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## *Limnophila indica* (L.) Druce: a wetland flora of Odisha

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### ABSTRACT

*Odisha is a place for great diversity of flora and fauna species. Aquatic plants are widely distributed throughout Odisha. Limnophila is an aquatic or nearly aquatic herb. This paper mainly focuses on the Limnophila indica (L.) Druce a wetland flora. This species is distributed throughout Odisha but is rarely known for its medicinal uses. The biological activities and pharmacological applications are still unknown by most people. Hence, an attempt has been taken to document the species of wetland flora like Limnophila indica in Odisha.*

Odisha a state in Eastern India has a rich biodiversity of flora and fauna. Odisha is primarily referred to as the coastal region. The districts are covered by tropical moist deciduous and tropical dry deciduous forests. The most diverse area is wetland. It plays a pivotal role in wildlife area. Wetland flora is important as a food source for Avifauna and fauna species. One of the genus is *Limnophila* belongs to the family Scrophulariaceae (Philcox 1970) is widely distributed throughout Southeast Asia, tropical to subtropical Africa, Australia, and Pacific Islands, North America (Brahmachari 2014). About 40 species of the genus *Limnophila* are known (Shi 1998).

*Limnophila* is an aquatic or nearly aquatic perennial herb (Wannan & Watwerhouse 1985). It is mostly found in river, lakes, ponds as well as marshy areas (Yang and Yen 1997). Flower and fruiting occurs in September-February (Brahmachari et al. 1986; Saxenna and Brahmam 1995).

#### Plant morphology

*Limnophila indica* (Linn.) Druce is an aquatic or aquatic submerged perennial herb. The plant has refreshing and odour resembling to camphor or oil of lemon. The submerged stems are smooth and have feathery leaves. Stem maybe up to 12 feet

long. Stems are sub quadrangular and rooting at the lower nodes. The emergent stem is usually above the surface of the water (Ghani 2003). Plants with finely divided leaves wholly or partly. Flower is solitary, axillary or racemes; corolla is white, pink, purple, or blue to lavender in colour. The upper portion is purple and composed of five fused petals forming a tube with two lips – dorsal 2-lobed and ventral 3-lobed (Sivarajan and Balachandran 1986; Saxena and Brahmam 1995).

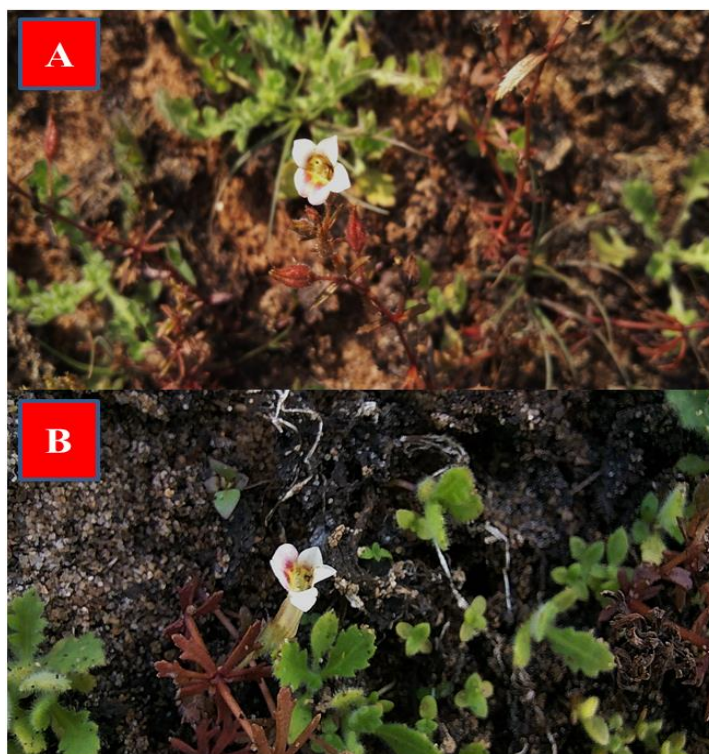
### **Medicinal uses**

*Limnophila indica* is widely used for its enormous traditional uses in tribal areas. From literature it is concluded that it contains bioactive compounds which is widely used for medicinal purposes. Different phytochemicals include flavonoids, terpenoids, amino acid (Brahmachari et al. 2013).

The plant is used for treatment of various diseases like fever, dyspepsia, dysentery and elephantiasis. An ointment prepared from plant with coconut oil is used in elephantiasis. Juice of the plant is rubbed over the body in fever (Brahmachari et al. 1986). Juice of the aerial parts of plant with ginger and cumin is prescribed to cure dysentery. It is also applied externally on cuts and wound as antiseptic (Panda and Misra 2011). It is reported that *Limnophila indica* possesses ant diabetic, anti-inflammatory, anti-HIV, cytotoxic, anticancer, ant proliferative, antipruritic (Liu 1995; Liu 2005; Hao et al 2013).

### **Future aspects**

Hence, the present study offers to draw the attention towards the *Limnophila indica* to compile all these works that are scattered in literatures. For future purpose it needs to be work to enlighten for its varied medicinal uses.



**Plate 1: A) Vegetative parts of *Limnophila indica*, B) Side view tube structure of flower.**

## REFERENCES

- Brahmachari G, Mandal NC, Roy R, Ghosh R, Barman S, Sarkar S, Jash SK and Mondal S. (2013). A new pentacyclic triterpene with potent antibacterial activity from *Limnophila indica* Linn. (Druce). *Fitoterapia*. 90:104-111.
- Brahmachari G. (2014). *Limnophila* (Scrophulariaceae): Chemical and pharmaceutical aspects- An update. 7:1-14.
- Ghani A. (2003). Medicinal plants of Bangladesh: Chemical constituents and uses, 2<sup>nd</sup> edition, Asiatic society of Bangladesh, Dhaka.1-16.
- Hao J, Liu J, Wen X and Sun H. (2013). Synthesis and cytotoxicity evaluation of oleanolic acid derivatives. *Bioorg Med Chem Lett*. 23:2074–7.
- Liu J. (1995). Pharmacology of oleanolic acid and ursolic acid. *J Ethnopharmacol*. 49:57–68.
- Liu J. (2005). Oleanolic acid and ursolic acid: research perspectives. *J Ethnopharmacol*. 100:92–4.
- Panda A and Misra MK. (2011). Ethnomedicinal survey of some wetland plants of South Orissa and their conservation. *Indian Journal of Traditional Knowledge*. 10(2):296-303.
- Philcox D. (1970). A taxonomic revision of the genus *Limnophila* R. Br. (Scrophulariaceae). *Kew Bull*. 24:101-170.
- Saxena HO and Brahmam M. (1995). The flora of Orissa. Orissa Forest Development Corporation Ltd. and Regional Research Laboratory, Bhubaneswar. 3:1940-1956.
- Shi LWS. (1998). *Limnophila* R. Brown, Prodr. 442. 1810. *Flora Chin*.18:26-28
- Sivarajan VV and Balachandran I. (1986). Botanical notes on the identity of certain herbs used in Ayurvedic medicines in Kerala. III. Hribera and amragandha. *Anc Sci Life*. 5:250–4.
- Wannan BS and Watwerhouse JT. (1985). A taxonomic revision of the Australian species of *Limnophila* R. Br. (Scrophulariaceae). *Aust. J. Bot*.33:367-380.
- Yang YP and Yen SH. (1997). Notes on *Limnophila* (Scrophulariaceae) of Taiwan. *Bot. Bull. Acad. Sin*. 38:285-295.