</b>	Bulb
<b>Distribution</b>	Cultivated widely throughout the country.
<b>Action and uses</b>	<p>Anthelmintic, aphrodisiac, cardiac stimulant, carminative, diuretic, expectorant, emmenagogue and stimulant.</p> <p>Used in anorexia, consumption, cough, leucoderma, piles, skin diseases and diseases of vocal cords.</p> <p>In traditional medicine, it is extensively used for cardiac disorders, chronic fever, gout, mental retardation, ossification of fractured bones, poor eye sight and sciatica.</p>

<b>Name :</b> Sanskrit	<i>Sadapushpi</i>
Hindi	<i>Sadapushpi</i>
Botanical	<i>Catharanthus rosesus</i> (L.) G. Don. ( <i>Apocynaceae</i> )
<b>Habit :</b>	An erect pale green annual, 30-60 cm height, stem and branches acutely 4 angled; leaves 3-8x0.6x0.8 cm. membranous, acuminate, margins minutely scabrid; stipular glands subulate; petiole, 0.6 cm or less, slender; flowers 0.8 cm long on short pedicels; white/red corolla mouth narrow, hairy; throat glabrous, thickened; follicles 5-7.5 cm, very slender, diverging, straight, membranous; seeds 0.25 cm linear, oblong, cylindric, rounded at both ends; testa black many ribbed; ribs rough.
<b>Part used :</b>	Leaves
<b>Distribution :</b>	Cultivated in the gardens throughout the country.
<b>Action and uses :</b>	Antihypoglycaemic, carcinogenic and counter irritant. The alkaloids obtained from the leaves have been labelled to possess anti-carcinogenic property. Plant used as a remedy for diabetes. The infusion of leaves used for amenorrhea. Juice of the leaves used as an application to wasp sting.

<b>Name : Sanskrit</b>	<i>Saliparni</i>
<b>Hindi</b>	<i>Saliparni</i>
<b>Botanical</b>	<i>Desmodium gangeticum</i> DC. ( <i>Fabaceae</i> )

**Habit :** Nearly erect undershrub; stems pubescent 91-122 cm high; leaflets 1.7-15.2 cm variable in width, ovate, oblong, acute, base rounded or sub-cordate; petiole 1-3.3 cm; stipule persistent, 0.64-0.85 cm; flowers white, or lilac tinged in close set fascicles in 15-30.5 cm, long racemes; pod 1.3-1.9x0.25 cm, falcate, 6-8 jointed; joints minutely hairy.

**Part used :** Root

The root has normal dicot structure. The primary root is tri-arch or tetra-arch without a pith in the centre. The secondary wood is formed xylem vessels with broad lumen, ground tissue composed of xylem parenchyma and patches of lignified xylem fibres. Opposite each protoxylem group, a broad medullary rays, 3-4 cells in thickness, runs radially outward upto the xylem region. Some circular to oval starch granules are present in the wood parenchyma. Bordering the secondary xylem is the cambium, followed by secondary phloem. The cortex is constituted of parenchymatous cells, with lignified fibres singly or in groups. Some cells contain rectangular crystals of calcium oxalate.

**Stem:** Normal dicot pattern. Epidermis followed by collenchymatus cortex composed of 5-6 layers of cells. Some of these cells contain rectangular calcium oxalate crystals. The endodermal sheath is prominent. The pericycle is in the form of thick walled sclerenchymatous patches. Next zone is secondary phloem, consists of sieve tubes and phloem parenchyma. Many cells contain rectangular calcium crystal cells. Secondary xylem forms a continuous zone and is composed of xylem vessels and tracheids. Primary xylem bundle with endarch protoxylem. The pith is broad and is composed of thin walled parenchymatous cells with intercellular spaces. Some of the peripheral cells of the pith contain rhomboid crystals of calcium oxalate.

**Leaf :** Midrib is thick, projecting on the dorsal surface in the form of hump. Epidermis is composed of small circular cells which contrast with the tubular or rectangular cells of the upper epidermis of the lamina. Parenchymatous one is observed in



epidermal cells, followed by a conspicuous zone of pericycle. Vascular cylinder is discontinuous. Lamina shows a layer of epidermis. Mesophyll is composed of palisade and spongy parenchyma. Oval epidermis composed of oval to circular cells.

**Distribution :** Throughout India ascending upto 1650 m.a.s.l.

**Action and uses :** Anthelmintic, aphrodisiac, astringent, diuretic, febrifuge & tonic.

Used in general anasarca, consumption, cough, diarrhea, fever including enteric fever, piles, respiratory disorders, vomiting, and worms.

The studies showed bronchodilator, vaspressor, analgesic, anti-pyretic and cardiotonic stimulant.

<b>Name :</b> Sanskrit	<i>Sariva</i>
Hindi	<i>Sariba</i>
Botanical	<i>Hemidesmus indicus</i> (L) R. Br. ( <i>Asclepiadaceae</i> )
<b>Habit :</b>	A twining or prostrate, wiry shrub; leaves opposite or in whorls of 4, varying from elliptic oblong or circular to linear; flowers small, crowded axillary, greenish outside, purple inside, corolla lobes 5, flat, fleshy, valvate; corolla scales 5, thick on tube, alternate with lobes; filaments free; anthers small cohering at tip, ending in inflexed appendages; follicles 10-15.2 cm tapering to apex.  Flower : December.
<b>Part used :</b>	Root  <b>Root :</b> The cork cells in tangential section of the root appear polygonal and iso-diametric, in transverse section they appear to be radially flattened and rectangular in appearance. Cork cells are filled with tannin. Cork cambium consists of 2-3 layers of more or less compressed cells with dark brown contents. Phelloderm consists of 3-4 layers of cells similar to the cork cells but with little dark brown contents. Secondary phloem is a complex tissue and consists of sieve tubes with companion cells, phloem parenchyma, phloem ray cells and laticiferous ducts. Parenchyma cells contain starch grain. Some cortical cells contain prismatic crystals of calcium oxalate. Cambium is very narrow and consists of about 3 layers of tangentially elongated flattened cells. Wood consists of vessels and tracheids and is traversed by narrow medullary rays. The walls of the vessels as well as the tracheids are characterized by pitted markings.
<b>Distribution :</b>	Throughout India
<b>Action and uses :</b>	Alterative, aphrodisiac, blood purifier, diaphoretic, diuretic, refrigerant and tonic.  Used in anorexia, bileousness, blood diseases, diarrhoea, eczema, epilepsy, fever, respiratory disorders and skin diseases.  2-hydroxy-4 Methoxy benzaldehyde derived from the plant showed promising antibacterial and antifungal activity.

