NOTE

NEW PTERIDOPHYTIC RECORDS FROM MIZORAM, NORTHEASTERN INDIA

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The northeastern region of India, well known for its rich biological diversity, constitutes a transitional zone between the Indian, Indo-Malayan and Sino-Himalayan biogeographical zones (Rao 1994). The region supports a wide vegetation range and has been extensively explored in terms of pteridophytic flora since the British rule. Several publications such as Deb (1981), Baishya & Rao (1982), Jamir & Rao (1988), Kachroo et al. (1989), Vasudeva et al. (1990), Bir et al. (1989, 1990, 1991), Borthakur et al. (2000), Singh & Panigrahi (2005), and Kholia (2010, 2011, 2014) deal with ferns and fern-allies of this region.

Mizoram, one of the northeastern Indian states falls under northeast Hills (9B; Rodgers et al. 2000) and the Indo–Burma Biodiversity Hotspot (Conservation International, 2011). The total geographical area of this hilly state is ca. 21,081 km², which shares international boundaries with Myanmar and Bangladesh. Due to biogeographic, physiognomic and climatic perspectives, the region has ideal habitats for the growth of tropical vegetation. Unlike higher plants, pteridophytic flora had received less attention and there were sporadic reports in the past, viz.: Gage (1901), Fischer (1938), Deb & Dutta (1987), Chandra & Chandra (1983). The studies on this group, however, has accelerated recently due to explorations on different protected areas of Mizoram (Barbhuiya & Singh 2013; Benniamin 2011, 2012; Sharma et al. 2013, 2017; Vanlalpeka & Laha 2014; Verma et al. 2014).

During field explorations conducted by one of the authors (SS), four interesting species of pteridophytes were collected in Murlen National Park, Mizoram (2012–2015). Upon detailed study of different morphological characters, scrutiny of literature and comparison of species with previously housed herbarium specimens at ASSAM and CAL revealed that these species were hitherto unknown from Mizoram. Therefore, the present communication reports these species as new records to the flora of Mizoram State. The plant specimens were processed and prepared following standard herbarium methods (Jain & Rao 1977) and deposited in the herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM).

Taxonomic treatment and description

1. **Lycopodium casuarinoides**
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Lithophyte, erect when young, hanging on maturity, aerial stem light green when young become straminaceous on age, densely covered by microphylls or leaves; sterile branches ca. 3mm wide, fertile branches ca. 1mm wide, ultimate sterile branchlets spreading, 5–15 cm long, ultimate fertile branchlets 2.5–15 cm long; vegetative leaves dimorphic on sterile branches, adnate, free apex of the sterile leaves hyaline, 2–3 mm long, free apex of fertile leaves 1mm long or less. Strobili 8–18 mm long, Sporophylls broadly ovate, acuminate or caudate.

Specimen examined: BSI, ERC 133494 (ASSAM), 20.ix.2014, Tualpui core, Murlen National Park, Mizoram, India, 1,350m, coll. Sachin Sharma (Image 1 & 2).

Fertile period: August–December

Threat status: Not evaluated in IUCN Red List.

Chandra et al. (2008) mention this species as ‘rare’.

Habitat: Scandent on rocky slopes, edges and boulders between 1200–1500 m elevation.

Distribution: India (Arunachal Pradesh, Assam, Meghalaya and Mizoram (present record)), Bhutan, China, Japan, Malay Islands, Malay Peninsula, Myanmar, Philippines, and Taiwan.

2. Pichisermollodes crenatopinnata


Terrestrial, rhizome thin, creeping, densely clothed with small, lanceolate, scales; stipes 5–12 cm long, slender, glabrous; fronds elongate–deltoid, 8–25 cm long, pinnatifid close to the rachis, glabrous, lobes 4–5 pairs, 1.5– 5 cm long, 0.5–1.5 cm wide, apex acute, margin undulate–crenate, costa distinct, costule inconspicuous; sori one row in between the main veins and in one row on either side of midrib, small, brown.

Specimen examined: BSI, ERC 131483 (ASSAM), 17.ix.2014, Ngur forest, Murlen National Park, Mizoram, India, 1,485m, coll. Sachin Sharma (Image 3 & 4).

Fertile period: August–November

Threat status: Not evaluated in IUCN Red List.

Chandra et al. (2008) mention this species as ‘rare’.

Habitat: Grows on calcareous sandy slopes between
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1400–1600 m elevation.

Distribution: India (Manipur, Meghalaya, Mizoram (present record) and Nagaland), China.

3. Belvisia henryi


Rhizome short–creeping, scaly at apex, scales ovate–oblong–lanceolate, 0.22–0.44 × 0.06–0.12 linear, 4–15 × 0.1–0.3 cm. sori linear, in two rows along the rachis, but in well developed forms seems completely covering the spike, margins curved; spores hyaline, brown. Stipes 0.5–2 cm long; lamina 7–27 × 1.5–5 cm, tufted, lanceolate or elongate, simple, subcoriaceous and brattle, base gradually narrowed or sometimes irregularly truncate, margins entire to undulate, apex acuminate-caudate forming a narrow fertile spike.

Specimen examined: BSI, ERC 128498 (ASSAM), 13.ix.2014, Vapar forest, Murlen National Park, Mizoram, India, 1,260m, coll. Sachin Sharma (Image 5 & 6).

Fertile period: September–April

Threat status: Not evaluated in IUCN Red List. Chandra et al. (2008) mention this species as ‘near threatened’.

Habitat: Epiphyte on broad-leaved trees like Elaeocarpus sp. and Engelhardtia spicata in dense and moist forests.

Distribution: India (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram (present record), Sikkim and West Bengal), Bhutan, China (Yunnan), and Nepal.

4. Acystopteris tenuisecta


Athyrium tenuisectum (Blume) T.Moore, Index Fil. (Moore) 188, 1860.


Rhizome creeping, densely scaly scales light-brown, 0.2–0.6 cm long, 0.17–0.5 cm broad, ovate-lanceolate, entire; stipes 16–45 cm long, stramineous, scaly, scales as on rhizome, rachis stramineous, scaly; lamina tripinnate, 18–55 × 12–32 cm, deltate, herbaceous,
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Image 5. *Belvisia henryi*

Image 6. Herbarium sheet of *Belvisia henryi*

Image 7. *Acystopteris tenuisecta*

Image 8. Herbarium sheet of *Acystopteris tenuisecta*

sparsely hairy; pinnae 10–20 pairs, 12–25 × 2–9 cm, triangular lanceolate; pinnules 9–20 pairs, 2–4 × 0.8–2 cm, lanceolate, asymmetrical, alternate, sub sessile or sessile; costae and costules stramineous, scaly and hairy, Sori indusiate.

Specimen examined: BSI, ERC 128164 (ASSAM), 15.i.2013, Near Bear lodge, Murlen National Park, Mizoram, India, 1,427m, coll. Sachin Sharma (Image 7 & 8).

Fertile period: November–April.
Threat status: Not evaluated in IUCN Red List.
Habitat: Grows along streams.
Distribution: India (Arunachal Pradesh, Darjeeling (West Bengal), Meghalaya, Mizoram (present record), Sikkim and Uttarakhand), Bhutan, China, Indonesia,
Japan, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Taiwan, Thailand, Tibet, and Vietnam.

References


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Miscellaneous

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