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SHORT COMMUNICATION

# *Parasopubia delphiniifolia*: a root parasitic unexplored plant

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## Abstract

*Parasopubia delphiniifolia is an unexplored species belonging to the family Orobanchaceae. It is a root parasitic plant found near paddy fields, moist grasslands, and swampy areas. It has medicinal values. Still, it is unexplored. There is a need for more exploration work on it and its medicinal and ecological significance. Therefore, an attempt has been made to collect the information from field on P. delphiniifolia. In this communication, habit, habitat, plant parts, and uses are presented.*

## INTRODUCTION

Parasitic plants are a specialised plant group characterised by the ability to feed directly on other plants and penetrate either the shoots or roots of their host through a parasitic structure called haustoria (Wastewood et al. 2010; Sahu et al. 2018). Haustorium is a specialised organ composed of different tissue and cell types that might be homologous to the root or other subterranean plant structures, like tuber and rhizome, which penetrates host tissue like xylem and phloem and creates a vascular bridge between parasite and host (Teixeira-Costa et al.

2020; Mishra et al. 2023). So, they are mainly of two types, i.e., stem parasites and root parasites (Sahu et al. 2018). In the case of root parasites, root hair-like structures are formed on the surface of the haustorium, which gradually elongates and captures the host vascular system, enabling the parasite to acquire water and nutrients and to modulate host physiology, probably via the secretion of virulence factors such as small molecules and proteins known as effectors (Saucet and Shirasu 2016; Sahu et al. 2018). Members of the family Orobanchaceae are mostly root holoparasites. They parasitize important crops and cause great losses in crop productivity. In this family, haustorium formation can occur at the meristematic tip of the parasite's primary root (called terminal haustorium) or at the transition zone on the side of a growing root (lateral haustorium) (Saucet and Shirasu 2016; Al-Mayah and Al-Asadi 2018). The genus *Parasopubia* Buch. -Ham. ex D. comprises about 30 species and shows some unique morphological characteristics. They live as hemiparasites in the dry or moist grasslands at higher altitudes or in or near swampy areas, including disturbed or cultivated ground such as rice paddies in the lowlands. These species are subshrubs or herbs with linear to lanceolate, simple, or dissected leaves. The androecium structure consists of four stamina, each with two different thecae, one normal-sized and fertile, the other sterile and reduced in size (Hofmann and Fischer 1998). Among these species, *P.delphiniifolia* (L.) H.-P. Hofm. & Eb. Fischer is an unexplored species with therapeutic values.

***Parasopubia delphiniifolia***

*Parasopubia delphiniifolia* (L.) H.-P. Hofm. & Eb. Fisch., Bot. Jahrb. Syst. 125(3): 357 2004. (syn: *Euphrasia coromandelina* Rottl. ex Spreng.; *Gerardia delphinifolia* L.; *Gerardia heyneana* Benth.; *Lophanthera delphinifolia* (L.) Raf.; *Sopubia delphinifolia* (L.) G.Don).

## MORPHOLOGY

Perennial, erect herb, stem hispid, about 40-60 cm tall. Leaves pinnatifid below, upper ones opposite, linear, filiform, 2-3.5 cm long, margin entire, apex acute. Flowers axillary, solitary, become racemose above, pedicellate, calyx tube 10- ribbed, glabrous, corolla purple with violet streaks, 8-16 mm long; stamens 4. Capsule oblong-ellipsoid, 5 x 3.5 mm, seeds oblong, cuneate (Plate 1).

**Flowering & Fruiting:** August- December

**Habitat:** Along the borders of paddy fields, roadsides, in moist grasslands or, near swampy areas


**Plate 1:** Habit (a), flower (b) and habitat of *P. delphiniifolia*

**Distribution:** India, Sri Lanka

**Medicinal uses:** Fresh leaf extract of *P. delphiniifolia* is externally applied on cuts and wounds. Its juice is reported to be an abortifacient.

## FUTURE ASPECTS

The present study could provide baseline data for further experimental work on unexplored parasitic plant species of Odisha. Field surveys and correct identification will help in a new sight into the physiology, medicinal uses, ecological and evolutionary biology of parasitic plants.

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