<b>Name :</b> Sanskrit	<i>Sarshapa</i>
Hindi	<i>Sarason</i>
Botanical	<i>Brassica campestris</i> Linn. var <i>sarson</i> Rain ( <i>Brassicaceae</i> )
<b>Habit :</b>	Annual upto 1.5 m high rigid, unbranched or branched at the top, more or less hispid herb; leaves 10-20 cm, glaucous; stem clasping, basal lobes, lower leaves pinnate partite terminal lobe largest; flowers 0.85-2.35 cm diam. bright yellow; pod 0.6-1.25 cm, subulate, valves keeled, torulose, cells 3-5 seeded; seeds oblong 30-80 in a pod.
<b>Part used :</b>	Seed (oil)
<b>Distribution :</b>	Cultivated in many parts of the country for its oil. Cold weather crop of North India.
<b>Action and uses :</b>	Anthelmintic, anti-scorbutic, diuretic, laxative and rubifacient. Used in intestinal worms, scabies, skin diseases and weak eye sight. In traditional medicine it is very much valued for splenic disorders.

<b>Name :</b> Sanskrit	<i>Shatapushpa</i>
Hindi	<i>Sounf</i>
Botanical	<i>Antheum sowa</i> Roxb. ( <i>Umbelliferae</i> )
<b>Habit :</b>	Glabrous aromatic herb 30-90 cm and leaves 2-3 pinnate; pedicels many, 1.5 cm; styles small, dorsal and intermediate ridges distinct slender; vittae large, solitary in each furrow 2 on the commissure.
<b>Part used :</b>	Fruit  <b>Fruit :</b> Usually occur in entire cremocarps often with pedicel attached pale brown with narrow yellowish rings. Dorsal ridges are pale, the oval mericarps are 4-6 mm long 2 mm wide and 1.5 mm thick. Mericarps are straight and dorsally somewhat compressed.
<b>Distribution :</b>	Cultivated throughout India.
<b>Action and uses :</b>	Anodyne, antipyretic, aphrodisiac, carminative, stomachic and tonic.  Used in abdominal pain, consumption, cough, emaciation, eye disorders, mental retardation, thirst and vomiting.

<b>Name :</b> Sanskrit	<i>Satavari</i>
<b>Hindi</b>	<i>Satavar</i>
<b>Botanical</b>	<i>Asparagus racemosus</i> Willd. ( <i>Liliaceae</i> )
<b>Habit :</b>	A tall climbing excessively branched, prickly undershurb; roots tuberous; prickles 0.6-1.5 cm straight or recurved; cladodes 2.5 cm, curved, terete, spreading in tufts of 2-6, channeled beneath; flower in racemes 2.5-5 cm; pedicels 0.4 cm jointed in the middle; perianth 0.8-0.12 diame. anthers minute, oblong, purplish; ovules 6-8 in each cell; fruit a berry 0.4-0.6 cm diame.
<b>Part used :</b>	Root  <b>Root :</b> The long tapering roots arise adventitiously from the short root stock. The roots are cylindrical upto 2 cm diame. Cream white or cream yellow in colour with a smooth surface. Surface skin is easily separable and shows a glistening material inside. Transverse section of a fresh root shows a narrow yellow peripheral strip, a silvery white fleshy soft middle region and hard narrow central woody core.
<b>Distribution :</b>	Throughout tropical, sub-tropical India upto 1200 m.a.s.l.
<b>Action and uses :</b>	Antidiarrhic, antidysenteric, antiseptic, aphrodisiac, demulcent, diuretic, galactagogue, nutritive, refrigerant and tonic.  Used in consumption, diarrhea, blood dysentery, epilepsy haemophilic disorders and swelling.  The alcoholic extract and fractions have shown significant oxiocie activity.

<b>Name : Sanskrit</b>	<i>Sathi</i>
<b>Hindi</b>	<i>Sati</i>
<b>Botanical</b>	<i>Hedychium spicatum</i> Ham. ex. Smith ( <i>Zingiberaceae</i> )

**Habit :** Glabrous herbs; Leaves reaching 30 cm or more, very variable in breadth, glabrous; spike sometimes 30 cm; bracts oblong, obtuse, green 2.5-3.75 x 2 cm broad, flowers ascending and closely imbricate; corolla tube 4.5-5.75 cm, segments 2.5 cm, linear; staminal nodes 2.5 cm, lanceolate; lip 1.25-2 cm, broad, not at all clawed; lobes 2; rounded filaments, pale red; anther linear 0.60-0.8 cm capsule glabrous, globose.

**Part used :** Rhizome :

A fresh sliced transverse section of the **rhizome** shows presence of a thick rind with fleshy yellowish coloured interior which is marked with several dots, each representing vascular strands. Outermost layer is thick and suberized. Cortex is wide 30-40 cells thick, cortex consists of several layers of thin walled parenchymatous cells with wide intracellular spaces. Oil cells containing green yellow oil lie scattered in cortex. Starch grains abundant, grains simple often flattened, sometimes irregular in outline, hilum eccentric or projecting in a beak. Oil cells also abundant in ground parenchyma, isodiametric structures possessing a yellow refractive body. Crystals of calcium oxalate is present.

**Distribution :** Fairly common throughout the country extending to 2000 m.a.s.l. in Western Himalayas, Kumaon.

**Action and uses :** Carminative, emmenagogue, expectorant, stimulant, stomachic and tonic.

Used in general anasarca, bad taste in mouth, colic, fever, enteric fever and respiratory disorders.



