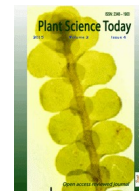




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Research Communication

Macromitrium hymenostomum Mont.- A New record for South India

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Abstract

Macromitrium hymenostomum Mont., a pleurocarpous moss (Orthotrichaceae) has been collected from South India and described here. The taxon was earlier known from western Himalaya only. Present report provides extended distribution of the taxon from North to South India. The plants are characterized by pleurocarpous habit, yellowish-green to dark-brown, pinnately branched plants, closely arranged ovate-lanceolate leaves with single costa, unipapillose leaf cells and disintegrated peristome.

Keywords

Orthotrichaceae; *Macromitrium hymenostomum* Mont.; Corticolous; Nilgiri Hills; South India

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Introduction

Genus *Macromitrium* Brid. (Family Orthotrichaceae) is represented by 22 species in India which are distributed in Western Himalaya (3 species), Eastern Himalaya (8 species) and South India (17 species) (Gangulee, 1974-77; Dabhade, 1998, Lal, 2005; Madhusoodanan *et al.*, 2007; Kumar and Krishnamurthy, 2007; Daniels and Daniel, 2007; Nair *et al.*, 2008; Nair *et al.*, 2009; Daniels, 2010; Singh *et al.*, 2010; Choyal and Sharma, 2011; Verma *et al.*, 2011, Alam *et al.*, 2011; Frahm *et al.*, 2013; Schwarz and Frahm, 2013; Schwarz, 2013). *Macromitrium hymenostomum* Mont. was earlier reported from Kumaun, Uttarakhand in Western Himalaya only (Tiwari and Pant, 2002; Dandotiya *et al.*, 2011; Alam, 2013). During the survey of the bryophyte collection from South India it has been found growing as corticolous population in Nilgiri hills which shows its extended distribution. The species has been illustrated and described here. With the present report the number of the species of *Macromitrium* in south India has been increased to eighteen.

Materials and Methods

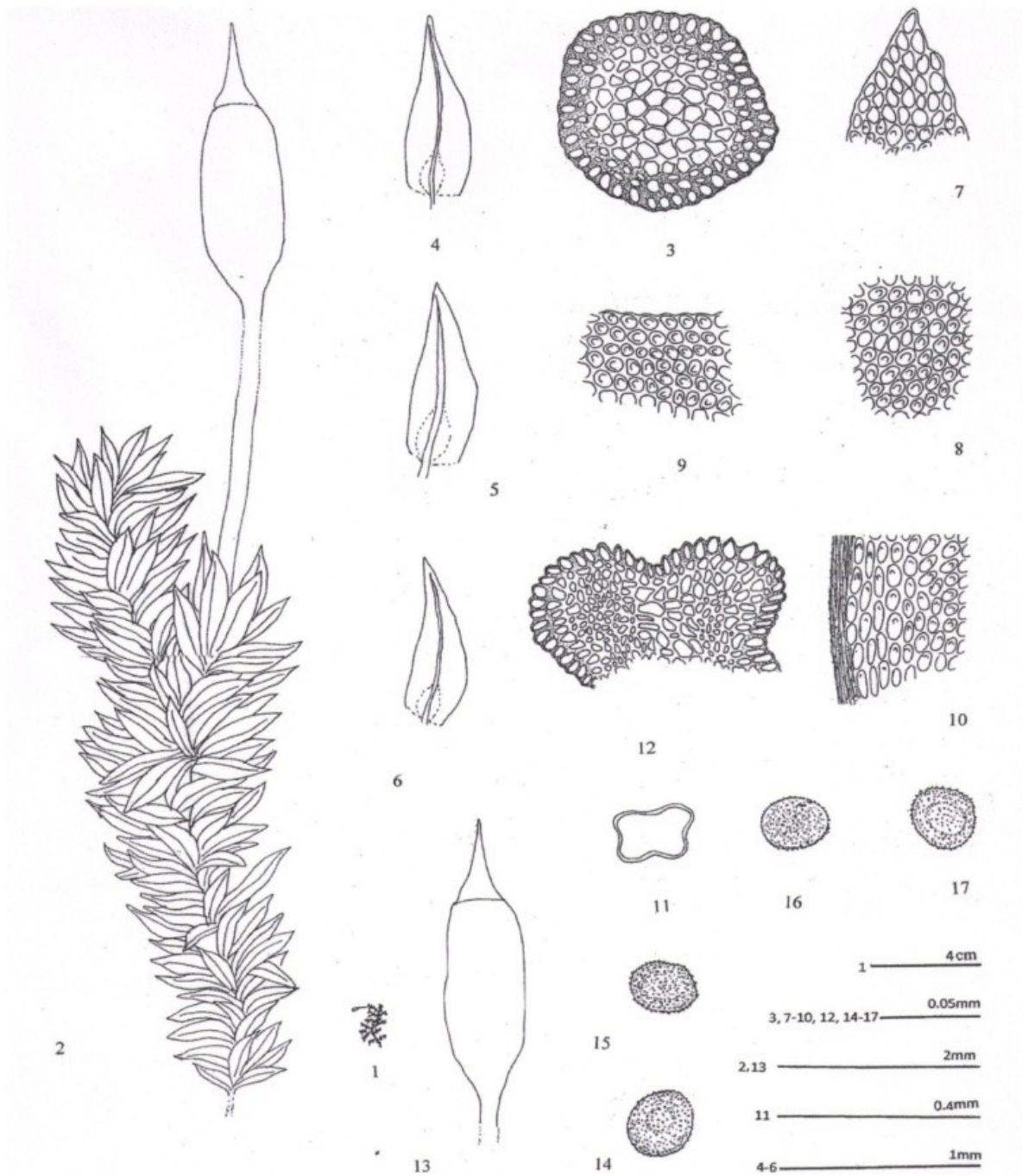
The plants were collected from Udhagamandalam (Glenmorgon) and Mukurthi (Mukurthi National Park

