Review Article

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A REVIEW ON FOLKLORE PLANT *LEEA INDICA* (BURM.F.) MERR

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ABSTRACT

Every country in the world has its traditional medicine practice, which includes herbal, mineral, herbo-mineral, and animal products. Most traditional practitioners use herbal products because of their abundance and easy availability. One such plant is *Leea indica* belongs to the family Vitaceae and is used in treating skin diseases, fever, bone fracture, etc., all over southern Asia and in Dakshina Kannada district of Karnataka, folklore practitioners use this plant for various diseases. *Leea indica* is a shrub or small tree, stem several to single, often with stilt roots, leaves compound, bipinnate to tripinnate, alternate, spiral rachis 10-20 cm long; petioles 0.5-2.5 cm; stipules purple, sheathing, obovate-oblong, glabrous, the inflorescence is corymbose cyme, petals having cream colour, fruit is berry globose purple-black when ripe, seeds are 4-6 and the drug have biological activities like antibacterial activity, antifungal activity, antiviral activity, anthelmintic activity, antimalarial activity, antioxidant activity, cytotoxic activity, anticancer activity, antidiabetic activity, wound healing activity, anti-inflammatory activity, CNS activity, hepatoprotective activity, antipyretic activity, anticonvulsant activity, thrombolytic activity, anti-edematogenic activity etc. traditionally *Leea indica* is used in the various parts of the world in India it is used in the treatment of bone fracture in west Bengal. In Rajasthan, inflorescence and tuber are used to treat chest pain in children. In Karnataka, the roots are used in the treatment of skin diseases.

Keywords: Traditional medicine, *Leea indica*, Vitaceae, Ethnobotany

INTRODUCTION

According to World Health Organization (WHO), more than 80% of the population depends on traditional medicine for their primary healthcare needs. TM is the oldest form of the health care system in the world, and the outcomes of experimentation through trial-and-error methods after thousands of years. "Traditional medicine refers to health practices, approaches, knowledge, and beliefs incorporating plant, animal, and mineral-based medicines, spiritual therapies, manual techniques, and exercises, applied singularly or in combination to treat, diagnose and prevent illness or maintain wellbeing". *Leea indica* is a drug used by traditional practitioners all over southern Asia to treat various ailments.

Drug Review

Leea indica (Burm.F.) Merr is a folklore drug that belongs to the family Vitaceae and is used in the treatment of various diseases by traditional practitioners all over the world in the treatment of skin diseases, body pain, diarrhoea, dysentery, snake bites etc. [1].

Taxonomical classification

- Kingdom – Plantae
- Phylum – Magnoliophyte
- Order – Vitales
- Family – Vitaceae
- Genus – *Leea*
- Species– *indica* [2]

Vernacular names

- English – Bandicoot berry
- Sanskrit – Chhatri
- Kannada - Andilu
- Hindi – Hasthipalash
- Marathi – Karkani
- Telugu – Amkador
- Bengali – Kurkur
- Tamil – Ottanalam
- Malayalam – Manipirant
- Konkani - Dino
- Assamese – Ahina
- Mizo – Kawlkar
- Chinese – Huo tong shu
- Indonesia – Girang [3]

Synonyms

- *Leea sambucina* (L.) Wild
- *Aquilicia ottilis* Gaertn.
- *Leea acuminata* Herb.Kew. ex C.B Clarke
- *Leea aequata* Roxb. ex Wight Arn
- *Leea arborea* Sieber ex Miq.
- *Leea biserrate* Miq.
- *Leea callosa* Zipp.ex Miq
- *Leea celebica* C. B. Clarke
- *Leea staphylea* [3]

***Leea indica* plant**

***Leea indica* leaves**

***Leea indica* inflorescence**

Morphology

- Habit – large shrub or small tree up to 5m tall
- Trunk and bark – stem several to single, often with stilt roots.
- Branches and branchlets – young branchlets angled, glabrescent.
- Leaves – leaves compound, bipinnate to tripinnate, alternate, spiral rachis 10-20 cm long; petioles 0.5-2.5cm; stipules purple, sheathing, obovate-oblong, glabrous; leaflets 6-21, 3.5-7.5 cm, ovate to lanceolate, apex acuminate to caudate, base acute to rounded, margin serrate to dentate, glabrous, chartaceous, drying brown; midrib raised above; secondary nerves 7-12 pairs; tertiary nerves reticulo-percurrent
- Inflorescence – corymbose cyme
- Flower – calyx green, petals cream
- Fruit and seed – berry, depressed, globose, 0.7 cm across, often 2-6 lobed, purple-black when ripe, seeds 4-6 [3].