<b>Name : Sanskrit</b>	<i>Sigru</i>
<b>Hindi</b>	<i>Sahajan</i>
<b>Botanical</b>	<i>Moringa oleifera</i> Lam. ( <i>Moringaceae</i> )

**Habit :** A fairly large tree; bark corky; wood soft, white spongy; leaves 30-76 cm long, three pinnate; petiole sheathing at base, pinnate 4-6 pairs, pinnulae 3-6 pairs, opposite the uppermost pair, 1 foliate, hairy gland present between each pair of pinnae and pinnulae, ultimate leaflets opposite 0.85-1.7 cm long obvate or elliptic, entire, membranous, pale beneath; flowers 2.5 cm diam. strongly honey scented; sepals reflexed, linear lanceolate; petals 1.7-2.5 cm linear spatulate, white with yellow dot near base; filament villous at base; ovary hairy; capsule 23-50.8 x 1.3-1.7 cm trigonous; linear peduncles, longitudinally ribbed with slight constrictions between seeds; seeds three cornered, winged about 2 cm long and corky testa; none endospermic, having straight embryo, convex cotyledons; superior radicle and many leaved plumule.

**Part used :** Root, bark, flower, fruit.

**Root-bark :** Greyish brown reticulated marked with tumid projections of discontinuous transverse rows of transversely extended lenticles 2-8 mm long. Dents may show tears of reddish gum. Slightly succulent. Outer skin is corky and papery. Tissue inside is cream or rose. Portion nearest to wood is whitish. Wood is very soft porous and yellow in colour.

**Distribution :** Indigenous in sub-Himalayan tract. Commonly cultivated throughout the country.

**Action and uses :** Abortifacient, anthelmintic, antihistaminic, antiseptic, aphrodisiac, astringent, cardiogenic, carminative, stomachic and tonic.

Used in general anasarca, cancerous growth, glandular disease, intermittent fevers, obesity, paralysis of different organs, rheumatism, splenic disorders and healing of wounds.

Traditionally used for internal abscesses and wound. Externally used for spasms of legs.

From the root an anti-biotic substance pterygospermin has been isolated exhibiting high activity against gram positive

and gram negative bacteria including *Mycobacterium, tuberculosis* Var. *hominis* pathogenic moulds and fungi.

The studies on the seed oil revealed guanethidine like activity.



<b>Name : Sanskrit</b>	<i>Sirisa</i>
<b>Hindi</b>	<i>Sirish</i>
<b>Botanical</b>	<i>Albizia lebbbeck</i> (L.) Willd. ( <i>Fabaceae</i> )
<b>Habit :</b>	<p>A large deciduous quick growing tree; crown spreading; bark brownish grey, rough, with numerous short irregular cracks; blaze crimson, sapwood yellowish white; heart wood dark brown with lighter or darker streaks, resembling walnut, hard, leaves pubescent; rachis 17.7-23 cm with a large, oblong gland near base, pinnae 2-3 pairs with one or more smaller glands between upper pinnae, 12.7-15.2 cm long; leaflets 6-18 pairs, 2.5-4.5 x 1.3-1.9 cm obliquely-oblong, obtuse, spikes forming short, corymbose racemes of 2-4 slender pedicles; flowers white, mildly scented, stamens greenish, 3.8 cm long; pod glabrous, thin straw coloured 20-30.5x2.5-5 cm; dehiscence is often tardy and partial and as a rule, after reaching ground, seeds 6-12.</p> <p>Flower : April-May.</p>
<b>Part used :</b>	Bark
<b>Distribution :</b>	Common throughout India ascending to 1400 m.a.s.l.
<b>Action and uses :</b>	<p>Abortifacient, astringent, restorative and tonic.</p> <p>Used in consumption, diarrhea, erysipelas, night blindness, piles, respiratory disorders, skin diseases and antidote for snake bite.</p> <p>A powerful abortifacient constituent has been isolated from the drug</p> <p>The studies conducted with this drug revealed protection of prolonged duration against histamine bronchospasm.</p>

<b>Name :</b> Sanskrit	<i>Sunthi</i>
Hindi	<i>Sonth</i>
Botanical	<i>Zingiber officinale</i> Rosc. ( <i>Zingiberaceae</i> )

**Habit :** Glabrous herb root stock biennial bearing many sessile tubers; leafy stem 1-1.3 m; leaves 15 x 35 x 2.5 cm tapering gradually to the point; spike 5.75 x 2.5 cm diam. peduncle 1.25 to 2.50 cm; bracts about 2.25 cm; corolla segments lanceolate, sub-equal, under a 2.5 cm long lip shorter than the corolla segments, stamen dark purple as long as the lip, vary rarely flowers and never seen in seed.

**Part used :** Rhizome.

The outer most layer of the **rhizome** is single celled epidermis. Next is cork with irregularly arranged tangentially elongated cells and an inner zone of rectangular tangentially elongated cells. Cork cambium is not distinct. Below the cork is the cortex, cortical cells thick walled, polygonal parenchyma cells packed with starch grain. Large oil globules in yellowish orange colour oil cells are scattered in the cortex. Vascular bundles are scattered in cortical region. Each vascular bundle is composed of an outer phloem and an inner xylem. Phloem consists of thin walled polygonal cells with sieve tubes. The cortex is singly layered endodermis, with thin walled rectangular cells. Pericycle consists of thin walled tangentially elongated cells. The inner stele consists of parenchyma cells with starch grain and oil globules.

**Distribution :** Widely cultivated throughout India.

**Action and uses :** Anodyne, antirheumatic, carminative, cooling, diuretic and rubifacient.

Used in abdominal distention, cholera, colic, diarrhea, eye diseases, dyspepsia, fever, flatulence, heart diseases, hysteria, nausea, nervous diseases and tympanitis.

Used extensively in traditional medicine for its specific action in rheumatism and inflammation of liver.

