



A Review on Ten Valuable Roots – DASAMOOOLA

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ABSTRACT: DASMOOLA is a combination of ten medicinal plants of which principally roots are employed in compounding of ayurvedic formulation. The aim of this review is to highlight DASMOOLA plants and their importance in traditional medicine. We studied the ten plants, their morphological characters, their peculiar medicinal properties. Because these plant formulations is being using in different ayurvedic medicine preparation. This review also helps to summarize the recent advances in the studies of DASMOOLA plants and their curing nature.

Index Terms - DASMOOLA, Medicinal Properties, Ayurveda

INTRODUCTION

In India about 7300 plant species are used in traditional health care systems such as Ayurveda, Siddha, Unani and folk healing practices (Pandey *et al*, 2013). The booming of traditional medicine industry results in an increasing demand on medicinal plant products. 90% of the medicinal plants come from natural habitats. The declining availability of such plants and the fading of local traditional knowledge make the sustainable management of natural habitats a crucial environmental issue in South India, concerning biodiversity conservation and welfare of local communities, India, one among 12 bio-diversity countries of the world, is abode of 45000 floral species, out of which 15000 are those of medicinal plants. Approx. 85% to 90% of these come from the wild. Ministry of health and Family Welfare, Govt. of India, has identified 1500 medicinal plants of which 500 are commonly used in the preparation of herbal drugs, 150 species have been categorized as endangered.

The herbal products today symbolize safety in contrast to the synthetics that are regarded as unsafe to human and environment. Although herbs had been priced for their medicinal, flavouring and aromatic qualities for centuries, the synthetic products of the modern age surpassed their importance, for a while. However, the blind dependence on synthetics is over and people are returning to the naturals with hope of safety and security. Over three-quarters of the world population relies mainly on plants and plant extracts for health are. More than 30% of the entire plant species, at one time or other was used for medicinal purposes.

Traditional systems of medicine continue to be widely practiced on many accounts. Population rise, inadequate supply of drugs, prohibitive cost of treatments, side effects of several allopathic drugs and development of resistance to currently used drugs for infectious diseases have led to increased emphasis on the use of plant materials as a source of medicines for a wide variety of human ailments.

Green plants synthesise and preserve a variety of biochemical products, many of which are extractable and used as chemical feed stocks or as raw material for various scientific investigations. Many secondary metabolites of plant are commercially important and find use in a number of pharmaceutical compounds. However, a sustained supply of the source material often becomes difficult due to the factors like environmental changes, cultural practices, diverse geographical distribution, labour cost, selection of the superior plant stock and over exploitation by pharmaceutical industry.

Ayurveda is a holistic system of medicine from India that uses a constitutional model. Its aim is to provide a guidance regarding food and life style so that healthy people can stay healthy and folks with health challenges can improve their health. We can find historical evidence of Ayurveda in the ancient books of wisdom known as the Veda. Ayurveda means the “science of life”. The main tools in Ayurveda utilizes to the achieve health are diet, life style, herbal, body work although it also process a sophisticated branch of surgery. Over the following centuries, ayurvedic practitioners developed a number of medicinal preparations and surgical procedures for the treatment of various ailments. Ayurveda is more than just a medicinal system. It is a science of life. we are all part and parcel of nature. Just as the animals and plant live in harmony with nature and utilize the laws of nature to create to health and balance within their system that helps to maintain health in a person by using the inherent principles of nature to bring the individual back in to equilibrium with their true self. Chief among Ayurvedas outstanding attributes is its reorganization of the uniqueness of each individual, thereby allowing to be tailored to that individuals and their environment.

DASMOOLA is a combination of to medicinal plants of which principally roots are employed in compounding of ayurvedic formulation. Each of the plant is endowed with incredible medicinal properties and they act synergistically in combination. The plants pacify vitiated tridosha, pain, arthritis, fever, cough, bronchitis, genital weakness, and urinary tract diseases and boosts immune power. Dasamoola invariably means ten roots that are categorized as MAHAPANCHAMOOLA (great roots) compressing 5 trees and LAGHUPANCHAMOOLA (small roots) compressing 5 smaller plants. Each of the plant is endowed with incredible medicinal properties and they are synergistically in combination. These medicinal plants are highly demanded for preparation of Ayurvedic medicines due to the marginal medicinal properties and intensively utilized in preparation of various Ayurvedic formulations like Dasamoolarishtam, Chyavanaprasam, Agasthyarasayanam etc. the decoction of leghupanchamoola is being used in the treatment of urinary calculi (stones) and dysuria.