Ethnobotanical uses of *Leea indica*

- In Dakshina Kannada district, Karnataka, India, folklore practitioners use roots of the plant in skin diseases in decoction form.
- In Hassan district, Karnataka, India, roots of the plant are used in the treatment of diarrhoea
- In the Jalpaiguri district, West Bengal roots are used to treat a bone fractures.
- In Rajasthan, inflorescence and tuber are used to treat chest pain in children.
- In the Bilaspur region of Chhattisgarh, India, a typical insect ingests this herb in the wild. Traditional healers use this insect as a 'medicinal insect' in treating common fever.
- In Kerala, leaves and roots treat diarrhoea, dysentery ulcer, and skin diseases.
- In Indonesia, traditional practitioners use *Leea indica* as a natural remedy for malaria. [4,5]

Pharmacological activity

Pharmacological activity is the ability of a specific molecular entity (drug) to achieve a particular biological effect on a living body. Plants are an essential source of phytomolecules that unfolded plant compounds' pharmacological importance. [5]

- Antibacterial activity – Flower
- Antifungal activity – Flower
- Antiviral activity – Leaf
- Antioxidant activity – Leaf
- Cytotoxic/Anticancer/Antitumor Activity – Leaf
- Thrombolytic activity - Leaf
- Antidiarrheal activity - Leaf
- Hepatoprotective activity - Stem bark
- Enzyme inhibitory activity –Leaf
- Antihyperglycemic activity – Leaf
- Hypolipidemic activity – Leaf
- Sedative activity – Leaf
- Anxiolytic activity – Leaf
- Wound healing activity – Leaf
- Analgesic activity – Leaf
- Larvicidal activity – Leaf
- Antimalarial activity – Leaf

DISCUSSION

Plants have been used as medicine since ancient times all over the world. Hence, they are to be explored for their medicinal values; one such folklore plant is *Leea indica* which belongs to the family Vitaceae. *Leea indica* is a small shrub or tree found in India, China, Malaysia, Indonesia, etc. This plant is used to treat various diseases all over south Asian countries. In India, the drug is used to treat skin diseases, diarrhoea, fever, bone fracture, etc. Phytochemical studies of the *Leea indica* leaves showed the presence of alkaloids, flavonoids, glycosides, phenols, lignins, saponins, sterols, tannins, anthraquinones, and reducing sugar. An experimental study conducted using a Ferric ion-reducing antioxidant power assay showed the highest antioxidant capacities in methanol and ethanol extracts, and the methanol and ethanol leaf extracts were found to be selectively cytotoxic *in vitro* to (DU145 and PC-3) prostate cancer cell lines[6]. A cell line study showed ethyl acetate fraction (LIEAF) having the most significant cytotoxic effect against Ca Ski cervical cancer cells and inhibiting cervical cancer cell growth[7].

Phytoconstituent extraction of *Leea indica* using HPTLC - electrospray ionization-mass spectrometry showed 31 compounds of different classes, including benzoic acid derivatives, phenolics, flavonoids, catechins, dihydrochalcones, coumarins, megastigmanes, and oxylipins[8]. This plant has many biological activities like antibacterial, antifungal, hepatoprotective, antimalarial, thrombolytic, antitumor, antioxidant, anxiolytic, wound healing, etc.

CONCLUSION

Traditional medical practice contributes to about 80% of the healthcare system in the world. Herbal products play a critical role in conventional medicine. One such herbal drug is *Leea indica* belongs to the family Vitaceae and is used as a remedy in the treatment of various ailments all over south Asia because of its abundance and easy availability. In this review, ethnobotanical uses and previous research on the plant *Leea indica* have been summarized, which may help the researchers conduct advanced studies on the drug and clinical practitioners to include *Leea indica* in their clinical practice.

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