<b>Name :</b> Sanskrit	<i>Syonaka</i>
Hindi	<i>Ullu</i>
Botanical	<i>Oroxylum indicum</i> Vent. ( <i>Bignoniaceae</i> )

**Habit :** A small deciduous tree; branches few; crown small; leaves turn coppery brown before falling and the tree is very conspicuous when leafless, from very large leaf scars and gigantic capsule; bark 0.64 cm, light brownish grey, soft; blaze yellowish green; wood yellowish white, open grained very light, soft; leaves large, pinnate, 91-152 cm triangular in outline 3 pinnate near base, 2 pinnate about middle and simply pinnate towards tip; leaflets 3-5 on each pinnule, 7-6-17.8 x 5-6.4 cm ovate entire, acuminate glabrous; flowers large fleshy, in lax terminal racemes; peduncle 61-91 cm; pedicels 2.5-3.8 cm; corolla campanulate; tube green outside; limb 5-76 cm, across; lobes 5 dark-red; stamens 5, nearly equal; capsule flat, septicidal 45-72 x 6.4-8.9 cm, tapering to both ends; seeds imbricate with broad transparent wing on 3 sides about 7.6x3.8 cm including wing.

**Part used :** Root bark.

**Bark** is leathery, tough, fracture short, slightly fibrous inside, surface is longitudinally shrivelled and outer skin adheres closely. Wood is soft porous. In section cork zone is 30-40 rows of thin walled empty rectangular cells. The fissure cuts up to the cork into truncated pyramidal projects. Mid bark has thin walled polyhedral or oblong cells, various sizes and usually without inclusions like starch. The inner bark shows narrow tangential strips or segments of mechanical tissue alternating with broad bands of thin walled phloem. The wood is composed of vessels of various sizes, xylem parenchyma, small quantity of sclerenchyma and several medullary rays. Medullary rays are mostly 2-4 seriate. The central pith is thick walled nearly spherical cells. Absence of storage starch in any of the parenchymatous elements is noteworthy.

**Distribution :** Throughout the country in deciduous forests.

**Action and uses :** Astringent, bitter, carminative, diaphoretic, diuretic, purgative and stomachic.

Used in abdominal pain, general anasarca, anorexia, diarrhea, dysentery, enteric fever, giddiness, piles, respiratory disorders, rheumatism, thirst and urinogenical disorders.

<b>Name :</b> Sanskrit	<i>Svarnapatri</i>
Hindi	<i>Sanai</i>
<b>Botanical</b>	<i>Cassia angustifolia</i> Vahl. ( <i>Fabaceae</i> )
<b>Habit :</b>	A low tree with virgate finely grey downy terrate branchlets; leaves 1.25-2.5 cm; leaflets oblong, glaucous, sub-coriaceous, emarginate, strongly veined, sub-glabrous, distinctly stalked, 5-7.5 cm long; corymbs crowded, both axillary and in a terminal panicle 1.5-2.5 cm long with grey pubescent branches; sepals downy, very obtuse; petals middle sized, bright yellow, not veined; stamens sub-equal, pod nearly straight, flat, distinctly stalked, 15-22.5x1.75 cm firmer in texture and with thicker sutures.
<b>Part used :</b>	Leaf  Leaf : is seldom exceed 50 mm in length, colour yellowish green, base assymetric, hairs are sparse about 6 epidermal cells apart. Stomata have 2-3 subsidiary cells respectively and are in the ratio of 7-3. Vein islet no. 19.5 to 22.5 stomatal index 17.1 to 20 w.
<b>Distribution :</b>	Cultivated in South India.
<b>Action and uses :</b>	Laxative and purgative. Used in constipation.

<b>Name :</b> Sanskrit	<i>Tagar</i>
Hindi	<i>Tagar</i>
Botanical	<i>Valeriana wallichii</i> DC. ( <i>Valerianaceae</i> )

**Habit :** Perennial leafy herb, stem 15-45 cm; root stock horizontal with thick descending nodes; leaves mostly radical, often crowded 2.25-6.75 cm diam. deeply cordate, usually acute or toothed, stipules nil; flowers white or tinged with pink, in terminal corymb 2.25-6.75 cm across, often unisexual. male and female in different plants; calyx tubes, adnate to ovary; limb rarely visible at flowering but afterwards unrolling to 12 lobes; corolla funnel shaped, limb 5 lobed, spreading; stamens 3, inserted on the corolla tube, ovary inferior, cells 3, style slender, stigma terminal; fruit 1 celled.

Flower : April-September.

**Part used :** *Rhizome*

**Rhizome :** unbranched yellow brown upto 10 cm long, 1 cm thick with roots upto 2 mm thick. Upper surface bears leaf scars and lower surface root scars. Fracture short and horny, interior shows a dark band, a well marked cambium 12-15 light coloured xylem bundles and dark pith.

**Distribution :** Himalayas from Kashmir to Bhutan upto 3000 m.a.s.l.

**Action and uses :** Anodyne, antipyretic, diuretic, emmenagogue, hepatic and nerve tonic and stimulant.

Used in colic, epilepsy, fever, hysteria, liver disorders, skin diseases and weak eye sight.

<b>Name :</b> Sanskrit	<i>Talisapatra</i>
Hindi	<i>Talisapatra</i>
Botanical	<i>Abies webbiana</i> Lindly. ( <i>Coniferae</i> )

**Habit :** A large stout tree, attaining height of 50 m and a girth of trunk of 75 cm, crown cylindric branches horizontal, flat; leaves spirally arranged, stiff but more or less bifarious, very variable in length, persisting for 8-10 years, flat about 2 mm broad, channelled down the middle, very dark green shining, appearing black on the tree from a distance; tip very variable; mid rib raised beneath; petiole very short; male cones sessile, solitary or clustered; female cones 10-15 x 3.5-7.5 cm diam. ripening in the same year, top and base rounded, outer margins of scales rounded; seeds oblong or obvoid with the wing 1.25-2.5 cm long.

**Part used :** Leaf

**Distribution :** Temperate and sub alpine, Himalayas between the altitudes of 2300 to 4000 m.a.s.l.

**Action and uses :** Appetizer, aromatic, expectorant and laxative.

Used for its specific action on the lungs in a variety of respiratory disorders including consumption. Especially useful for infants in cough and cold. It checks anorexia, constipation and nausea.

