



RESEARCH COMMUNICATION

Recovery of *Globba wengeri* (C.E.C. Fisch.) K.J. Williams, critically endangered plant species from Serchhip District in Mizoram, Northeast India

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ABSTRACT

Globba wengeri (C.E.C. Fisch.) K.J. Williams, former state flower of Mizoram, a rare and critically endangered plant species, commonly known as 'dancing girl', belonging to the family Zingiberaceae, is reported in this communication for the first time from Serchhip District in Mizoram at an elevation of about 1187 m a.s.l. It was found on moist, watery and rocky slopes. The plant is under severe threat in the natural habitat and therefore, further studies are required to determine life history and particular survival threats of this species.

Introduction

The family Zingiberaceae consists of about 50 genera and a total number of about 1600 known species (1). In India, around 200 species belonging to 20 genera of Zingiberaceae are reported so far (2). The four species of *Globba* L. such as *Globba spathulata* Roxb., *Globba radicalis* Roxb., *Globba wengeri* (C.E.C. Fisch.) K.J. Williams and *Globba wardii* (B.L.Burt & R.M.Sm.) K.J.Williams were found endemic to the hilly areas of North East India and Myanmar (3). In addition, a new species specifically called *Globba salarkhanii* (M.A. Rahman & Yusuf) Govaerts was described from Bangladesh (4). *Globba wengeri* (C.E.C. Fisch.) K.J. Williams is a highly fascinating plant species belonging to the family Zingiberaceae and is commonly known as 'dancing girl' because the yellow corolla looks like a skirt and the two staminodes resemble the two outstretched arms of a dancing girl (5). It is thought to be a hybrid of *G. spathulata* Roxb. and *G. radicalis* Roxb. (3).

G. wengeri had been listed in the Red Data Sheet of rare and endangered Indian plants due to its

extreme rarity and small population in its natural habitat and hence included in the national priority list for species recovery by the Department of Biotechnology, Govt. of India (6). The species is found endemic to Mizoram, Northeast India (<https://indiabiodiversity.org/observation/show/309257>). The plant population has declined in their natural habitat and latest report was from Lunglei District in Mizoram (7). And there has been no report from another location in the state. It was reported that the rhizome of this species was used as a remedy for bone fractures and gastrointestinal ailments (5). *G. wengeri* was the state flower of Mizoram till 2009 but because of its extreme rarity it was now replaced by *Renanthera imschootiana* Rolfe (Orchidaceae).

The plant species was accidentally found in the month of May, 2018 by the Adventure Club of Pachhunga University College while visiting Khawthlasang waterfall (23°03'28" N latitude and 93°02'22" E longitude, alt. 1187 m above msl.), Tuiphai river, in the area of Maicham Small Hydrel Project, North Vanlaiphai, Serchhip District, Mizoram (Photo plate 1) and the collected specimens were

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thought to be an orchid species at that time. Then, field survey was carried out in the month of May, 2019 and found the species at the same location. The photographs were taken in its natural habitat and associated plants were recorded. Measurement of both the vegetative and reproductive part was also documented. The plant was identified by consulting available literature (8, 9). The plant population density was studied by quadrat method (1 m²) (10) and a total of 19 plots were laid for both adult (with flowers) and juvenile (without flowers) individuals. The whole plant was collected, some of them were pressed, air dried, mounted on the herbarium sheet (11, 12) and lodged in the Department of Botany,

0.5 cm to 0.7 x 1.4 cm, ovate, pale green; flowers pedicellate, corolla yellow, tubular at base, deeply lobed, 2-lobed broader petals on the front and 3-lobed smaller petals behind, corolla tube slender, curved and villous; filament slender, hairy; labellum is cordate and deeply lobed; staminodes two in numbers, pale yellow; capsules green.

Specimen Examined: India, Mizoram, Serchhip District, North Vanlaiphai, (23°03'28" N latitude and 93°02'22" E longitude, alt. 1187 m above msl.), 14. 05. 2019, Lalnunmawia 003 (PUC).

Flowering Season: May – June.

Distribution: Endemic to Mizoram, North East India.