1. *Aegle marmelos* (Rutaceae) is deciduous thorny tree, the dried roots is used in disorders of nervous system, edema, colic, dyspepsia, vomiting, dysuria, rheumatism, seminal weakness, stomach pain, Beneficial in intermittent fever, melancholia and palpitation of heart. 2. *Gmelina arborea* (Verbanaceae) is un armed deciduous tree, the root and bark is astringent, bitter, digestive, cardio tonic, diuretic, laxative and

pulmonary and nervine tonic. It promotes digestive power, improves memory and overcomes giddiness. 3. *Oroxylum indicum* (Bignoniaceae) is deciduous tree. The root is better, hot, astringent, carminative, diuretic, stomachic aphrodisiac and strength giving it stimulates digestion, cures fever, cough and other respiratory disorders. 4. *Premna serratifolia* (Verbanaceae) is deciduous tree. The roots are traditionally valued for its anti inflammatory, carminative, laxative, cardio tonic, astringent, stomachic and improves digestive power. 5. *Stereospermum colais* (Bignoniaceae) is large deciduous tree and root and root bark are used as astringent, cardio tonic, cooling, diuretic and there 5 plants are called mahapanchamoola.

6. *Desmodium gangeticum* (Fabaceae) is sub-shrub, branch lets are siliceous. The root is used to prepare tonic and cures vomiting, fever, asthma and dysentery. 7. *Psuedarthria viscida* (Fabaceae) is a small shrub, the roots are overcomes intermittent fever, urinary disease, edema, tumors and difficult breathing. It is a keen stimulant for digestive system and used in digestive ailments like anorexia, diarrhoea, vomiting and piles. 8. *Solanum xanthocarpum* (Solanaceae) it cures dyspepsia, fever, respiratory and cardiac disorders, skin ailments, vomiting, ulcers, poisonous affections. 9. *Tribulus terrestris* (Zygophillaceae) is a herb, it is the only plant among dasamoola of which the fruits are used. The fruits are cooling, diuretic and are used medicinally in painful menstruation, calculus affections, urinary discharges and carminative. 10. *Solanum anguivi* (solanaceae) is a prickly shrub, plant pacifies vata kapha, skin diseases, urinary retention, fever, cough, asthma, colic and constipation. These five plants are called lagupanchamoola.

Review of Literature

In so many ancient literatures of Ayurveda the ten valuable medicinal plants were mentioned for curing different ailments. In the Ayurvedic literature certain drugs have been clubbed together and given group names. Dasamoola which literally means the ten roots is one such group. Actually only nine of them are roots, the 10th one Gokshura, the anatomical part of which used is the fruit.

Sharma in 1997 mentioned that each of these plants is endowed with incredible medicinal properties and they act synergistically in combination. Many works were conducted on various aspects on these ten plants. Bharathi *et al.*, in 2010, conducted a study on the antioxidant and wound healing studies on different extracts of *Stereospermum colais* leaf. Biodiversity documentation for Kerala-Flowering Plants by Sasidharan narrated all these plants and their properties. Joy *et al* (1998); from Aromatic and Medicinal Plants Research Station, Kerala Agricultural university published several works related to these medicinal plants. Medicinal Plants-An illustrated guide to more than 180 herbal plants by Graves, G.(1996) gives an outline of most of the medicinal plants included in the category of Dasamoola.

According to Kirubha(2011) the ten drugs together are used in the remittent fever and puerperal fever, inflammation of the chest and affections of the brain and in generally other diseases caused by the tridoshas.

Materials and Methods

The plant material for our investigation was collected from the Thrissur District. The plants collected for this work

Aegle marmelos

Desmodium gangeticum

Gmelina arborea

Oroxylum indicum

Psuedarthria viscida

Premna serratifolia

Solanam anguivi

Solanam xanthocarpum

Stereospermum colais

Tribulus terrestris

Dissection microscope, blade, knife, needle, roots, reference books, flora etc. are the materials used for the plant analysis. We had collected the above plants and they were brought to the laboratory, examined keenly under the dissection microscope. A collection of all the roots were made.

1. KANTAKARI

Binomial: *Solanum xanthocarpum*

Family: Solanaceae

Botanical Description

Habit : is a very spiny diffused herb, with a height of up to 1.2 meters. The young branches are densely covered with minute star-shaped hair, while the mature branches are zigzag, covered with yellow, sharp shining prickles and spread close to the ground.

Leaves: Ovate-oblong, acute, pinnetely 7-8 lobed, reticulate venation. The midribs and other nerves of the leaves have sharp yellow prickles and grow up to 10 cm in length.

Inflorescence: Flowers purple in few flowered axillary cymes.

Calyx: 5 lobed, prickly, gamosepalous.

Corolla: Rotate, shallowly 5 lobed, pubescent outside, polypetalous.

Androecium: Stamens 5, filaments very short, anthers yellow, long, opening by apical pores.

Fruit: Kantkari plant bears glabrous, globular drooping berries as fruits, yellow or pale in color, with green veins.

Seed: Smooth, compressed and reniform

Medicinal Properties

Kantkari is useful in treating worms, cold, hoarseness of voice, fever, enlargement of the liver, muscular pain, spleen and stone in the urinary bladder. Nasal administration of kantkari is beneficial in migraine, asthma and headache. Its dried fruit is used in making cigarettes. The smoke from these cigarettes is held in the mouth cavity; to treat dental infections. The juice of the berries is used in curing sore throat. The fumigation of kantkari is helpful in piles. The herb is made to a paste and applied on swollen and

painful joints to reduce the pain and swelling in arthritis. Roots and seeds are used as an expectorant in asthma, cough and pain in chest. The decoction of the root is given with honey, to treat cough. The root is ground to a paste and mixed with lemon to cure snake and scorpion bites. Its stem, flowers and fruits, being bitter and carminative, are used for relieving burning sensation in the feet. Kantakari fruits also facilitates seminal ejaculation, alleviate worms, itching, and fever and reduce fats. The fruit works as an aphrodisiac in males. Its seeds are helpful for treating irregular menstruation in females. The herb is beneficial in the treatment of cardiac diseases associated with edema, since it is a stimulant to the heart and a blood purifier.