In traditional practise widely used for hemorrhagic conditions.  
(Please refer *Taxus baccata* Linn also).

<b>Name :</b> Sanskrit	<i>Talisapatra</i>
Hindi	<i>Talisapatta</i>
Botanical	<i>Taxus baccata</i> Linn. ( <i>Coniferae</i> )

**Habit :** A tree upto 33 m high, trunk short, branches horizontal, foliage dark green; leaves flattened flexible linear 2.5-3.75 cm spreading in two opposite ranks, acute, narrowed, into a short stalk, upper surface shining, lower pale or rusty red; cones axillary sessile, the male and female usually on separate trees, male cones 0.6 cm bracts empty, the two upper most enclosing a single ovule surrounded at the base by a membranous disc. As the young fruit matures the disc enlarges becomes succulent and finally forms a bright red, fleshy cup about 0.8 cm long in which the olive green seed is partially embedded. The fruit ripens September and November of the year after flowering.

*Flowers : March-May.*

**Part used :** Leaf.

**Leaf:** has a single layered cutinised epidermis, cuticle of the lower epidermis is with globular projection. Dumb bell shaped sunken stomata present on the under surface are arranged in a row and are over arched by subsidiary and other cells which appear as multicellular structures in surface view. Cells contain starch grains, calcium oxalate, crystals etc.

**Distribution :** Alpine Himalayas.

**Action and uses :** Antiseptic, aphrodisiac, emmenagogue and sedative.

Used in asthma, bronchitis, epilepsy and hiccough.

Please see *Abies webbiana* Lindly also

<b>Name : Sanskrit</b>	<i>Tamalpatra</i>
<b>Hindi</b>	<i>Tejpatta</i>
<b>Botanical</b>	<i>Cinnamomum tamala</i> Nees & Eberm. ( <i>Lauraceae</i> )
<b>Habit :</b>	<p>A moderate sized tree, leaves glabrous usually 10-13 cm long, very variable in breadth, opposite, rarely alternate, shining above, lathery, rarely elliptical and obtuse, 3 nerved from the base; flowers unisexual, numerous 0.5-0.6 cm long; fruit 1.25 cm long peduncle and calyx small 1.25 cm and the later usually 0.6 cm diam. with truncate lobes; drupe ovoid.</p> <p>Flower : February-March.</p>
<b>Part used :</b>	Leaf
<b>Distribution :</b>	Himalayas 1000-2200 m.a.s.l. from Kumaon to Bhutan.
<b>Action and uses :</b>	<p>Anthelmintic, aromatic, cardi tonic, carminative and diuretic.</p> <p>Used in anorexia, bladder disorders, dryness of mouth, coryza, diarrhea, haemorrhoids, nausea and spermatorrhea.</p>



<b>Name :</b> Sanskrit	<i>Tila</i>
Hindi	<i>Til</i>
<b>Botanical</b>	<i>Sesamum orientale</i> Linn. ( <i>Pedaliaceae</i> )
<b>Habit :</b>	A 30-60 cm pubescent or puberulous herb; leaves 7.5-12.5 cm, variable on the same plant, upper often narrowly oblong sub entire, middle ovate toothed, lower ribed or pinnatisect; petiole 1.25 to 5 cm; pedicels 0.8 cm solitary, rarely 2-3 nate; sepals 0.6 cm lanceolate; corolla 3 cm pubescent, whitish or with red purplish or yellow marks; capsule 2.5 x 0.6 cm erect, scabrid-pilose, the same width from top to bottom usually shortly acuminate, 2 valved half way down or sometimes to the base or ultimately 4 walled.
<b>Part used :</b>	Seed, seed oil.  Seed oil : A pale yellow oil with slight odour, taste bland.
<b>Distribution :</b>	Cultivated throughout the country.
<b>Action and uses :</b>	Demulcent, emollient, diuretic, emmenagogue, lactagogue and laxative (mild).  Used in burns, constipation, dysentery, piles, scalds and urinary disorders.

<b>Name :</b> Sanskrit	<i>Trivrit</i>
Hindi	<i>Nisoth</i>
Botanical	<i>Operculina turpethum</i> (L.) Silva Manso ( <i>Convolvulaceae</i> )

**Habit :** Stems stout twining, quadrangular, winged, compressed or nearly round, leaves 5-7.5 cm. base cordate or obtuse; petiole 2.5 cm; peduncles 2.5-12 cm; bracts 2.5 cm, oblong caducous often pinkish; pedicles 0.6-2.5 cm; sepals 1-2.5 cm usually softly pubescent, in fruit 2.5 cm orbicular, concave, scarious or sub-succulent; corolla 3.7 cm tubular campanulate; anthers soon twisting; capsule 1.25-1.85 cm diam, globose normally 4 seeded.

**Part used :** Root

**Root :** is whitish yellow with wrinkled cork. Transverse section shows concentric rings of fibrovascular bundles, parenchyma of bark and stele contains stored calcium oxalate, secretion cells and resin.

**Distribution :** Throughout India ascending to 1000 m.a.s.l.

**Action and uses :** Purgative.

Used in general anasarca, consumption, dropsy, eye diseases, erysepalas, fevers, hepatic and haemophilic disorders, jaundice and piles.

Traditionally used extensively in dropsy due to heart, kidney or liver disease.

<b>Name :</b> Sanskrit	<i>Tulasi</i>
Hindi	<i>Tulsi</i>
<b>Botanical</b>	<i>Ocimum sanctum</i> Linn. ( <i>Lamiaceae</i> )
<b>Habit :</b>	An annual aromatic softly patently hairy herb; stem some times purplish, lower parts sometimes woody; leaves 2.5-5 cm, elliptic, oblong, entire or sub-serrate, floral sessile cordate, softly hairy; racemes very slender 15-20.3 cm; pedicels longer than the calyx; corolla purplish, nutlets sub-globose oblong slightly compressed nearly smooth, red brown.
<b>Part used :</b>	Leaf
<b>Distribution :</b>	Throughout India ascending to 1900 m.a.s.l. in wet places. Often planted.
<b>Action and uses :</b>	Antipyretic, aromatic, cardiotonic, carminative, diaphoretic and expectorant.  Used in anorexia, cough, hiccough, pleuresy, respiratory disorders and leprosy.  Traditionally used in catarrh, coryza and fevers specially simulating symptoms of malaria. Seed jelly in water is given in diarrhea and dysentery in children. Ethnologically it holds an important position in household, where it is invariably potted and considered as sacred.