and Parthimund Reserve Forest) in Nilgiri hills in 2003 and 2005 respectively. The plants (dried herbarium specimens) were critically investigated under Stereoscopic Zoom Binocular Microscope (Carl Zeiss, M140, Germany) and Leica Binocular Compound Microscope (LEICA DM LB2). Temporary slides were prepared in 70% aqueous glycerin for external morphology and anatomical studies. The line drawing illustrations were made with the help of Light Microscope (Olympus OIC 66116) and NIKKEN Camera Lucida on suitable magnifications. Measurements were taken with the help of stage micrometer and occulometer.

Taxonomic description

Macromitrium hymenostomum Mont. In: Ann. Sc. Nat. Bot. Ser. 3, 4: 120 (1845). (Figs: 1- 17).

Plants yellowish green to dark brown in colour, pleurocarpous, corticolous, 20-35 mm long and 1-2 mm wide with leaves, irregularly branched, branches erect, 3-6 mm long. Plants yellowish green to dark brown in colour, pleurocarpous, corticolous, 20-35 mm long and



Figs: 1-17. *Macromitrium hymenostomum* Mont. 1. Habit, 2. A portion of plant with sporophyte, 3. Cross-section of the stem, 4-6. Leaves, 7. Apical leaf-cells, 8, 9. Median leaf-cells, 10. Basal leaf-cells, 11, 12. Cross-sections of Seta, 13. Capsule, 14-17. Spores. All figures drawn from 16969/2003 (LWU).