2. KUMIL

Binomial: *Gmelina arborea*

Family :Verbanaceae

Botanical Description

Habit :Gmelinaarborea is an unarmed, moderately sized to large deciduous tree with a straight trunk. It is wide spreading with numerous branches forming a large shady crown, attains a height of 30 m or more and a diameter of up to 4.5 m.

Leaves : Leaves opposite-decussate, mostly rather soft and limp; petioles cylindrical, 5-15 cm long, puberulent or glabrous; leaf blades broadly ovate, 10-25 cm*7-20 cm wide, apically long acuminate or caudate, entire on mature plants but strongly toothed or lobed on young plants, usually cordate or truncate basally, with a short cuneate attenuation into the petiole.

Inflorescence: Terminal panicle inflorescence. Flowers abundant, scented, reddish, brown or yellow, in terminal and axillary 1-to-3-flowered cymes on the panicle branches, which are about 8-40 cm long. Flower 2.5-5 cm in diameter; bracts 8mm long.

Calyx: Companulate, pubescent outside.

Corolla: Tubular, short corolla tube.

Androecium: Stamens 4, didynamous.

Gynoecium: Ovary 4 chambered with one ovule in each, style slender, and stigma bifid.

Fruit: Fruit a drupe, 1.8-2.5 cm long, obovoid, seated on the enlarged calyx, glossy and yellow when ripe; exocarp succulent and aromatic; endocarp bony and usually 2-celled.

Seed: Seeds1-3, lenticular, exalbuminous.

Medicinal Properties

It is an ingredient of the group Dasamoola which enters in to the composition of many ayurvedic formulations. It is astringent, bitter, digestive, laxative, cardiotoxic, diuretic, pulmonary and nervine tonic. It promotes digestive power, improves memory, over comes giddiness and useful in burning sensation, fever, thirst, heart diseases, nerves disorders and pills. It is the roots are used for Vata and Kapha. It is used again anthrax, bites, blood disorders, cholera, diarrhoea, epilepsy, gout. The root decoction is used for abdominal tumors. Roots and bark are useful in hallucination, pills, abdominal pains, tridosha and urinary discharge. The root and bark of Gmelinaarborea are claimed to be stomachic, galactagogue laxative and anthelmintic;

improve appetite, useful in hallucination, piles, abdominal pains, burning sensations, fevers, 'tridosha' and urinary discharge. Leaf paste is applied to relieve headache and juice is used as wash for ulcers.

Flowers are sweet, cooling, bitter, acrid and astringent. They are useful in leprosy and blood diseases. In Ayurveda, it has been observed that Gamhar fruit is acrid, sour, bitter, sweet, cooling, diuretic tonic, aphrodisiac, alternative astringent to the bowels, promote growth of hairs, useful in 'vata', thirst, anemia leprosy, ulcers and vaginal discharge. The plant is recommended in combination with other drugs for the treatment of snakebite and scorpion sting. In snakebite a decoction of the root and bark is given internally.

3. MOOVILA

Binomial: *Pseudarthria viscida*

Family: Fabaceae

Botanical Description

Habit: A perennial viscid under shrub attains the height about 60-120 cm. the branches are slender and covered with minute white hair.

Leaves: Trifoliate, alternate, stipulate, leaflets ovate-rhomboid, laterals obliquely Ovate or rhombi form, subcoriaceous.

Inflorescence: Small pinkish white in long terminal racemes.

Calyx: Bi-lipped, companulate, hairy outside, 4 toothed.

Corolla: Excorted, pappilionaceous.

Androecium: diadelphous stamens.

Gynoecium: Ovary sub sessile with many ovules, styles incurved, capitate stigma.

Fruits: densely viscid hairy, flat, linear-oblong, one celled legume.

Seeds: The seeds 4-6, compressed and brownish black in color.

Medicinal Properties

Dasamularishta is one of the widely used preparations of saliparni in vatadisease. The decoction of Dasamula is used in pain, hysteria, rheumatism, asthma, and heart disease. The decoction works well with asafoetida and salt in paralysis. In asthma and cough, the decoction of Dasamula is given along with power of err and roots. The decoction of Dasamula is given along with ghee, with great benefit. Saliparni is a best stimulant for digestive systems and is used in digestive aliments like anorexia, flatulence, and diarrhea. As it effectively arrests the bleeding and alleviates edema. It is a valuable panacea from heart disease and blood disorders. It was rewarding in sexual debility and premature ejaculation. The herb is widely used in vat disorders and is the best nervine in tuberculosis, especially with in tissues works as mucolytic also.