<b>Name :</b> Sanskrit	<i>Tuvarak</i>
Hindi	<i>Chalmogra</i>
Botanical	<i>Hydnocarpus laurifolia</i> (Dennst.) Sleumar ( <i>Flocourtiaceae</i> )
<b>Habit :</b>	A tall tree, twigs usually brown pubescent, (rarely glabrate) as are the racemes; leaves 10-22x3.75-10 cm coriaceous or membranous, sometimes deeply obtusely serrate or toothed, base round, acute or sub-cordate; petiole 0.6-1.25 cm; flowers solitary or racemed, white; sepals green pubescent; stamens villous at the base, equalling the petals; ovary densely pubescent; fruit 5-10 cm diam. tomentose; seed ovugularly ovoid, 1-1.5 cm wide with a smooth brittle testa.
<b>Part used :</b>	Seed (oil)
<b>Distribution :</b>	Endemic in tropical forests, Western peninsula, from the South Konkan along the coastal ranges.
<b>Action and uses :</b>	Anthelmintic, antiseptic, anodyne and cathartic. Used in blood diseases, glandular diseases, leprosy, rheumatism and scrofula.

<b>Name :</b> Sanskrit	<i>Tvak</i>
Hindi	<i>Dalcini</i>
Botanical	<i>Cinnamomum zeylanicum</i> Blume ( <i>Lauraceae</i> )
<b>Habit :</b>	<p>A small aromatic tree; bark reddish brown with watery excrecences, rough 1-9 cm thick, soft, inner blaze brown aromatic; wood light red, moderately hard, somewhat scented, coarse; leaves sub-opposite, variable, large oblong at low levels, small and oval at high levels with intermediate sizes and forms, 7-6-25.4 x 3.8-10 cm ovate or oblong, coriaceous, glabrous above, dull below, prominently 3-5 nerved bright pink when young; petiole 1.3-2.5 cm stout, flattened above; panicles about as long as leaf; flowers grey or pale yellow; fruit dark purple, 1.9 cm long oblong ovoid, supported by ribbed accrescent perianth.</p> <p>Flowers : December-March, Fruits : September-December.</p>
<b>Part used :</b>	<p>Bark</p> <p><b>Bark :</b> Drug consists of single or double compound quills 6 to 10 mm diam. and of varying length. Thickness of good quality bark is restricted to 0.5 mm. The external surface shows yellow brown colour with longitudinal shining, wavy lines and occasional scars and holes. The inner surface is somewhat darker and longitudinally striated. The bark with a splintering fracture. Odour fragrant, taste warm, sweet, aromatic.</p>
<b>Distribution :</b>	Wildly grown, cultivated almost all parts of the country, especially in tropical and sub-tropical region.
<b>Action and uses :</b>	Please refer <i>C. tamala</i> Nees & Eberm.

<b>Name : Sanskrit</b>	<i>Vaca</i>
<b>Hindi</b>	<i>Bac</i>
<b>Botanical</b>	<i>Acorus calamus</i> Linn. ( <i>Araceae</i> )
<b>Habit :</b>	An aromatic erect herb, rootstock thick, creeping; stems 15-30 cm, flat, leaves radical, tufted, 60-90 cm x 1.25 cm broad, margins crimped; spathe leaf like, long, narrow not enclosing the spadix; spadix, 3.75 x 7.5 cm tapering, not prolonged, destitute of neutral organs, covered with small, yellow-green, 2 sexual flowers, perianth, segments 6, free, persistent, stamens 6, at the base of segments; ovary free, oblong, 3 celled, top conical; ovules many; berries yellow green angular from mutual compression, 1-3 seeded.
<b>Part used :</b>	Rhizome
<b>Distribution :</b>	Occurs extensively throughout India in marshes, ascending the Himalaya upto 2000 m.a.s.l.
<b>Action and uses :</b>	<p>Anthelmintic, aphrodisiac, aromatic, astringent, carminative, diuretic, emetic, nervine tonic, purgative, stimulant, stomachic and tranquilliser.</p> <p>Useful in abdominal distension, colic arising in stricture, dysentery, epilepsy, hysteria and insanity.</p> <p>Traditionally used for microbial toxæmia (<i>Bhutabadha</i>)</p> <p>Asarone isolated from the drug has shown tranquillising activity similar to reserpine.</p>

<b>Name :</b> Sanskrit	<i>Vakuchi</i>
Hindi	<i>Babchi</i>
Botanical	<i>Psoralea corylifolia</i> Linn. ( <i>Leguminosae</i> )
<b>Habit :</b>	An erect annual 1 m high; branches firm, conspicuously gland dotted; leaves distinctly petioled, roundish 2.5-7.5 cm long, inciso-repand, firm in texture, both sides, conspicuously dotted with black dots, nearly glabrescent; flowers 25 cm—75 cm dense copious long peduncled heads; calyx nearly sessile 0.3 cm, teeth lanceolate long, the lowest longest; corolla yellow little exserted; pod small, black, sub-globose, glabrous.
<b>Part used :</b>	Seed (oil).  Seed : A small blackish glabrous ovoid oblong, ovoid or oblong or kidney shaped somewhat compressed or flattened closely pitted one seeded endehiscent legume of about the length of the calyx (5 mm) and included in it, densely gland punctate and slightly hairy, sometimes ending in a beak or mucro. Seed slightly adhering to the pericarps somewhat ovate of a dark colour with an aromatic and slightly bitter taste.
<b>Distribution :</b>	Throughout the country in hotter parts, specially South India.
<b>Action and uses :</b>	Anthelmintic, diuretic and stomachic.  Used in anaemia, anasarca, baldness, leucoderma, respiratory disorders, skin diseases and vomiting.  In traditional medicine extensively used in all forms of leucoderma.  A petroleum fraction of the drug has been shown to possess antistaphylococcal action.

