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A Review on Ethnopharmacolgy, Phytochemistry and Bioactivity of Leonitis Nepatofolia.

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Abstract : *Leonotis nepetaefolia* Family (Lamiaceae) commonly known as 'Lion ear' is very common in India with a long history of several traditional medicinal uses in many countries in the world. A good number of phytoconstituents have been reported from the plant. Few biological activities like hypoglycemic property, arthritic and other inflammatory conditions³. The plant is also used in the treatment of rheumatism, rickets, headaches and for the treatment of wounds⁴, antidiabetic and wound healing activity have been reported by different authors. This paper presents a thorough literature review of this important species covering phytochemistry and bioactivity aspects in a systematic manner. The authors believe that this review will support the future investigators for subsequent scientific investigation on this plant.

Keywords: Leonits nepetofolia, Phytochemistry, Clinical applications, Pharmacological actions.

Introduction:^[1-5]

The *Leonotis nepetaefolia* R. Br. is a erect annual herb belonging to the family; Lamiaceae (Mint family) commonly called lion's ear or klip dagga. This plant commonly grown in Tropical Asia, Africa, Southern India and naturalized.

Leonotis nepetaefolia is a aromatic erect herb grows about 8 feet (2.4m) tall. Stems straight, obtusely tetragonous, pubescent. Leaves broadly ovate, deeply crenate to serrate, acute, base truncate to cuneate. Flowers orange-scarlet, in axillary, globose spinous whorls of verticils. Calyx tubular, mouth oblique, 8-10 toothed, valvate, coriaceous, spinescent. Corolla tubular, bilipped, tube with five annular rings within, upper lip hooked, lower lip 3-lobed. Stamens are four, didynamous hooded by the upper lip, exserted. Filaments minutely bearded, disc cupular. Ovary bicarpellary, tetralocular ovule one per locule. Basal is style gynobasic, stigma bifid, capitellate. Nutlets are four which are oblong, trigonous and seeds are also oblong.

Folklore Uses^[6-10]

Leaves:

In leaves used in Rheumatism, Hernia, Diabetes and hepatitis.

Stem

Stem is used in jaundice and skeletal muscle stimulant.

Seeds:

Seeds are used in Antimalaria and Diuretic.

Root:

The root is used in breast inflammation, burns, pre natal vomiting .

Flowers

Flowers are used in cut wounds and burns and jaundice.



Flower of leonitis nepetaefolia



Leaf of leonitis nepetaefolia

Chemical constituents: [11-14]

The plant *Leonotis nepetaefolia* rich in alkaloids (leonurine and stachydrene), iridoid glycosides (leonuride, leonurin and leonuridine), diterpenoids (leocardin), flavonoids (rutin, quercetin, hyperoside, apigenin), volatile oil, tannins, vitamin A.

The root contains *n*-octacosanol, *n*-octacosanoic acid, quercetin, crumarin like 4, 6, 7-trimethoxy-5methylchromene-2-one, campesterol and beta-sitosterol. The seed oil contains oleic, linoleic, palmitic and stearic acids. The fatty oil, extracted from the seeds, is similar to olive oil. The leaves contain neptaefolin, neptaefuran, neptaefuranol, neptaefolinol, leonitin, neptaefolinin and (-)-55, 6-octadecadienoic acid.



Leonurine







Stachydrene



Apigenin







Beta-sitosterol

Stearic acid

Campesterol



Linoleic acid



Fig.2. Few important compounds of Leonitis Nepetofolia

Pharmacological activity

Anticonvulsant Activity^[14]

Ayanwuyi et al descried *Leonitis neetifolia* is used in the treatment of Epilepsy. Anticonvulsant studies on the crude methanol extract of *Leonitis neetifolia* were carried out at doses of 150,300 and 600 mg/kg Using maximal electrockshock test MEST in chicks, pentelynetetrazole (PTZ), strychnine (STN) induced seizure tests in mice. The extract (150mg/kg) exhibited 66.67% anticonvulsant activity against PTZ and STN induced seizures.

Antiinflammatory Activity^[15]

leonitis nepetofolia showed Anti-inflammatory activity on TPA induced Edema model.

Antimalarial Activity^[16]

Water extract of *leonitis nepetofolia* having dose 1.0 gm/kg showed Anti-malarial activity on in vivo in plasmodium berghei-infected mice and in vitro against plasmodium falciparum in culture.

Antibacterial Activity^[17]

Methanolic extract of *leonitis nepetofolia* of concentration 50 mg/ml showed antibacterial activity on agar plate containing Bacillus Subtilis.

Spasmolytic Activity^[18]

leonitis nepetofolia hot water extract having concentration 3.0 mg/ml on Guinea pig trachea Potientiated relaxation induced by Isoprenaline and Theophylline drugs.

Insecticide Activity^[19]

leonitis nepetofolia Ethanol-Water (1:1) Extract having concentration 1% on Mucosa Domestica showed Insecticidal activity.

Conclusion

The present review describes the significance of *Leonotis nepetaefolia* as an important medicinal plant exhibiting diverse biological activities. Since the number of phytochemical constituents identified from the *Leonotis nepetaefolia* is limited it would be a rich opportunity to isolate more bioactive chemical constituents. For this plant, furthermore, it would also be valuable to determine the structure activity relationship of the identified compounds.

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