The whole plant of salaparni is used for medicinal purpose. The herb is seldom used externally. Internally it is useful in vast range of diseases Dasamularista is one of the widely used preparation of salaparni in vata diseases. The decoction of dasamula is used in pain, hysteria, rheumatism, asthma and heart diseases. The decoction works well, with asafoetida and salt, in paralysis. In asthma and cough, the decoction of dasamula is given along with the powder of errand roots. The decoction of laghupancamula (five minor roots) ie. Roots of salaparni, prsniparni, kantakari, brhati and goksura, is benevolent in the

treatment of urinary calculi(stones) and dysuria. N hysteria, the decoction of dasamula is given along with ghee, with great benefit. Salaparni is a keen stimulant for digestive system and is used in digestive ailments like anorexia, flatulence, diarrhea, vomiting and piles. As it effectively arrests the bleeding and alleviates edema, it is a valuable panacea from heart diseases and blood disorders. It is rewarding in sexual debility and premature ejaculation. Salaparni is salutary in general debility as a general tonic and in tuberculosis as well. It is salubrious as a pain-killer in general body ache. It also works well as anti-toxin in poisoning. The herb is widely used in vata disorders and is the best nervine. In tuberculosis, especially with tissue and works as mucolytic also. In heart diseases, associated with palpitations, Salaparni sirapaka – medicated milk preparation of the herb, is extremely beneficial. The herb is useful in fever, especially in typhoid.

4. PATHIRI

Binomial: *Stereospermum colais*

Family: Bignoniaceae

Botanical Description

Habit: Large deciduous trees often buttressed up to 25 m tall.

Trunk & Bark: Bark fissured, dark brown, blaze cream. Branchlets tereteglabrous, lenticellate the small ultimate branches; branches of the last order branching.

Leaves : Leaves compound, imparipinnate, opposite, decussate, to 60 cm long; rachis 6-16.5 cm long canaliculated, glabrous; leaflets 3-5 pairs, opposite with odd terminal one; petiolule 0.8-1.5 cm long, canaliculated; lamina 5-15*2.5-7.5 cm, elliptic, apex caudate (acumen 1.5-4 cm long) base cuneate to asymmetric, margin entire, characeous, glabrous; midrib flat above; secondary nerves 8-10 pairs gradually curved; tertiary nerves weakly percurrent.

Inflorescence: Inflorescence are terminal panicle. Flowers are brownish purple, yellow within and petals are wooly.

Fruits & seeds: Fruits are capsule, seeds are long and winged.

Medicinal Properties

This is an ingredient of dasamoola and is used in many important Ayurvedic formulations. Pathiri is reported to relieve the three Doshas, overcomes anorexia, difficult breathing, piles, vomiting, high cough, muscular pains, fever, kidney stones, arthritis, urinary retention and skin disease. The ayurvedic practitioners consider the roots, fruits and flowers have the same function and uses. The decoction of bark is considered to be useful for treating asthma and relieving cough and excessive thirst. The leaves are useful in otalgia, odontalgia, rheumatism, malarial fever and wounds. The juice of the leaves mixed with lime juice is used in maniacal cases. Decoction of the leaves is used for treating chronic dyspepsia and also has antipyretic properties. The root of this plant is used as an ingredient of the reputed Dasamula an Ayurvedic formulation. The roots are bitter, astringent, acrid, ano-dyne, appetiser, constipating, diuretic, Lithotropic, expectorant, cardio tonic, aphrodisiac, anti-inflammatory, anti bacterial, febrifuge and tonic, anti emetic, anti pyretic. The decoction of root is used in asthma and cough.

5. PAYYANI

Binomial: *Oroxylum indicum*

Family: Bignoniaceae

Botanical Description

Habit: It is a tree which can reach a height of 12 m (40 ft).

Leaves: large bipinnate, rachis stout, unequal leaflets, broadly elliptic, acuminate, entire and reticulate venation. The large leaf stalks wither and fall off the tree and collect near the base of the trunk, appearing to look like a pile of broken limb bones.

Inflorescence: Terminal racemose inflorescence, flowers are large pale purple. The tree is a night-bloomer and flowers are adapted to natural pollination by bats.

Fruit: - Large, woody and compressed capsule.

Seed: Thin, flat, hyaline and winged.