<b>Name :</b> Sanskrit	<i>Varuna</i>
Hindi	<i>Baruna</i>
Botanical	<i>Crateva nurvala</i> Ham. ( <i>Capparaceae</i> )
<b>Habit :</b>	A medium sized deciduous tree; bark grey, fairly smooth, with longitudinal wrinkles; wood yellowish white, soft, elastic coarse, even grained; leaves tri-foliate, leaflets 6.4-15x3-6.4 cm middle one largest, ovate lanceolate, acuminate; petiole 10 cm; flowers yellowish white, 5 cm across in many flowered terminal corymbs; peduncle 2.5-25 cm sepals very small; petals 4 clawed; stamens upto 18, very long, purple, at base of long gynophore; ovary stipitate, 1-celled; ovules many; fruit a berry, ovoid, 5 cm long, pale brown or yellow, rough covered with white spikes; seeds embedded in yellow pulp.
<b>Part used :</b>	Bark
<b>Distribution :</b>	Throughout the country ascending to 600 m.a.s.l.
<b>Action and uses :</b>	<p>Alterative, anthelmintic, carminative, demulcent, diuretic, laxative and stomachic.</p> <p>Used in blood diseases, constipation, emaciation, calculi, flatulence, glandular diseases and urinary disorders.</p> <p>In traditional medicine, it is employed extensively in internal abscesses.</p>



**Name : Sanskrit**      *Vasa*

**Hindi**      *Vasa*

**Botanical**      *Adhatoda zeylanica* Medic. (*Acanthaceae*)

**Habit :**      A glabrous dense shrub 10-20 cm sometimes arborescent 6 m; leaves 20 x 3.50 cm, ovate, lanceolate; flowers white and dotted with pink in shortly stalked petiole 2.50 cm; spikes 2.50 x 7.5 cm terminal, often several together; bracts 1.8-0.6 cm elliptic; bracteoles 1.25-0.3 cm falcate, oblong; calyx 0.8-1.25 cm, deeply 5 lobed; lobes equal, lanceolate; corolla tube 0.8-1.25 cm broad; lips white, palate transversely rose barred; stamens glabrous; anther cells acuminate at base sometimes minutely white tailed; ovary and style base minutely hairy, capsule 1.8 cm clavate, pubescent usually 4 seeded; seeds 0.6 cm diam., glabrous, tubercular verrucose.

Flowers: March-December

**Part used :**      Leaf

**Distribution :**      Wild and cultivated throughout India.

**Action and uses :**      Alterative, anthelmintic, antispasmodic, bacterial antiseptic, bitter and expectorant.

Used in consumption, fever, respiratory disorders, skin disorders and vomiting.

In traditional medicine it is especially used in anaemia and haemorrhage. It is a drug of choice in traditional medicine for ensuring quick expectoration.

Vasicinone isolated from the leaves has shown potent bronchodilator action.

<b>Name :</b> Sanskrit	<i>Vata</i>
Hindi	<i>Bat</i>
Botanical	<i>Ficus benghalensis</i> Linn. ( <i>Moraceae</i> )

**Habit :** An evergreen tree with numerous arial roots on branches, young parts softly pubescent, often starts life as epiphyte; bark greyish white, smooth 1.3 cm thick exfoliating in irregular flakes; wood greyish white, moderately hard with alternate rings of light and dark tissue, heart wood absent; leaves alternative 10-2.3 x 5-12.7 cm ovate or elliptic, entire obtuse, sub-cordate or rounded at base thickly coriaceous glabrescent above; nerves basal 3-7, lateral 4-6 pairs; petiole 2.5-5 cm, stout stipule, 1.9-2.5 cm, sheathing, deciduous, protecting leaf bud; male flowers crowded near mouth of receptacle, perianth 4, stamens 1; female flowers perianth shorter; style long, syconium menocious, 1.3 cm. diameter in axillary pairs, sessile, globose, puberulous, red when ripe, supported on 3 broad coriaceous basal bracts.

**Part used :** Bark

**Distribution :** Throughout India ascending to 500 m.a.s.l.

**Actions and uses :** Antiseptic, aphrodisiac, astringent, cooling and haemostatic.

Used in diabetes, diarrhoea, hysteria, leucorrhoea, menorrhagia nervous disorders, sterility, tonic and vaginal disorders.

<b>Name :</b> Sanskrit	<i>Vidanga</i>
Hindi	<i>Vidanga</i>
Botanical	<i>Embelia ribes</i> Burmf. ( <i>Myrsinaceae</i> )
<b>Habit :</b>	A scandant shrub; leaves 7.5-1.75 cm obtusely acuminate, base cuneate or rhomboid, nerves slender; petiole 0.80 cm panicle; branches often 6.5-10 cm; pedicells 0.32 cm; flowers scarcely 0.02 cm long, white, ovary ovoid, not conical upwards; berry succulent, wrinkled when dry, black 0.28 cm diameter.
<b>Part used :</b>	Fruit/berry
<b>Distribution :</b>	Assam upto 1700 m.a.s.l.
<b>Action and uses :</b>	Alterative, anthelmintic, astringent, carminative and tonic. Used in colic, constipation, flatulence and worms. Traditional medicine employs the drug for its anti-fertility activity.

**Name : Sanskrit**      *Vidari*

**Hindi**      *Vidari*

**Botanical**      *Pueraria tuberosa* DC. (*Leguminosae*)

**Habit :**      A shrub; root very large, tuberous; yellowish outside, white inside; stems shrubby; the branches finely grey downy; stipules minute, deciduous, cordate, ovate, leaflets membranous, roundish 1.25-2.5 cm, long, green, glabrescent above, densely clothed with whitish adpressed hairs beneath; flowers in dense virgate leafless often panicled racemes reaching 15-27 cm long pedicels very short, densely fascicled; calyx 0.4-0.6 cm long, densely silky; corolla bluish not quite twice the calyx, limb of standard orbicular, distinctly spurred; pod 5.0 to 7.5 cm long, membranous, flat; 2-3 seeded, clothed with long grey silky bristly hairs.

