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Ethnomedicinal and Ecological Effect of *Enhydra fluctuans* (Lour)

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Abstract

Enhydra fluctuans (Lour), commonly known as helencha or harkuch, is a tropical marsh herb. It is ethnobotanically very popular in India and parts of south-east Asia and often is used for its medicinal properties. It is a leafy vegetable plant belonging to the family Asteraceae. It grows widely in wild in aquatic habitats including rice field. The plant has many biomedical properties like anti-microbial, cytotoxic, anti-diarrhoeal, anti-oxidant, anti-cancerous, CNS-depressant, neuro-protective, cyto-protective, membrane stabilizing and thrombolytic activities due to the presence of pharmacologically active compounds like β-carotene, flavonoids, phenolic compounds, saponins, sesquiterpene lactones, phytosterols, myricyl alcohol, kaurol, glucosides, and enhydrin *etc*. It helps in the consumption of heavy metals and thus protects the environment from hazards due to heavy metals. It can be used in the manufacture of weed vermicompost.

Introduction

Enhydra fluctuans (Lour.) is a marsh herb distributed in tropical and subtropical regions. Mostly it grows in marshy places like in rice field, near water courses, ditches and margins of ponds. In India, it is very popular because the plant is used as leafy vegetable. The plant is widely distributed throughout Southeast Asia. The leaves, which are slightly bitter, are used to treat inflammation, skin diseases and small pox. Tribes of Meghalaya consume leaf juices orally for the treatment of liver diseases.

Common names

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Enhydra (Engl.), Kankong-kalabau (Tag.), Buffalo spinach (Engl.), Marsh herb (Engl.), Water cress (Engl.), Zhao ju (Chin.)

Taxonomy

The plant belongs to the family Asteraceae and Order Asterales and Class Magnoliopsida. The plant is a prostrate, spreading, annual herb differentiated in to root, stem, leaves and flower. The stem is herbaceous, fleshy and branched. It can grow up to 30 to 50 cm in length. Leaf is linear-oblong, sub-sessile and toothed margin. Flower heads are sessile or sub-sessile, white or greenish white in colour. Involucral bracts 4 are very wide and leaf like, enclosing the heads, outer pair obtuse. All florets are ligulate, with very short tongues, mostly appearing tubular. Cypselas are about 1 mm long, brown, enclosed in scales; papus is absent. Flowering generally occurs during December to February.

Fig 1. Vegetative stage of *E. fluctuans*

Fig 2. Flowering stage of *E. fluctuans*

Associates

The plant floats over the water surface and forms a mat. Sometimes, it is associated with *Ipomoea aquatica, Alternanthera philoxeroides, Eclipta prostrate* and *Commelina benghalensis.*

Ecological Aspects

The plant help in the removal of heavy metals lead, copper, iron, arsenic and cadmium *etc.* from the soil and thus protect the human beings from hazards due to these heavy metals. When it grows in the field of other crops such as rice, it serves as weed. So, it can be used in the manufacture of weed vermicompost using earthworm.

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Phytochemicals and Medicinal Uses

The plant contains different phytochemicals like saponins, myricyl alcohol, β-carotene, kaurol, cholesterol, glucosides, enhydrin and so on. Different literature reveals that the plant has many pharmacological effects like antioxidant, antimicrobial and cytotoxic, hepatoprotective, CNS depresant, analgesic, antidiarrheal, antihelminthic, thrombolytic, membrane stabilizing and antimicrobial activity. Leaf paste with cow milk is given in empty stomach to stop excess bile secretion. Leaf paste coated with warm mustard oil is applied on chest to cure bronchitis. Leaf extract with cow urine is given to cure anaemia.

Conclusion

Traditionally, *E. fluctuans* is used as an edible plant. It is very popular in India due to its medicinal properties. As the plant contains different phytochemicals, it is used for the preparation of many formulations to cure different diseases. Different ethnic communities of India used this plant to cure many health problems. So further study is needed in this connection to explore more knowledge to support the traditional use of this plant for various disorders.