1-2 mm wide with leaves, irregularly branched, branches erect, 3-6 mm long. Stem 0.15-0.17 mm in diameter, one or two rows of outer cortical cell slightly thick walled, small, 3-8 x 2-6 μm , brown in colour, inner cortical cells thin walled, large, 11-19 x 7-11 μm , central strand absent. Leaves densely arranged on stem, erect, lanceolate, 0.94-1.10 x 0.23-0.32 mm with acute apex and entire margin. Costa single, prominent, ending 2-3, sometimes 4-6 cells below apex. Leaf-cells thick walled with single large papillae throughout except at the tip, apical cells rounded-quadrate, 11-15 x 7-10 μm , median cells 7-11 x 3-8 μm , basal cells similar to median cells near

margin and elongated, ovate-rectangular, 11-18 x 7-10 μm near costa. Sporophytes present on lateral branches. Seta erect, scabrous at base, 3-5 mm long. Capsule erect, cylindrical, brown, 1.90-2.15 mm long and 0.6-0.7 mm wide. Peristome teeth disintegrated. Spores numerous, large, 26-38 μm in diameter and finely papillose.

Range: India, East Nepal, Bhutan, China, Japan, Korea, Georgia, Mexico, Bolivia, Chili, Taiwan, North America, Central America & South America (Noguchi, 1967; Gangulee, 1974-77), East Europe and North Asia (Ignatov *et al.*, 2006).

Distribution in India: Western Himalaya: Kumaun (Tiwari and Pant, 2002; Singh *et al.*, 2010, Dandotiya *et al.*, 2011; Alam, 2013) and **South India: Nilgiri Hills.**

Specimens examined: South India: Tamil Nadu, Nilgiri Hills, On way to Glenmorgon, alt. ca. 2200 m, P. K. Verma & A. Alam, 2 April 2003, 16969/2003 (LWU), Mukurthi National Park, alt. ca. 2200-2300 m, P. K. Verma, 23 May 2005, 18006/05 (LWU), Parthimund Reserve Forest, alt. ca. 2250 m, P. K. Verma, 24 May 2005, 18062/05 (LWU). Western Himalaya: Uttarakhand: Pithoragarh: Narayan Ashram, alt. ca. 2000 m, G. Asthana & Party, 17 October 2011, 21780/11 (LWU).

Habitat: Plants generally grow on bark in association with *Plagiochila* sp.

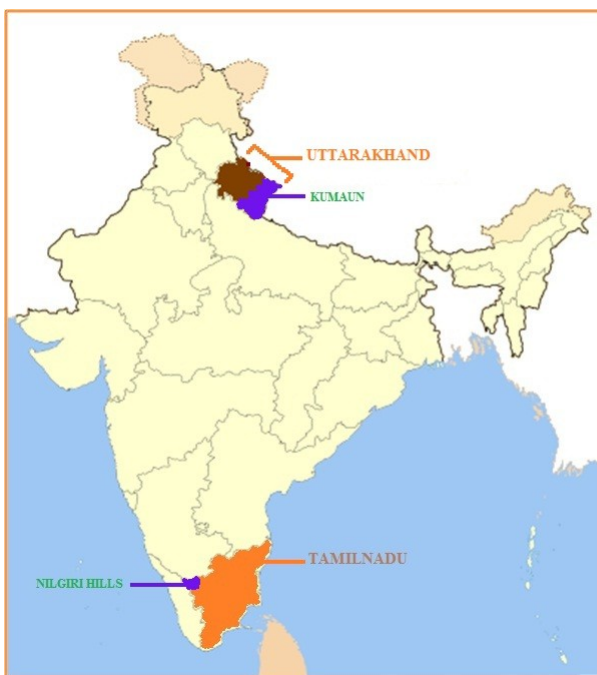


Fig. 2. Map showing Distribution of *Macromitrium hymenostomum* Mont. in India

Discussion

Macromitrium hymenostomum is quite distinctive from other species in having unipapillose leaf cells and disintegrated peristome (Gangulee, 1974-77). The papillae are present throughout the leaf (Figs. 7-10) except the tip. The seta is somewhat quadrangular in cross section (Figs. 11, 12). The plants have been collected from South India and Western Himalaya and critically investigated. Both the populations are fertile and similar in over all morphology. However the west Himalayan population has comparatively larger branches (5-10 mm) than the south Indian population which has comparatively smaller branches (3-6 mm). The present report shows its extended distribution within country from Western Himalaya to south India (Fig 2).

Acknowledgement

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