Flowers : April.

**Part used :**      Tuber

**Distribution :**      Throughout India ascending upto 1300 m.a.s.l. in Kumaon hills.

**Action and uses :**      Aphrodisiac, cardiatonic, demulcent, diuretic, galactagogue, refrigerant and tonic.

Used in consumption, emaciation, enteric fever and spermatorrhea.

In traditional medicine it is considered a restorative of high value. The study indicates 12% proteins and aminoacids in the drug (tuber).

Significant oestrogenic potentiality was observed with petroleum ether extract.

<b>Name :</b> Sanskrit	<i>Vijaya</i>
Hindi	<i>Bhang</i>
Botanical	<i>Cannabis sativa</i> Linn. ( <i>Cannabinaceae</i> )

**Habit :** An erect herb, stems grooved, finely tomentose, 1-4 m high branches, few, slender; leaves stalked palmate, alternate or the lower opposite, lobes 1-5 m in the upper leaves, 5-11 in the lower, linear, lanceolate, 5-20 cm, the middle one largest, sharp toothed, teeth coarse, long pointed, narrowed to the base, upper surface dark green and rough lower pale downy; flowers pale yellow-green unisexual, the male and female in separate and dissimilar plants; male flowers clustered in short axillary drooping panicles, perianth 5, parted segments, boat shaped; stamens 5, filaments long thread like; female flowers axillary, sessile, erect, perianth a single entire leaf enclosing the ovary, style arms 2, threadlike, protruding; fruit achene 1, about 2 mm, enclosed in the persistent perianth.

Flower : July-August.

**Part used :** Leaf

**Distribution :** Throughout India ascending 1600 m.a.s.l. in the Himalayas. Often cultivated.

**Action and uses :** Analgesic, anodyne, antiseptic, aphrodisiac, appetizer, narcotic, sedative, stomachic and tonic.

Used in colic, colitis, cough, impotence, insomnia, lack of appetite, mumps and piles (local application).

<b>Name :</b> Sanskrit	<i>Vridhadaru</i>
Hindi	<i>Vidhara</i>
Botanical	<i>Argyria speciosa</i> Sweet ( <i>Convolvulaceae</i> )
<b>Habit :</b>	Extensively climbing creeper; stems stout white tomentose; leaves 7.5-30 cm diameter glabrous above even before unfolding; petiole long; peduncles usually 7.5-15 cm stout, white tomentose, outer bracts 3.75 cm. corolla 5-7.5 cm tubular-funnel-shaped, rosy; fruit 1.8 cm diameter globose, apiculate; sepals ultimately 1.6 cm diameter ovate, coriaceous, woolly,
<b>Part used :</b>	Root, Seed <p><b>Root :</b> The root system consists of long (upto 1 m) spreading cylindrical roots 1-1.5 cm thick. There are thicker rootlets at the distal end. Roots are brown, smooth round, wood is scant, flexible and smooth. Latex oozes out at cuts. Crossly a cut across shows a zone of narrow outer bark from which latex oozes with 2-3 concentric rings of vascular tissue enclosing the yellow central woody portion.</p> <p><b>Seed</b> is enclosed in a stont, pale yellow brown globose apiculate indehiscent berry 1.2 to 2 cm in diameter containing four erect curved embryo with corrugated cotyledons or two seeds embedded in a mealy pulp.</p>
<b>Distribution :</b>	Throughout India ascending to 1000 m.a.s.l. Frequent in Bengal plain.
<b>Action and uses :</b>	Alterative, aphrodisiac, antiphlogistic, antiseptic, tonic and emollient. <p>Used in impotency, diseases of nervous system piles and rheumatism.</p> <p>In traditional medicine, it is used for sharpening the intellect and memory.</p>

<b>Name :</b> Sanskrit	<i>Yastimadhu</i>
Hindi	<i>Jathimadh, Mulethi</i>
Botanical	<i>Glycyrrhiza glabra</i> Linn. ( <i>Legumionae</i> )
<b>Habit :</b>	A hardy perennial herb or under-shrub, attaining a height upto 100 cm; leaves multifoliate, imparipinnate; flowers in axillary spikes, papilionaceous; colour-lavender to white; pods-compressed, with uniform seeds.
<b>Part used :</b>	Root, stem
	<p><b>Root</b> consists of stolons and pieces of roots. Outer surface is dark reddish brown, longitudinally wrinkled. Stolon bear small buds, scale leaves or scars of slender side roots. Smooth transverse surface of the stolon shows a thin brown cork externally, a well marked cambium line and a central whitish pith. Beneath the cork is a very narrow band of phelloderm. Stele shows a radiate structure with pale medullary rays. In the root the pith is absent and well marked medullary rays are visible.</p>
<b>Distribution :</b>	Cultivated rarely in Sub-Himalayan tracts.
<b>Action and uses :</b>	<p>Aphrodisiac, demulcent, emollient, expectorant, laxative and nervine tonic.</p> <p>Used in anorexia, asthma, emaciation, catarrh, cough, persistent low fever, sore throat, ulcers, urinogenital disorders and vomiting.</p> <p>Traditional medicine recognises this drug for promoting growth of hair and widely prescribed as a lozenge in cough and pharyngitis.</p>

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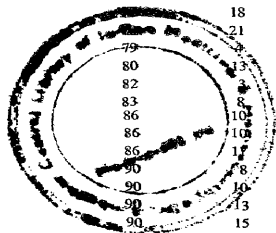
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A. Juss.  
Medicinal flora of certain districts of Uttar Pradesh I, II & III  
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Charucharya  
Provings of *Abroma augusta*  
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Hand book of common remedies in Siddha system of medicine  
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