



# JOURNAL OF BIODIVERSITY AND CONSERVATION

## *Nymphoides hydrophylla* (Linn.) O.Kuntz : An aquatic medicinal plant

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### ARTICLE INFO

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#### Article History

Received: 23 June 2017

Keywords: Wetland, aquatic plant, medicinal uses

Received in revised form: 18 December 2017

Accepted: 25 December 2017

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### ABSTRACT

In wetlands the aquatic plant acts as a natural filter. Wetland floras are home and fodder for many species. It has some medicinal values and other uses. In this paper, authors focus on *Nymphoides hydrophylla*, an aquatic floating herb, has traditionally been considered as an important source of medicine for various ailments. Hence, an attempt has been taken to gather the reported information on *Nymphoides hydrophylla* and used to treat many disease and disorders.

### INTRODUCTION

Wetland is the most productive ecosystem from other ecosystem, as it plays a bridge between aquatic and terrestrial ecosystem (Ghermandi et al. 2008). Wetland is a place where water covers the soil surface; it is land area that is saturated with water, either permanently or seasonally. It is home for many species of birds, mammals, reptiles, amphibians, fish and invertebrate species depend on water and wetland flora

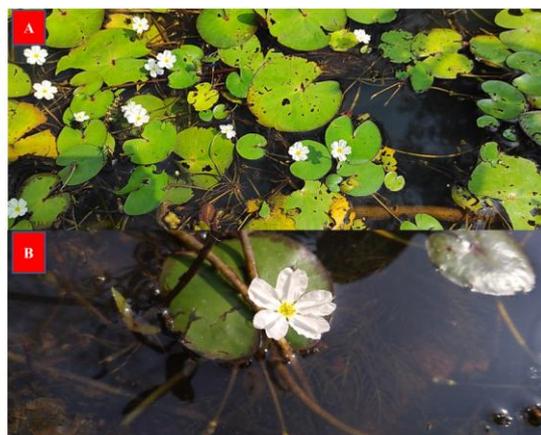
for their survival (Mitsch et al. 2001). Wetlands are also critical habitat for migratory birds and waterfowl, including ducks, egrets, and geese (Cherry 2011). Wetland prevails from other land forms or water bodies are the characteristic vegetation of aquatic plants, adapted to the unique hydric soil. Wetland also provides important services to human society (Brink et al. 2012). Ramsar Convention on Wetland is the international agreement or

treaty for sustainable use and conservation of wetlands which was signed in 1971. There are 41 Ramsar sites in India; two belongs to Odisha ([www.ramsar.org](http://www.ramsar.org)). Wetland includes swamps, marshes, bogs and fens with water that is static or flowing, fresh, brackish, or salt. These wetland plants are referred to as hydrophytes. Wetland flora can be classified as submerged aquatic plants, floating aquatic plants, emergent aquatic plants, and riparian aquatic plants. Wetland flora possesses filtration capabilities. Wetland flora has medicinal values, social values, and economic values (Zhang et al. 2014). The genus *Nymphoides* is considered to have potent medicinal values. *Nymphoides* is an aquatic floating herb genus consisting of about 50 species, of which few were accepted as traditional medicinal uses (Tippary and les 2011). The plant species under *Nymphoides* consist of roots under water and floating leaves holding the small flower above the surface of water (Sivarajan et al. 1989). *Nymphoides* is mostly distributed in tropical and temperate region. Among them, few species of *Nymphoides* namely *Nymphoides hydrophylla* are available in most continents. *Nymphoides hydrophylla* is mainly an aquatic herb belongs to the family Menyanthaceae and it is mostly found in the India, Bangladesh, Nepal, Bhutan, Myanmar, Malaysia, etc (Vasudevan et al. 1985). It is commonly known by the people as white water snowflake. It is named as snowflake because of the flower structure as it resemble like snowflake. Literature review

revealed that these species are known to have multi medicinal usage.

#### *Plant morphology*

*Nymphoides hydrophylla* (Linn.) O. Kuntz, aquatic herbs with long floating stem (stolon). It generally grows in the margins. Rhizome short, erect, with petiole-like branches reaching the surface of water and producing a node from which arise a tuft of adventitious roots. Leaves orbicular, deeply cordate at the base, pale green above. Flower white, with yellow at the centre, with ring of white hairs around the centre (Madhavan et al. 2012; Plate 1). From survey, it is concluded that usually flowers and fruits seen in the winter season. *Nymphoides hydrophylla* contains crude fat, protein, carbohydrate, fiber. Its usable parts are leaves and stalk, which are pounded with oil and used for various purposes (Karupphasamy and Rao 2011).



**Plate 1:** A) Habitat of *Nymphoides hydrophylla*, B) Vegetative parts of *Nymphoides hydrophylla*

*Medicinal uses*

Edible parts of *Nymphoides hydrophylla* are stem, leaves, and fruits. It has some traditional practices which are validate in literature. It is also used as a substitute for *Swertia chirata* Buch. It is used in fevers, jaundice and parasitic skin infection. Stalk and leaves are pounded with oil and applied to ulcers and insect bites. Leaf juice is used against eye disease. Leaf juice is used as an antidote for scorpion sting and snake bite. Seed powder with honey is taken orally for anthelmintic (Swapna et al 2011; Panda and Misra 2011; Figure1)

*Future aspects*

The present study puts on a light on the importance of *Nymphoides hydrophylla*. From literature survey it is concluded that it is less known plant and mostly been misled by its identification character so it needs to be documented well enough to know its medicinal uses. And for future prospect it needs to be highlights for its enormous uses and need more work on this species.

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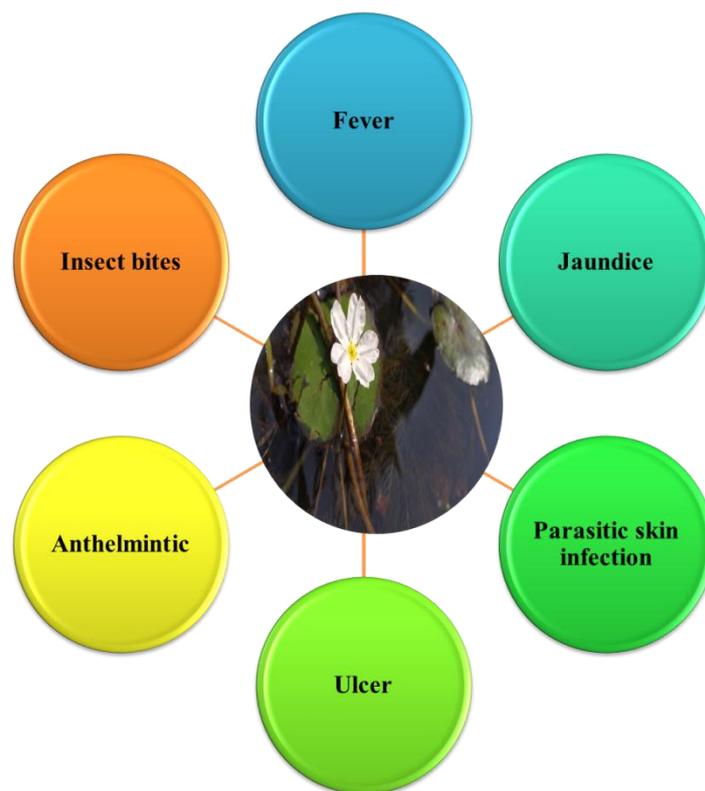
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**Figure 1:** Medicinal uses of *Nymphoides hydrophylla*