

NEW LOCALITY RECORDS OF THE ‘DANCING GIRL’ OF MIZORAM, A RARE ZINGER SPECIES

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The genus *Mantisia* Sims. (Zingiberaceae) comprising of only four species viz., *Mantisia spathulata* (Roxb.) Schult., *Mantisia radicalis* (Roxb.) D.P. Dam & N. Dam, *Mantisia wardii* B.L.Burt & R.M.Sm. and *Mantisia wengeri* C.E.C. Fisch. is found in the hilly areas of the northeastern India and Myanmar (Dam et al. 1997). In India, the species, *Mantisia spathulata* is found in Mizoram. It is commonly called the ‘Dancing Girl’. The species is considered as critically endangered (Sharma et al. 2012). Due to natural calamities and anthropogenic activities, *M. spathulata* has become critically endangered in nature and has reached such a level that only a few individuals are available today and the species has been included in the national priority list for its recovery by the Department of Biotechnology, New Delhi (Sharma et al. 2011). Bhowmik et al. (2010) reported that *Mantisia wengeri* was traditionally used to cure bone fractures and gastrointestinal ailments. The paper also mentions that no phytochemical screening has been done to study its active compounds due to its extreme rarity. Williams et al. (2004), using molecular biological data, suggested that *Mantisia* be nested within *Globba* and the four species of *Mantisia* be formally transferred into *Globba* but retained as a distinct

section. The genus *Mantisia* has been classified with *Globba* under the tribe Globbeae but in different sections *Mantisia* and *Globba* respectively. Numerous cytological studies conducted on *Globba* and *Mantisia* suggested that $x = 8$ is the base number for *Globba* and $x = 10$ for *Mantisia* (Williams et al. 2004). We therefore treat the species under the genus *Mantisia* in the light of the above observations.

M. spathulata is a perennial plant and flowers for a very short time during the monsoon period. Dam et al. (1997) noted that the species is found only in the rocky hills of Lunglei, Mizoram at 1200–1500 m. Bhowmik et al. (2010) found that *M. spathulata* blooms in its natural habitats during May 2007 on the rocky hills along the roadside of Lunglei, Mizoram at an elevation of about 1395m. We, however, collected the species at a comparatively lower altitude approximately at 662m from Kolasib, which was never recorded earlier. The present study deals with the information of a new site discovered for *M. spathulata* and its population density.

Mantisia spathulata

(Roxb.) Schult., Mant. 1: 49. 1822. *Globba spathulata* Roxb. Fl. Ind. (Eds. Carey & Wall.) 1: 83. 1820.

Stems 3–6 dm high, purplish at base. Leaves 0–25 × 3.5–5.5 cm, glabrous, purplish beneath when young, becoming green in age. Panicles 0–25 cm long on ca. 5cm long peduncle; branches numerous, approximate, villous; bracts ca. 1cm long, pale violet. Calyx ca. 6mm long; lobes ovate, ca. 2mm long, apex acuminate.



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Corolla hairy outside; tube 1.5–1.8 cm long; lobes 4–5 mm long, dorsal ca. 4mm broad, laterals ca. 3mm above the corolla mouth, ca. 6×3 mm. Lip obovate, 6–8 mm long, yellow, base cuneate, hairy, apex divided into two 2–3mm broad lobes. Anther filament 1.5–1.7 cm long, curved; anther ca. 2mm long, wings semi-lunar, ca. 1.5mm long, crest quadrate, ca. 0.8mm long. Ovary oblong, pale violet.

Flowering: April–June.

Specimen examined: (Demsai Reang 4), 27.v.2014, Mizoram, Kolasib, 24°11.316'N & 92°41.624'E, ca. 662m elevation.

Distribution: Assam (Cachar), Meghalaya (Khasia & Jaintia Hills), Mizoram (Mizo Hills); Bangladesh. Myanmar.