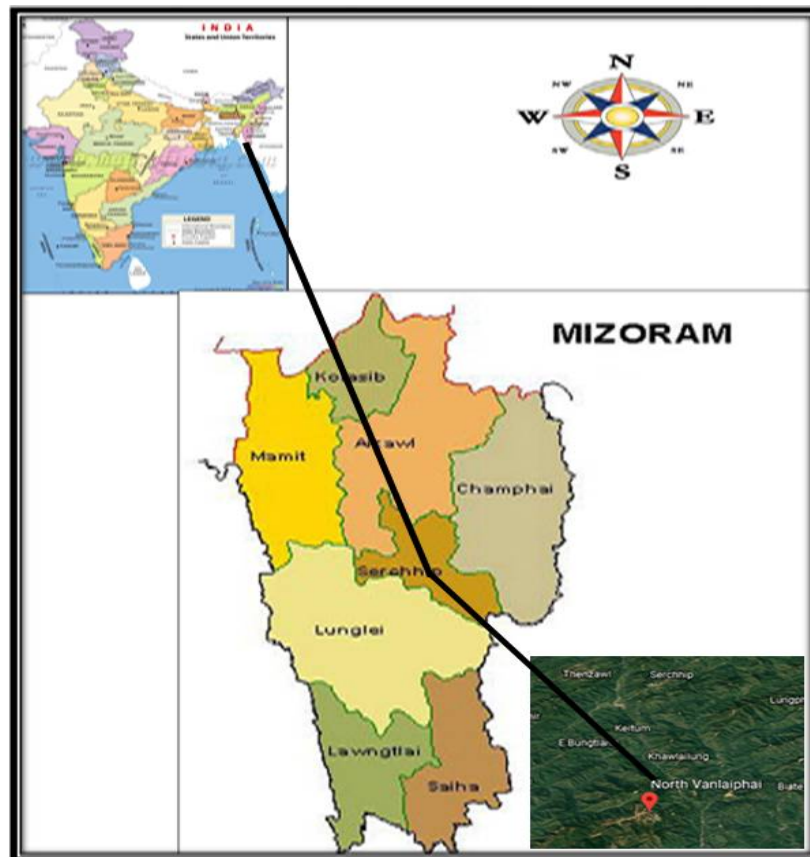


Photo plate 1. Map showing the location of the study site

Pachhunga University College (PUC), Aizawl, Mizoram. Also some of the plants were reintroduced in the pot containing forest soil collected from the college campus.

Taxonomic Treatment

Globba wengeri (C.E.C. Fisch.) K.J. Williams

Globba wengeri (C.E.C. Fisch.) K.J. Williams; Bhowmik *et al.*, 2009, Mizoram, Lunglei District (23°52'30"N latitude, 92°45'30"E longitude, alt. 1395 m above msl); Vernacular Name (Mizo): Ai-thing/Ai-ting (Photo plate 2).

Perennial herbs; rhizomes creeping, branched, cylindrical; stems erect, unbranched; leaves approximately 2.5 x 7 cm to 3.5 x 17 cm in size, base sheathing, alternate, green, ovate to lanceolate, acute apex, margins no teeth, leaf blade glabrous; inflorescence upright, 10-15 cm long, panicles arose from the rhizome, pale green, tubular; bracts 0.3 x

Uses: Ornamental, medicinal purposes.

Ecology and Conservation Notes

The species were found in association with certain plant species like *Oplismenus* Beauv., *Adiantum lunulatum* Burm.f., moss etc, and *Oplismenus* sp. dominated other plants. *G. wengeri* were found growing both in groups with the same species and singly as well. It was observed that the inflorescence (reproductive part) appeared first from the dormant rhizomes which was later followed by the vegetative shoots. Flowering usually starts during early monsoon season (*i.e.* May) and degenerates at the end of June.

