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A comprehensive review on Sebastianiachamaelea (L). Muell.arg

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ABSTRACT: Medicinal plants have played a vital role in healthcare across cultures for centuries, providing a rich source of remedies for various ailments. Traditional medicine heavily relies on medicinal plants, and many communities worldwide have cultivated a deep understanding of their uses. Ayurveda the ancient system of medicine from India also uses natural remedies including herbs, diet and lifestyle changes, to prevent and treat illness. Plants are fundamental in Ayurveda, providing the basis of its treatments and remedies. Thousands of plants are mentioned in Ayurvedic classics. Among them, many are not available now or have not been properly identified for their botanical sources. At the same time, many plants regionally available are effectively used by traditional vaidyasfor treating various conditions. Such plants have to be analyzed for their introduction into mainstream clinical usage. The foundation for developing new drugs from plants lies in selecting, organizing and systematically evaluating plant products based on their various therapeutic uses in traditional medical systems. One such plant is Sebastianiachamaelea (L). Muell.arg belongs to Euphorbiaceae family which is called as Kodiyavanakku in Malayalam. This study was conducted to provide a comprehensive review of the drug using classical and contemporary literature.

KEY WORDS: Sebastianiachamaelea, Kodiyavanakku, Ethnomedicinal plants, Traditional herb

I. INTRODUCTION:

The plant Sebastianiachamaelea (L).Muell.arg belongs to Euphorbiaceae family commonly known as rusty spurge or ground spurge which is traditionally used in various folk medicines. It is found in tropical and subtropical regions and is known for its medicinal properties. The plant has been utilized for its anti-inflammatory, analgesic and antimicrobial effects. In traditional medicine, extracts from Sebastianiachamaelea are used to treat skin conditions, digestive disorders and respiratory ailments. Sebastianiachamaelea is utilized in traditional medicine across several tropical and subtropical countries. It is commonly found and used in parts of India, the Philippines, Indonesia, Malaysia, and other southeast Asian nations. Additionally, it is used in some African countries as well as in regions of central and south America where the plant grows naturally. These countries leverage the plant's medicinal properties to address various health conditions in their traditional healthcare practices.

The plant is not mentioned in Ayurvedic classics. But it is mentioned in the historical text, the HortusMalabaricus in the name of 'Kodiyavanakku' and it is utilized by traditional Kerala practitioners since long back.[1] It is mentioned by the Malayalam author D Sriman Namboothiri in his renowned books Yogamrutham[2] and Chikitsamanjari[3] and also, the plant is quoted in various textbooks of Indian floras.

Recent studies have begun to explore its potential pharmacological benefits, validating its traditional uses and suggesting new therapeutic applications. As research continues, Sebastianiachamaelea may offer valuable insights into developing new treatments based on natural compounds.

II. MATERIALS AND METHODS:

Collected data from all available sources including different floras, treatises, articles and internet.

III. RESULTS AND DISCUSSIONS:

BOTANICAL DESCRIPTION

Botanical name: Sebastianiachamaelea (L). Muell.argSynonyms: Microstachyschamaelea, Tragiachamaelea.L

Family: Euphorbiaceae

Morphological features of Sebastianiachamaelea (L.Muell.arg[4]

Habit: Sebastianiachamaelea (L). Muell.arg is an erect to sprawling annual to perennial glabrous herb or many stemmed shrub with slender stem,

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growing from a yellowish-brown taproot around 15cm long. It usually grows up to 50cm tall, occasionally to 100cm.

Roots: Strong, long thin tap root, yellowish brown, with a smooth surface, about 15cm in length without odour and taste.

Stem: Stem green to brown, at maturity it appears brown, smooth surface with longitudinal rims and no odour and bitter taste. Usually many from the root, ascending 1-2ft, slender, grooved, ribbed, or terete, dichotomously branched.

Leaves: Small, regularly alternate, symmetric. The ventral side is dark green and dorsal light green. The margin of leaves is very dense with glandular brown coloured teeth, almost touching apex. Distant ½-3inches, by ¼-½inch, sessile, petiole short (less than 1 cm long; absent to long in some Neotropical species), glandless, blade elliptic, ovate or linear, finely serrulate, base tapering, mid-nerve strong, 0.3–2 cm wide, base acute to sub-cordate, margin with very dense, minute and persistent glandular teeth, 0.3–0.6mm apart and often nearly touching each other (rarely fused into an entire, glandulous margin), apex rounded, acute or mucronate, above glandless and glabrous, lower surface paler and smooth to papillate but never white, glabrous to pilose, at base often with few marginal to sub-marginal glands, basal ones slightly larger, secondary veins arching and usually looped but often hardly visible, tertiary veins not visible but presumably reticulate.

Inflorescence: Flowers are yellowish, simple, without sterile basal region, monoecious terminal and axillary, often opposite to leaves. Flowers are 5- 12mm long spikes, lateral at the end of branches. Male flowers are numerous, spirally arranged at upper part of inflorescence axis, female flowers have one or many inserted at lower part of inflorescence axis. Male flowers calyx is minute, membranous, unequally 5-lobed or partite. Stamens have two to four filaments short free or nearly so; anther cell distinct, contiguous, distinct, parallel. Pistilloid 0. Female flower calyx is 3 lobed or partite, longer than male, obovate, acute, lacerate and ciliate. Ovary exerted 3-celled, styles free or connate at the base, entire revolute or spreading; cells 1-ovuled, capsule 6-8 mm, long, globose of 3 cocci separating from a columella, endocarp crustaceous.

