On the identity and nomenclature of *Lindsaea heterophylla* Dryand. and *Lindsaea heterophylla* Bedd.

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Abstract. *Lindsaea heterophylla* Dryand. and *Lindsaea heterophylla* Bedd. earlier confused and normally confounded under *Lindsaea heterophylla* Dryand. have been separated out as distinct species. A new name *Lindsaea beddomea* Dixit et Ghosh has been proposed for *Lindsaea heterophylla* Bedd. Key to the species, detailed text and illustrations have been furnished for easy identification.

Keywords. Fern; *Lindsaea*.

1. Introduction

*Lindsaea heterophylla* was described by Dryander (1797) from Malacca, Malay Peninsula. The species was later transferred by Smith (1842) to the genus *Schizoloma* Gaudich. and under which it continued to be retained by Hooker (1846), Beddome (1863, 1883), Hooker and Baker (1868), Holttum (1954, 1966). Beddome (1863) described another species under the name *Lindsaea heterophylla* from Shevaroy hills, Tamil Nadu, India. He distinguished this species from *Schizoloma heterophyllum* (Dryand.) J. Smith in venation being always free and never anastomosing. In his subsequent publications, Beddome (1883) further distinguished his species of *Lindsaea* from *Schizoloma heterophyllum* (Dryand.) J. Smith and remarked "This is more compound than any of the Indian forms of *Schizoloma heterophylla* ·······I am however inclined to consider it a distinct species". However, Holttum (1954, 1966) considered Beddome's species with free veins as a local variety of *Schizoloma heterophyllum* (Dryand.) J. Smith.

Kramer (1971) again treated *Schizoloma heterophyllum* (Dryand.) J. Smith under *Lindsaea* in which genus it was originally described but did not make any mention of *L. heterophylla* Bedd. However, while revising the Lindseoid ferns of the old world, he cited *L. heterophylla* Bedd. as synonym to *L. heterophylla* Dryand. without offering any comments.

During the revisionary studies of the genus *Lindsaea* Dryand. ex Smith for India, the authors examined the Indian material present in the Central National Herbarium, Howrah (CAL) and the Botanical Survey of India, Southern Circle,
Coimbatore (MH) along with type description and drawings besides other relevant literature mentioned above and found that the two species are entirely distinct from each other. A new name Lindsaea beddomea Dixit et Ghosh is, therefore, proposed for Lindsaea heterophylla Bedd. (1863), which becomes a later homonym of Lindsaea heterophylla Dryand. (1797) and as per requirement of the code should be rejected.

The two species are described and illustrated. A detailed key to the two species is also given.

2. Key to the species

Lamina oblong, small, 10–20 × 6–8 cm, bipinnatifid to bipinnate in the basal region, pinnae/pinnules narrowly auricate, nor subfalcate, ultimate segments ovate-lanceolate, obtuse at the apex, smooth at the margins, veins irregularly anastomosing.

L. heterophylla Dryand.

Lamina deltoid, large, 14–40 × 8–25 cm, bipinnate to tripinnate in the basal region, pinnae/pinnules auricled in the proximal side at the base, subfalcate, ultimate segments linear-lanceolate, caudate at the apex, sparsely crenate in the margins, veins always free.

L. beddomea Dixit et Ghosh.

3. Systematic account


Adiantum heterophyllum (Dryand.) Poiret, Encycl. Suppl. 1, 139, 1810.

Bedd., Ferns South India, 9. t. 25, 1863; Handb. Fern. Brit. India, 80. 1883;


Rhizome short, creeping, 1·5–2·5 mm in diameter, clothed with brown, small, narrowly triangular scales upto 2·5 mm long, 4 to 7 seriate at the base, uniseriate and long-celled above; stipes 8–20 cm in the adult plants, shining dark brown to stramineous, terete at the base, tetragonous above. Lamina small, oblong, 10–20 × 5–8 cm. bipinnatifid to bipinnate in the basal region, pinnate above, herbaceous to chartaceous, medium green to olivaceous-green when dry. Primary and secondary rachises stramineous, abaxially biangular, broadly and shallowly sulcate; lateral pinnae remote, 2–4 cm apart, pinnate in the basal region, 3–8 pinnules a side, imparipinnate, 0·5–1·5 × 0·3–0·5 cm, sub-flabellate to sub-orbicular or of same shape as simple lateral pinnae of the apical part. Small pinnules more in number than the larger ones. Lateral pinnae of the apical region simple, ovate-lanceolate, 2·5–3 × 0·5–0·8 cm, basioscopically narrower, cuneate, acroskopically
slightly larger and cordulate, not auriculate, one or two pinnules below the terminal leaflet abruptly reduced, 5–7 × 5–6 mm, rhomboid to flabellate; the terminal leaflet comparatively larger, lanceolate or elongate-triangular, cuneate at the base, obtuse at the apex, ultimate segments of the lateral pinnae alike; margins of the adult pinnules smooth, but of vegetative pinnae/pinnules crenate; adult pinnae/pinnules ascending, veins irregularly anastomosing forming interrupted series of areoles. Sori continuous, except interrupted by incisions. Indusium entire or erose, intramarginal, reflexed at maturity. Spores 30–35 μm, yellow, trilet, grannulose (figures 1–3).

Specimens examined:


Microfisch Examined: Wallich list no. 2197 (CAL).

Geographical Range: South India, Andaman and Nicobar Islands, Mascarene Islands, Madagascar, Sri Lanka, Kyu Kyu Islands, China, Malaya Peninsula, Malesian Islands, Philippine Islands.

Lindsaea beddomea R. D. Dixit and B. Ghosh, nom. nov.


Rhizome long, creeping, 2–4 mm in diameter, clothed with brown, small, narrowly triangular scales 3–5 mm long, 3–6 seriate at the base, uniseriate and long celled above; Stipes 11–30 cm in adult plants, shining castaneous, terete at the base, light brown to stramineous, tetrangular and sulcate above. Lamina deltoid, 14–40 × 8–15 cm, bipinnate to tripinnate in the basal region, pinnate above, herbaceous to chartaceous, dark green in colour. Primary and secondary rachises pale yellow, sulcate. Lateral pinnae remote, 2–4·5 cm apart, pinnate to bipinnate in the basal region, 6 to 10 pinnules a side, imparipinnate, 0·5–2·5 cm × 0·5–0·7 cm; variable in form, subflabellate to subrhomboid or of the same shape as of simple lateral pinnae in the apical region, smaller pinnules are less in number than the larger ones. Lateral pinnae in the apical region, simple, subulcate, variable in shape and size, usually rhomboid-lanceolate, 2–4 cm × 0·5–1 cm, auricled in the acrosopic side at the base, basiscopically narrow and cuneate at the base, gradually decreasing above, a few pinnules below the terminal leaflet elliptic to abovate, 8–10 × 2–3 mm, terminal leaflet narrowly lanceolate, 1·5–3·5 × 0·2–0·5 cm in the basal part, caudate at the apex, sparsely crenate in the margins, ultimate segments of the lateral pinnae similar to terminal leaflet; veins always
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free and forked. Sori continuous, rarely interrupted by incisions; indusium, wavy to erose, intramarginal, reflexed at maturity. Spores yellow, trilete, 30–35 μm, granulose (figures 4–7).

**Specimens examined:**


**Geographical range:** South India—Shevaroy hills.

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