A total number of about 298 adult and 21 juvenile individuals were recorded during the study period from 19 plots of 1 m² quadrat. The average density for adult population was 15.68 individuals per plot. The size of the patch where the plants were

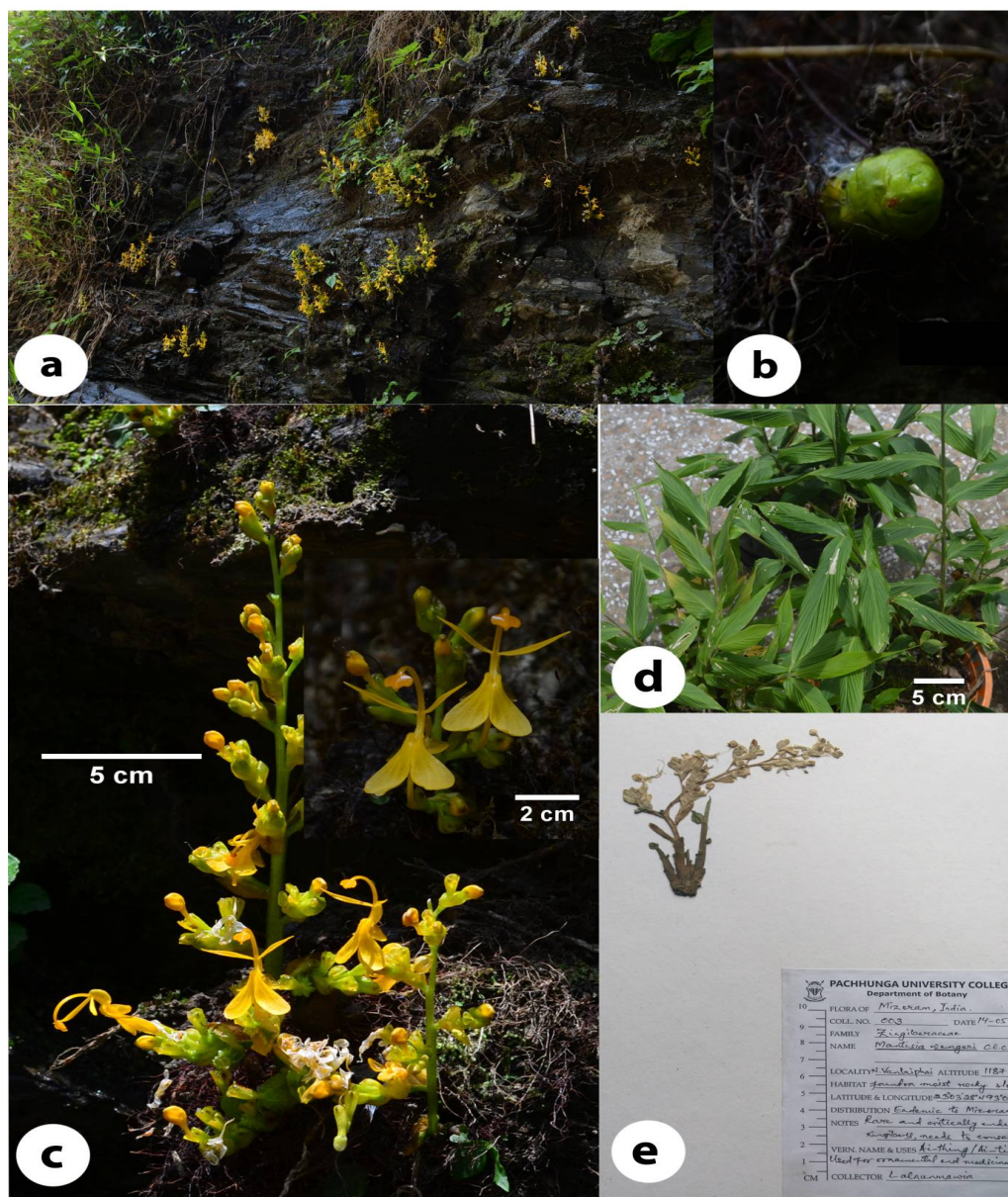


Photo plate 2. *Globba wengeri* (C.E.C. Fisch.) K.J. Williams a) Habitat and associated plants b) Young reproductive shoot c) Inflorescence d) Vegetative shoot e) Herbarium specimen.

found was approximately 10-13 m in length and 2-3 m in wide.

Globba wengeri is found to be extremely rare in the hilly state of Mizoram and further studies are required to determine life history and particular survival threats of this species. Therefore, an immediate conservative measures needs to be taken and it is suggested to carry out micropropagation technique for the multiplication and reintroduction of the species in the natural habitat.

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Competing Interests

The authors declared that they have no competing interests.

Authors' contributions

All the authors have equally contributed to the work presented in this paper.

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