Medicinal Properties

The drug is an ingredient of the well known Dasamoola group. It is reported to be bitter, hot, astringent, carminative, diuretic, stomachic and strength giving. It is included in famous tonic formulations, such as Chyawanprash. It stimulates digestion, cures fever, cough and other respiratory disorders called as three Doshas – vata, pita and kapha. And it is also useful in diarrhea, abdominal pain, thirst, vomiting, anorexia, rheumatism, edema, urinary genital disorders, leprosy and other skin diseases. The decoction of bark is taken for curing gastric ulcer and paste made of the bark powder is applied for mouth cancer, scabies and other skin diseases. The seed is ground with fine shoot and the paste applied to the neck for quick relief of tonsil. Also, a paste made of the bark is applied to the wounds of animals to kill maggots. Decoction of the bark is given to animals for de-worming. The sword-like fruit or a branch of the plant is used by the farmers to kill crabs in wet paddy fields. The roots are sweet, astringent, bitter, acrid, refrigerant, expectorant, digestive, carminative, febrifuge, diuretic, antimicrobial, antifungal, anti-inflammatory and tonic. They are useful for vata and kapha, dropsy, flatulence, colic, diarrhea and dysentery. Stem bark paste is applied for the cure of scabies and to treat arthritis. Leaf decoction is given in treating stomach ache, ulcers, rheumatism pain and enlarged spleen. Mature fruits are useful in treating cough, bronchitis, piles, jaundice, dyspepsia, smallpox, colic, leucoderma, pharyngodynia, cardiac disorders, gastropathy, haemorrhoids and cholera. Seeds are used as purgative. Dried seed powder used by women to induce conception. Seeds yield non-drying oil used in perfume industry. Stem bark and fruits are employed as mordant, the stem bark yield a khaki color dye. The decoction of the roots is commonly used for arthritis. Used externally as a paste of its skin of roots, it dries up the discharges and promotes the wound healing.

6. CHERUVAZHUTHINA

Binomial: *Solanum anguivi*

Family: Solanaceae

Botanical Description

Habit: shrub with spreading branches, stem often prickly, bearing small stellate hairs.

Leaves: Alternate simple, stipules absent, petiolate, densely stellate-hairy, blade ovate, sinuate to distinctly lobed, with 2-4 pairs of lobes 2-3 cm long, base oblique, apex acute to obtuse, on both surfaces with more or less sessile stellate.

Inflorescence: Raceme-like cyme, extra-axillary, 5-15-flowered, solitary, bisexual Flowers.

Calyx: Densely hairy, 5 sepals.

Corolla: Stellate, white, occasionally with pale purple veins on the outer surface, stellate hairy outside, more or less glabrous inside.

Androecium: 5 stamens, free, alternate with corolla, filaments very short, anthers are oblong and lanceolate.

Gynoecium: Ovary superior, style about as long as stamens, stigma small.

Fruit: subglobose berry, smooth, green or white when young, red when ripe.

Seeds: sub reniform.

Medicinal Properties

It is an important ingredient in traditional Indian medicines. Infusions are used in dysentery, stomach complaints and fever. The juice of the plant is used on ulcers and other skin diseases. The fruits are used as a tonic, laxative, appetite stimulant; and also for treating asthma and "excessive thirst". Traditionally the plant was used to cure tuberculosis.

Plant pacifies vitiated Vata, Kapha, skin diseases, urinary retention, fever, cough, asthma, dysmenorrhea, colic, flatulence and constipation. Various plant parts are used in decoction, as powder or ash for curing ailments such as diabetes, cholera, bronchitis, dysentery, toothache, skin infections, asthenia and haemorrhoids. Cheruvazhuthina is also ascribed narcotic, anti-asthmatic and anti-rheumatic properties.

7. ORILA

Binomial: *Desmodium gangeticum*

Family: Papilionaceae

Botanical Description

Habit: It is slender, suberect, diffusely branched under shrub, 2-3 ft high; stem woody, branches slender, irregularly angled and clothed with upwardly directed short soft grey hairs.

Leaves : Leaves unifoliate, alternate, stipules, stipulate; petioles 1-2 cm long; stipules 6-8 mm long, linear subulate, striate at the base; blade ovate or ovate lanceolate, acute the margins somewhat wavy, glabrous and green above, paler and clothed with dense, soft, whitish appressed hairs beneath, reticulately veined, base rounded, truncate or subcordate; main nerves 8-12 pairs. The inflorescence is a terminal or axillary, many flowered, slender, elongate raceme, 15-30cm long with a few ascending branches in the lower part. Rachis slender, pubescent and somewhat angular.

Inflorescence: Flowers small with minute setaceous bracts on short upwardly directed pedicels. Calx tube short, campanulate, finely downy, and cleft to the middle into two lips; upper lip two cleft, the lower three partite; teeth short and triangular, corolla exerted 4mm long, violet or white; standard 3mm broad, orbicular, cuneate at base; wings obliquely oblong, more or less adhering to the keel; keel petals obtuse, incurved.

Androecium: Stamens diadelphous-one and nine – anthers uniform.

Gynoecium: Ovary sessile or stipitate, many ovuled; style filiform, incurved, with minute capitate stigma.

Fruit: Fruits compressed, slightly falcate, moniliform, six to eight jointed glabrescent lomentum, slightly indented above, joints separating when ripe, indehiscent, one seeded, more or less straight or lightly curved above and rounded on the lower side.

Seeds : Seeds compressed reniform without a strophiole.

Medicinal Properties

Orila is one of ten drugs that constitute the dasamula (ten roots) groups. The drug is reported to be a good cardiogenic, useful in the treatment cardiac disorders. It is a hot, sweet, diacritic, laxative and nervine tonic. It overcomes corruption of three doshas, burning sensation, fever, cough, difficult breathing, dysentery thirst and vomiting. It is also useful in vatakrta, insanity and ulcers (kolamml). Root is officinal part and it forms an ingredient of formulations like dasamularistam, chyavanaprasmdhanvantarmkulambu etc.

