



Exormotheca ceylonensis Meijer - a threatened liverwort in India, rediscovered in Palni Hills, Tamil Nadu

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Palni Hills, lying between 10°12'–10°15'N and 77°26'–77°33'E, comes under Dindigul District of Tamil Nadu, India, and is a part of the Eastern Ghats. The area shows an altitudinal range of 360–2550 m. It extends in a northeast–southwest streak in the Indian peninsula covering an area of about 75,000km² with an average width of 200km in the north and 100km in the south. It extends over a length of 1750km between the Mahanadi and Vaigai rivers along the east coast. The Mahanadi basin marks the northern boundary of the Eastern Ghats while the southern edge is the Nilgiri Hills. The weather varies over the range, but much of the plateau receives an average of more than 1500mm of rainfall annually, with not more than four dry months. In the higher areas the mean day temperature in the coolest months is below 17°C.

Palni Hills have received insufficient consideration for bryological studies though they provide a favourable environment for the lavish predominance of these little, non-vascular land plants. Many taxa described earlier are stated to be not traceable even in their original locations and our knowledge about the present status of each species is not clearly known.

Investigations during last few years on several exhaustive collections and surveys made by the authors and their associates provide the first authentic record of the *Exormotheca ceylonensis* in Palni Hills. The areas explored include Kodaikanal, Shembaganur, Silver Cascade, Tiger Shola, Palangi, Attuvampatti and Periakulum.

During diversity and distributional studies of Indian liverworts, it has come to our notice that *Exormotheca ceylonensis* in the country have never been reported again since their original discovery (Udar & Chandra 1964), resulting in their assumption as extinct taxa. It was instituted by Meijer (1956) from Sri Lanka (Ceylon) and subsequently, from India it was reported by Udar & Chandra (1964) from a confined, small pocket of (Kodaikanal) Palni hills, Tamil Nadu as a new record for India. Later it was also collected from Coonoor (Nilgiri hills) in 1965 (see Udar & Srivastava 1967), since then it has never been reported from any bryogeographical region of India (see Parihar et al., 1994; Udar & Srivastava 1983; Bapna & Kachroo 2000). According to the IUCN threat criteria (see Hallingback et al. 1998) this taxa was assumed as Regionally Extinct (RE) because since the last 40 years it has never been collected from its original localities or anywhere else in India. The European Bryophyte Red List (see Stewart & Vana 1995; Hallingback et al. 1998) defined Extinct taxa as “Taxa for which all known localities have been checked repeatedly in the last 30 years without success”.

Recently while examining a collection of the specimens from Palni hills, Tamil Nadu, a few plants answerable to this species were found. The rediscovery of this threatened Asiatic species again registered its presence in the country, but the alarming fact is that the occurrence of species is still confined to small pockets as small populations with a high risk of extinction in the near future because habitat

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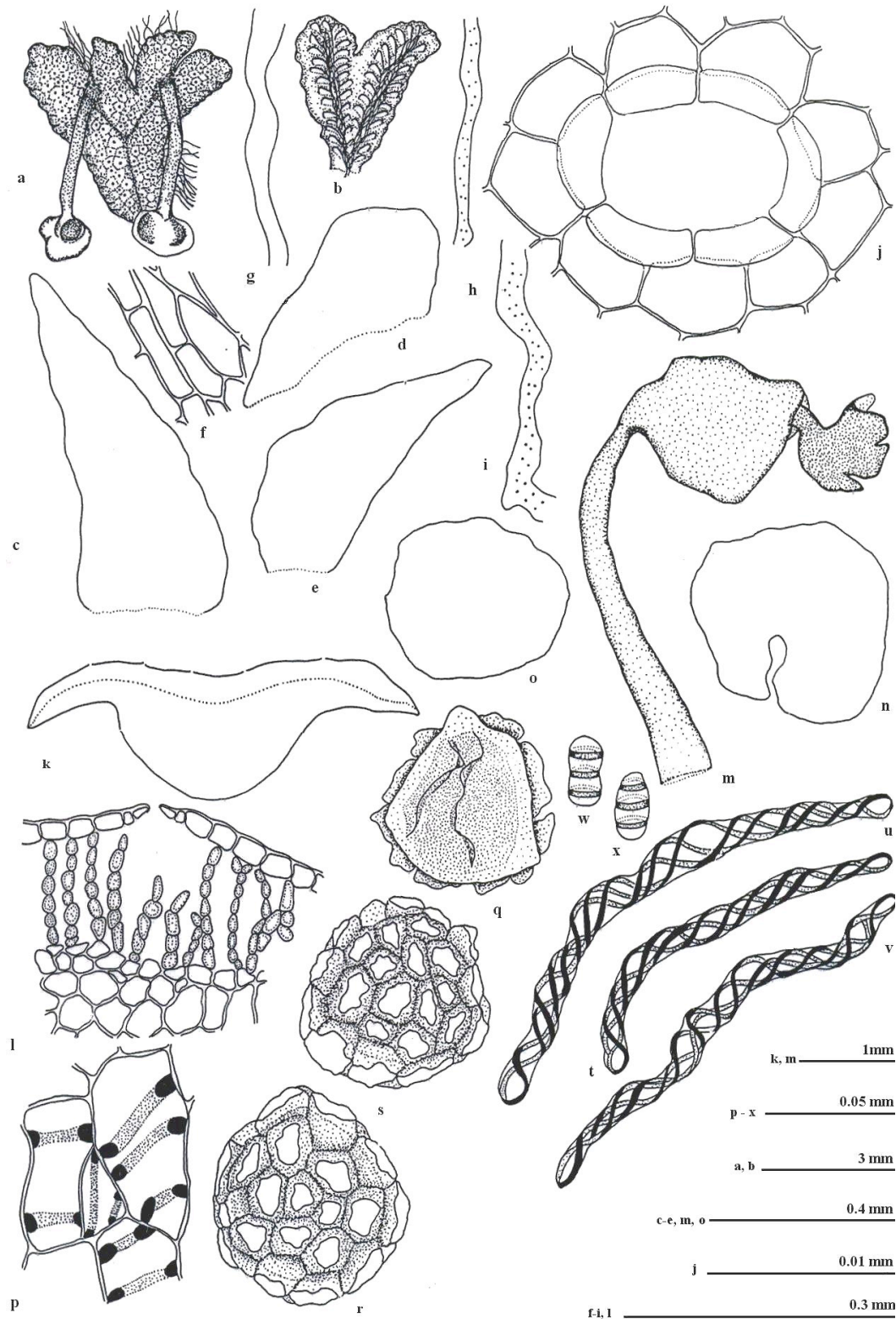