Ecology: A survey to search for the species, *M. spathulata*, was conducted in the months of April–May 2014, in Mizoram. The species was discovered at Kolasib (24°11.316'N & 92°41.624'E), Mizoram at an altitude of 662m (Image 1). Species found was sampled to study its population density. Density study was done using quadrat method. Plotting was done for the adult individuals (with flowers) using quadrat size of 1×1 m². A total of 10 plots (1×1 m²) were laid. All adult individuals falling within the plot quadrat were counted. Again, a 1×1 m² plot was laid to count the juvenile (without flowers) individuals of the species to see their regeneration status in the wild.

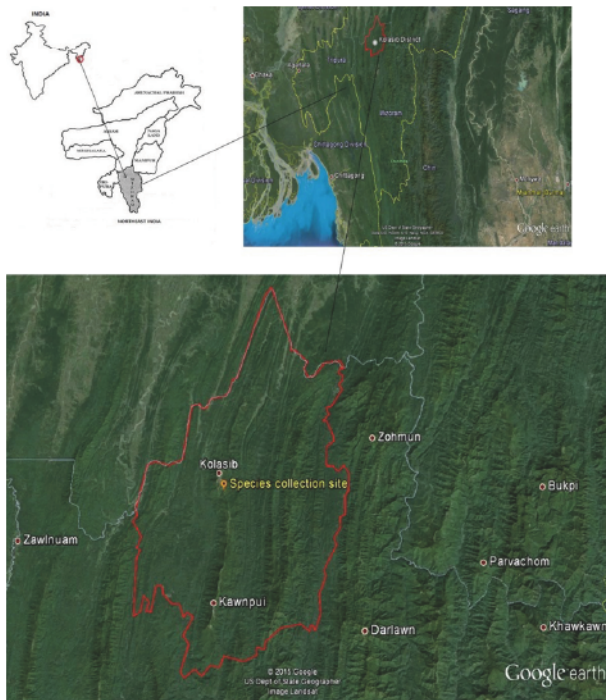


Image 1. Map of study site.

It was observed that the species was growing only in a single large patch along with other species. The size of the patch area where the plant was found growing was approximately 30m in length and width of the area was approximately up to 6.5–7 m.

The average density of *M. spathulata* within its growing patch was 18 (±2) individuals per m². The patch revealed that all the plants were healthy and were regenerating very well. An approximate number of ca. 120 juvenile individuals (without flowers) were recorded from a 1×1 m² plot; thus indicating vigorous regeneration. The species was collected and after processing it was deposited in the herbarium of Department of Ecology & Environmental Science, Assam University (Image 2).

The other associated species growing along with *Mantisia* were *Ficus* sp., *Adiantum lunulatum*, *Vitis* sp., *Lantana camara*, etc. The species was seen to be growing in an open rocky area covered with mosses, ferns and climbers (Image 3). It was thriving best amidst ferns and mosses.

Two interesting observations were noted. First, the individuals were found to inhabit very specific areas. They were found in very few numbers in bare rocky



Image 2. Herbarium sheet of *Mantisia spathulata*



Image 3. Habitat, associated species and individual inflorescence of *Mantisia spathulata* at study site.

surface where the associated species were absent. Second, the individuals were also conspicuously absent in the dense patches of vegetation adjacent to the study site. This indicates the species requires optimum amount of sunlight and shade and the presence of

specific associated species as mentioned above. These factors were the major determinants for the growth of this species in the wild. However a detailed study regarding the habitat specifications in the future is required to ascertain the growth of this species in the studied locality.

The locality is currently undergoing extensive land degradation since it is very close to the road. It was observed that the habitats of the plants had severely eroded at different places due to slope failures and landslides. The slope where the plant was found is highly degraded. Hence steps should be taken to preserve this new locality of this rare species. Some methods to ensure conservation would be the restoration of the patch so that further habitat degradation is checked. Also the species may be grown under ex situ conditions and then reintroduced into other suitable habitats. Such habitats could be selected by applying Ecological niche modelling techniques (Liu et al. 2006). Also further research may be done to investigate the reason for occurrence of this species at a lower altitude.

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