This plant is used to regulate the function of the nervous system (vata), venous system (pitta) and arterial system (kapha). These three regulatory systems balance each other to restore health. However there are several very serious diseases where herbal medicines fail to work, such as typhoid fever and tuberculosis. It is often effective in restoring balance to the system when the other herbs fail.

8. NJERINJIL

Binomial: *Tribulus terrestris*

Family: Zygophyllaceae

Botanical Description

Habit: it is a tap rooted herbaceous perennial plant.

Leaves: Leaves opposite, pinnate, stipulate, leaflets 4-7 pairs, almost sessile or with very short petioles, oblong entire.

Inflorescence: Flowers, yellow, solitary, extra axillary.

Calyx: Sepal 5, free, linear- acute;

Corolla: petals 4, free, golden yellow obovate, rounded at apex

Androecium: stamens 10, inserted at the base of an annular lobed disc, filaments free.

Gynoecium: Ovary sessile, hairy 5-celled style short, stigma 5- lobed.

Fruit: Fruit a 5 angled spinous, tuberculate, schizocarp, separating in to 5-10 cocci, each with a pair of spines on them.

The plant is distributed throughout India and also in the tropical and warm temperate regions of the world. It is a common weed of waste places and road sides chiefly in hot dry or sunny day locality.

Medicinal Properties

Tribulus terrestris is a herb which is used as medicine around the world. It is used as a nutritional supplement and extracted from the plant. Chinese use this herb for centuries in the treatment of dizziness, liver, premature ejaculation and headaches. It is also promoting overall health, increasing muscle tone and boosting moods. It contains alkaloids, steroidal saponins and flavanoids.

The supplement is used by the body builders and is used to boost the testosterone properties. With the use of this supplement, there is an increase of 50% in the testosterone levels. Some prohormones and steroids are used by the athletes to enhance performance and helpful in building strength and muscle. Tribulus terrestris increase luteinizing hormone in the body by increasing testosterone. The roots and fruits are useful in treating cough, Asthma, inflammations and general weakness. The leaves are useful in treating gonorrhea, inflammations, and skin diseases and verminosis. Seeds are strengthening and useful in epistaxis. The fruits are useful in urinary complaints and sexual weakness. It is cooling. An infusion of the fruits is useful in diseases of kidney; It promotes urination. Clinical tests have confirmed efficacy of the drug in promoting urination.

9. KOOVALAM

Botanical name: *Aegle marmelos*

Family: Rutaceae

Botanical Description

Habit: Large tree, 8 to 10 meters in height. It has a big stout trunk, unusual branches with long, straight outgrowth.

Leaves: Aromatic leaves sweet scented.

Inflorescence: Greenish white flowers. The flower has copular calyx tube, lobes 4 or 5, petals 5, white, oblong thick, gland dotted, spreading, stamens many, inserted around the disc, ovary ovoid, 10 celled with many ovules, Berry ovoid.

Fruit and Seeds: The fruit is woody and smooth, 5 to 15 cm in diameter. It has numerous seeds which are densely covered with fibrous hair and are embedded in a thick aromatic pulp. The flesh is eaten fresh or dried.

The tree is held sacred by the Hindus. The history of this tree has been traced to Vedic period (200.C, 800 B.C).

Medicinal Properties

All parts of the plant like root, bark, leaves and fruits are highly medicinal. Root is used in the preparation of Dasamoola. Koovalam is an astringent cooling carminative, laxative, restorative, stomachic and is used in colitis, dysentery, diarrhea, fever and vomiting etc. it overcomes Vata, colic's, and febrifuge etc. Ripe bale fruit is regarded as best of all laxatives. It cleans and tones up the intestines. Its regular use for 2 or 3 months throws out even the old accumulated faecal matter. For best results, it should be taken in the form of sherbet, which is prepared from the pulp of the fruit. The unripe or half ripe fruit is perhaps the most effective remedy for chronic diarrhea and dysentery where there is no fever. Best results are obtained by the use of dried bale or its powder. The bale fruit, which is still green, is sliced and dried in the sun. the dried

bale and lice's are powdered and preserved in airtight bottles. The unripe bale can also be backed and used with jaggery or brown sugar. An infusion of bale leaves is regarded as an effective remedy for peptic ulcer. The leaves are soaked overnight in water. This water is strained and taken in the morning. The pain discomforts are relieved when this treatment is continued for a few hours. Bale leaves are rich in tannin which reduces inflammation and help in the healing of ulcers. Bale fruit taken in the form of a beverage also has great healing property on account of its mucilage content. The root of this tree is used as a home remedy for curing ear problems. A stiff piece of the root is dipped in neem oil and lighted. The oil that drips from the burning end is highly effective medicine for ear problems. Mediated oil prepared from bale leaves gives relief from recurrent colds and respiratory affections. The juice extracted from bale leaves is mixed with equal quantity of gingerly or sesame oil and heated thoroughly. A few seeds of black cumin are added to the heated oil. It is then removed from the fire and stored for use when necessary.