Fruits: Fruits are glabrous, smooth except for the two dorsal rows of spinules, thinly crustaceous, with short (0–2 mm long) pedicel; 3-seeded, sub-globosely oblong with very regular shape, usually with 6 rows of spine-like excrescences, dry, dehiscing regularly along the septa, glabrous to hirsute; mericarps with a thin exocarp (fruit length/ pericarp thickness > 10/1), septa very regular, witha small separate basal triangle and 1 furcate vascular strand; remaining central columella very regular, slightly alate with parallel margins over its whole length.

Seeds: Carunculate, oblong or sub-globose, rounded at both ends, strophiolate,mottled. Endosperm fleshy;testa smooth, cotyledons broad, flat.

DISTRIBUTION:[4]

Sebastianiachamaelea (L). Muell.argoccurs from Ghana east to the Central African Republic. Widely distributed throughout the old-world tropics and subtropics from West Africato New Guinea and Australia.

Distribution in India: A weed in cultivated land, fallow fields, on thin layers of soil on rocky places and often as forest undergrowth, roadsides, grasslands, from sandy beaches to hills, up to 1200m altitude. Kerala, Tamil Nadu, Karnataka, Goa, Andra Pradesh, Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh, Orissa, Uttar Pradesh, Jharkhand, West Bengal and Andaman Islands.

CHEMICAL CONSTITUENTS:

Alkaloids, Lavonoids, Phenols, Steroids, Tannins, Glycosides, Terpenoids, Saponins, lignins. Qualitative analysis of leaf reported few phenolic acids such as caffeic acid, melilotic acid, aesculetin, p-hydroxybenzoic acid, coumarin, cinnamic acid, salicyclic acid and scopoletin along with iveLavonoids like myrecetin, quercetin, kaempfrol, luteolin and apigenin.

MEDICINAL PROPERTIES AND USES:

- Kodiyavanakkuswarasa added with coconut milk, guda and jeerakachurna is given Vayukshobachikitsa.[2]
- Palandu, hingu, latakaranjabeeja, punarnavamoola, haritaki, erandamoola, amrapallava, kodiavanakku, karnasphotaand krishnajeeraka is made Kashaya and given in Antrashoola.[2]
- Ghritamade with Kashaya of jeeraka, coconut milkandswarasaofkodiyavanakkuandkalkaof root ofkodiyavanakkuandjeerakais useful inAnthravriddhi.[2]
- Mukkudi(Mukkudiis a traditional Ayurvedic drink made from buttermilk and herbs andmedicinalpowders)

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madewithkodiyavanakkuandjeerakais useful inAnthrashoola.[3]

- Mukkudimade withKhadirasara, kodiyavanakku, Punarnavamoolais useful inAnthrashoola.[3]
- The juice of the plant is used in wine as an astringent.[5]
- Ghritamade out of the plant is considered to be tonic, and is applied to the head in vertigo.[5]
- The whole plant of creeping sebastiania is used for vata, pitta, diarrhoea, dysentery, haemorrhage, haemorrhoids, menorrhagia, leukorrhea and skin diseases.[6]
- Juice of the plant is reportedly used as a remedy for syphilis and diarrhoea and mixed with wine as an astringent.[7]
- Juice of the whole plant taken along with wine will prevent diarrhoea.[1]
- Boiling the plant in oil and taking it will help restore strength.[1]
- Using the oil made from the whole plant is good for removing dullness and improve memory.[1]

FOLKLORE PRACTICE OF SEBASTIANIA:[8]

- Ethno-medicinal practices by the tribal groups uses the drug to heal headache.
- A decoction of the leafy stems is used for bath to relieve teething pain in babies.
- When cooked together with meat and vegetables, whole young plants are used for giving a speedy recovery to women after giving birth
- Ethno-botanical data obtained from Nigerien and Senegalese traditional healers, states Sebastiania is traditionally used to treat malaria.
- Traditional healers from Kerala, uses the drug in combination with Vataharadravyas in treatment of pain management.

INDICATION: Vayukshoba, Antrashoola, Diarrhoea, Syphilis.

PARTS USED: Whole plant, Leaves, Root.

IV. CONCLUSION:

Sebastiniachamaelea is a plant known for its medicinal properties in traditional systems like Ayurveda and folklore medicine. It has been used for its anti-inflammatory, antimicrobial, and purgative effects, addressing conditions like skin diseases, respiratory issues, and digestive disorders. While it was once widely used, some sources remain unidentified, and its availability has declined in certain areas. However modern research is reviving interest in the plant by validating its therapeutical potential,making it a candidate for developing natural remedies in contemporary medicine. Incorporating medicinal plants like Sebastiniachamaelia into modern healthcare is crucial for expanding natural treatment options and addressing gaps in conventional medicine. These plants offer sustainable, eco-friendly alternatives for managing diseases, particularly in an era where there is a growing demand for herbal remedies and personalized care. By tapping into their therapeutic potential, we can develop new treatments and preserve valuable traditional knowledge for future generations.

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PICTURES

Sebastianiachamaelea in its natural habitat

Root of Sebastianiachamaelea

Stem and leaves of Sebastianiachamaelea

Inflorescence of Sebastianiachamaelea

Fruits of Sebastianiachamaelea