Figure 1. *Exormotheca ceylonensis* Meijer.

a-x. a - A Female Plant (Dorsal View); b - Plant (Ventral View); c-e - Ventral Scales; f - Cells of Ventral Scales; g-i - Rhizoids; j - Epidermal Pore (Dorsal View); k - V.T.S. of Thallus (Semi-diagrammatic); l - V.T.S. of Thallus (A Magnified Portion); m - Female Receptacle with a Dehiscent Capsule; n - T.S. of Female Receptacle; o - T.S. of Seta; p - Capsule Wall; q - Spore (Proximal View); r&s - Spores (Distal View); t-x - Elaters. (Figures Drawn From LWU - 20468/2008).

loss is prevailing at a rapid rate in the region. Many previously known liverworts have not been collected again and are under threat of extinct from the region. Therefore, according to the guidelines of IUCN threat categories of bryophytes, this particular taxon comes in the category of Critically Endangered in the Indian region, unless appropriate conservation action is taken to stop the habitat loss to save the valuable gene pool. It is strongly recommended that the taxon require serious efforts for its conservation and should be kept under the Threatened category.

A brief morpho-taxonomy description along with line drawings is given of this threatened taxon.

Exormotheca ceylonensis Meijer. *Journal of Hattori Botanical Laboratory* 16:72 (1956); Udar et Chandra, *Current Science* 33: 436 f.1–17 (1964)
(Fig. 1 a–x).

Thallus 6–8 mm long and 2.0–2.5 mm broad, one to two dichotomously branched, dorsal surface with thin mid dorsal streak and polygonal areas. Epidermal pores surrounded by a ring of 6–8 cells. Air chambers in a single row containing simple assimilatory filaments. Midrib prominent, wing abruptly attenuate. Ventral scales simple, un-appendaged, in two rows. Antheridia close behind the female receptacle, embedded in the thallus along the mid dorsal line in 2–3 rows. Ostioles prominent. Monoicous. The female receptacles terminal at the point of dichotomy with 1 (-2) involucre. Two lobes of the thallus continue to grow after the formation of the female receptacles and again bifurcated. Female receptacle stalk smooth, margin undulate with deep rhizoidal furrow. Receptacular scales are of two types - simple and undifferentiated having no pore opening. Sporophyte with almost spherical capsule, short seta and short foot. Capsule wall consist of single row of cells, inner walls having brown semi-annular thickenings bands; dehiscence by 4–5 irregular valves. The spores are areolate, 70–82

µm in diameter. Convex outer face with light brown hollow elevation; 3–5 reticulation across diameter. Elaters simple often branched, usually trispirate rarely tetraspirate.

Specimens examined: 29.xii.2008, on the way to Kodaikanal, ca. 1100m, Palani Hills, Tamil Nadu, southern India, P.K. Verma & Afroz Alam, 20468, 20470, 20519–21 (LWU).

Type: Ceylon (Sri Lanka).

Sexuality: Monoicous.

Ecology: Terrestrial, grows on moist rocks and soil covered rocks.

Range: Ceylon (Sri Lanka), India (see also Meijer 1956).

Distribution in India: Southern India: Tamil Nadu-Palni hills.

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