10. MARAMUNJA

Botanical name: *Premna serratifolia*

Family: Lamiaceae

Botanical Description

Habit: It is a small sized tree.

Leaves: Leaves highly aromatic, simple, opposite, elliptic-ovate, acute, 5-9*3-6 cm, irregularly toothed, thin, coriaceous, dark green and shining above, dull below.

Inflorescence: Flowers small, greenish white in many flowered, terminal, short peduncle, corymbiform, cymose panicles.

Calyx: Copular, persistent, becoming slightly larger.

Corolla: Obliquely funnel shaped, 4 or 5 lobed.

Androecium: stamens 4, filaments hairy at the base.

Gynoecium: Ovary 2 or 4 celled, 4 ovule, 3 style linear, ending in a shortly bifid stigma.

Fruit: A globosely drupe, 4mm across, black when ripe.

Medicinal Properties

In peninsular Malaysia and Indonesia, the young leaves are boiled and eaten as a vegetable. In various parts of Indonesia, an infusion of the leaves and roots is used against fevers and shortness of breath; women also eat the leaves in order to promote breast-milk production. In Indo-China, the leaves and roots are used in traditional medicine as a diuretic, stomachic and febrifuge. On Guam, in the Pacific Ocean, a tea made from the boiled bark is used to treat neuralgia. *Premna serratifolia* is one of several herbal ingredients of "Dasamula" ("Dashamula") used in the Indian Ayurvedic system of medicine. *Premna serratifolia* contains alkaloids, iridoid glycosides and several diterpenoids. Recent laboratory research has been undertaken into the possible cardiac stimulant activity of bark and wood extracts.

Maramunja is reported to be acrid, better astringent, cadiotonic, carminative, laxative, stomachic and tonic. It improves digestive power and is useful in constipation, fever, heat disease, neurological disease and rheumatism. It overcomes Kapha and Vata disorders, anemia, piles, edema, poison, anasarca and abdominal diseases. Traditionally this drug is highly values for its anti- inflammatory property. Infusion of the leaves is

used in eruptive fevers, colic and flatulence. Root, root bark and leaves are used in medicine. Leaves commonly used for steam bath/heat bath (Pohnpei: umwulap, Kosrae: srawuck). It can be consumed as a tea and to treat coughs. Juice of the berries can be squeezed into the nose to treat sinus headaches.

CONCLUSION

Chinese, Indian, Arabian and other traditional systems of medicines make extensive use of about 5000 plants. India is proud to be rich in biological diversity and tenth among the plant rich countries of Asia, sixth as far as centers of diversity especially agro diversity are concerned.

A major lacuna in Ayurveda is the lack of drug standardization, information and quality control. Most of the Ayurvedic medicines are in the form of crude extracts which are a mixture of several ingredients and the active principles when isolated individually fail to give desired activity.

A look at the disadvantages would show that the popularity of the system of medicine declined because of the fear of adulteration and toxic substances mixed with the Ayurvedic formulae available in the market today. Also, reliability of the medicines and the physicians practising it has been questioned. One must not forget that Ayurveda was used ages ago, and today the numbers and kinds of diseases and illnesses have increased multifold, and newer methods of medicine are being relied on for treatment and therapy.

So in this project we are conducting an attempt to popularize the ten plants named together as 'DASAMOOLA'. We studied the ten plants, their morphological characters, their peculiar medicinal properties. Because these plant formulations is being using in different ayurvedic medicine preparation.

Scientific Name	Vernacular Name	Family	Medicinal Importance
<i>Aegle marmelos</i>	Koovalam	Ruttaceae	It cures: diarrhoea, dysentery, asthma, anemia, etc.
<i>Desmodium gangeticum</i>	Orila	Fabaceae	It cures: asthma, fever, piles, diarrhea, kidney stone, etc.
<i>Gmelina arborea</i>	Kumil	Verbanaceae	It cures; diarrhea, fever, gout, headache, rheumatism, etc.
<i>Oroxylum indicum</i>	Payyani	Bignoniaceae	It cures: skin disease tridosha, fever, rheumatism, vomiting, etc.
<i>Psuedarthria viscida</i>	Moovila	Fabaceae	It cures: rheumatism, diarrhea, asthma, cardiac troubles, etc.
<i>Premna serratifolia</i>	Maramunja	Verbanaceae	It cure: nervine pain, arthritis, constipation, fever, tumors, etc.
<i>Solanam anguivi</i>	Cheruvazhuthana	Solanaceae	It cures: skin disease, urinary retention, fever, cough, etc.
<i>Solanam xanthocarpum</i>	Kantakari	Solanaceae	It cure: fever, cold, muscular pain, asthma, etc.
<i>Stereospermum colais</i>	Pathiri	Bignoniaceae	It cures: tridosha, arthritis, skin diseases, fever, etc.

<i>Tribulus terrestris</i>	Nerinjil	Zygophillaceae	It cures: tridosha, urinary discharge, diabetics, etc.
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BIBLIOGRAPHY

- Aiyer, K. N. (1951). *Pharmacognosy of Ayurvedic Drugs of Travancore-Cochin*. University of Travancore, Central Research Institute.
- Aiyer, K. N., & Kolammal, M. M. S. C. (1963). Pharmacognosy of Ayurvedic drugs. *Dept. of Pharmacognosy, University of Kerala, Trivandrum, 1(7)*, 102-105.
- Aiyer, M.N., Namboodiri, A.N & Kolammal, M. (1957). Pharmacognosy of Aturvedic drugs, Trivandrum.
- Ansari, A.A. (1993). Threatened medicinal plants from Madhauri forest of Garakhpur. *Journal of Economic and Taxonomic Botany, 17(10)*, 241.
- Asolkar, L. V., Kakkar, K. K., & Chakre, O. J. (1992). Second supplement to glossary of Indian medicinal plants with active principles part-I (AK). *Council of scientific and industrial research (PID)(part-I), New Delhi*, 217-218.
- Atal, C. K., & Kapur, B. M. (1982). Cultivation and utilization of medicinal plants. CSIR. RRI, Jammu-Tawi, India. 727p.
- Banerjee, D. K., & Pal, D. C. (1994). Plants used by the tribal of plain land in India for hair and scalp preparation. *Fourth Int. Congr. Ethnobiol., NBRI, Lucknow, 17(21)*, 340.
- Basu, N. K., & Lamsal, P. (1947). Investigation on Indian medicinal Plants. II. Hydrocotyle asiatica. *Quart. J. Pharm, 20*, 137.
- Bell, C. R. (1965). Bibliography: Plant Taxonomy. *BioScience, 15(5)*, 383-385.
- Bhakuni, D. S., Dhar, M. L., Dhar, M. M., Dhawan, B. N., Gupta, B., & Srimal, R. C. (1971). Screening of Indian plants for biological activity: Part III. *Indian J. exp. Biol., 2:91*.
- Bharathi, R. V., Veni, B. K., Jayashree Suseela, L., & Thirumal, M. (2010). Antioxidant and wound healing studies on different extracts of *Stereospermum colais* leaf. *Int J Res Pharm Sci, 1(4)*, 435-439.
- Doddamani, S. H., Maheswar, T., Sharma, B. K., Venkateshwarlu, G., Sharma, B. S., Khanduri, S., & Srikanth, N. (2020). Clinical Efficacy of Ayurvedic formulations, Kanakasava and Trivrit Churna, in the Management of Bronchial Asthma: A Prospective Open-Label Multicenter Study.
- Earl, L. (1995). *Plant Taxonomy*. Englewood cliff, N.J. Prentice hall, Inc.
- Graves, G. (1996). *Medicinal plants: an illustrated guide to more than 180 herbal plants*. Bracken Books.
- Joy, P. P., Thomas, J., Mathew, S. & Skaria, B. P. (1998). *Medicinal Plants*. Kerala Agricultural University, Kerala.
- Kirubha, T. S. V., Jegadeesan, M., & Kavimani, S. (2011). Studies on *Desmodium gangeticum*: A review. *J. Chem. Pharm. Res, 3(6)*, 850-855.

- Kumar, S., Prasad, A. K., Iyer, S. V., & Vaidya, S. K. (2013). Systematic pharmacognostical, phytochemical and pharmacological review on an ethno medicinal plant, *Basella alba* L. *Journal of Pharmacognosy and Phytotherapy*, 5(4), 53-58.
- Kuppurajan, K., Seshadri, C., Rajagopalan, V., Srinivasan, K., Sitaraman, R., Indurthi, J., & Venkataraghavan, S. (1992). Anti-anxiety Effect of an Ayurvedic Compound Drug-A Crossover Trial. *Jour. Res. Ay. & Siddha*, 13.
- Nesamony, S. (1985). *Oushadha Sasyangal*. State Institute of Languages, Thiruvananthapuram.
- Panda, H. (2002). *Medicinal plants cultivation & their uses*. Asia Pacific Business Press Inc..
- Pandey, B. P. (2001). *Taxonomy of angiosperms*. S. Chand Publishing.
- Pandey, M. M., Rastogi, S., & Rawat, A. K. S. (2013). Indian traditional ayurvedic system of medicine and nutritional supplementation. *Evidence-Based Complementary and Alternative Medicine*, 2013.
- Sambamurthy, A. V. S. S. (2013). *Taxonomy of angiosperms*. IK International Pvt Ltd.
- Seth, K., & Anand, N. (2016). An Ayurvedic Review on management of Tamakshwasa. *International Journal of Pharma Sciences and Research (IJPSR)*, 7(6), 274-277.
- Silori, C. S., & Badola, R. (2000). Medicinal plant cultivation and sustainable development. *Mountain Research and Development*, 20(3), 272-279.
- Singh, V. (1981). *Taxonomy of angiosperms*. Rastogi publications.
- Verma, B. K. (2011). *Introduction to taxonomy of angiosperms*. Phi Learning Pvt.Ltd..
- Walters, S. M. (1961). The shaping of angiosperm taxonomy. *New Phytologist*, 60(1), 74-84.

