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## Research Article

# Checklist of Mosses (Bryophyta) of Bodamalai Hills in Eastern Ghats, Tamil Nadu

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### Abstract

Bodamalai Hills, situated on the Southern Eastern Ghats of Tamil Nadu, were explored for mosses (bryophyta) for the first time. As a result a checklist of mosses has been prepared comprising 52 species belonging to 38 genera and 21 families. The dominant families with the maximum number of species are Pottiaceae, Bryaceae, Stereophyllaceae, Sematophyllaceae and Brachytheciaceae. The dominant genera are *Brachymenium* and *Bryum* and the dominant species are *Barbula javanica* and *Bryum capillare*.

### Keywords

Bodamalai Hills; Eastern Ghats; mosses; Tamil Nadu

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## Introduction

Bryophytes were the pioneers to colonize a terrestrial habitat from an aquatic one. They are the second largest group of terrestrial plants next to angiosperms (Chopra, 1975). They represent a heterogeneous assemblage of plants which include liverworts (Marchantiophyta), hornworts (Anthoceroophyta) and mosses (Bryophyta) that impart lush greenery, a verdant cover, spongy bed or carpet in every possible habitat. They colonize on rocks, road-side cuts, walls and old monument remains, as epiphytes on trees, logs, stumps, leaves and forest floors. The Indian sub-continent is bestowed with a wide range of phytogeographical regions with varied ecological conditions. Currently about 2,489 taxa of bryophytes have been reported from India (Dandotiya *et al.*, 2011). In recent years floristic studies on the bryophytes of the Eastern Ghats have been made by (Kumar and

Krishnamurthy, 2007; Sahaya Sathish, 2013; Rani *et al.*, 2014; Sathish *et al.*, 2014; Biju and Daniels, 2016 and Mishra *et al.*, 2016). Studies on the ecology and distribution of bryophytes along the north coastal zone of the Andhra Pradesh in the Eastern Ghats have been made by (Murty *et al.*, 2011, Rao and Rao, 2013, and Dash *et al.*, 2009).

## Study Area

Bodamalai hills are situated in the Southern Eastern Ghats and fall under Rasipuram Taluk in Namakkal District, Tamil Nadu. Rasipuram is the nearest town to Bodamalai hills and Thengalpalayam, Vadugam and Kullampatti are the neighbouring villages. The hills lie between 11° 14'46" - 12° 53'30" North latitude and 77° 32'52" - 78° 53'05" East longitude. The maximum elevation of the hills is ca 1, 200 m (Sathiyaraj & al., 2015; Fig. 1. a, b).

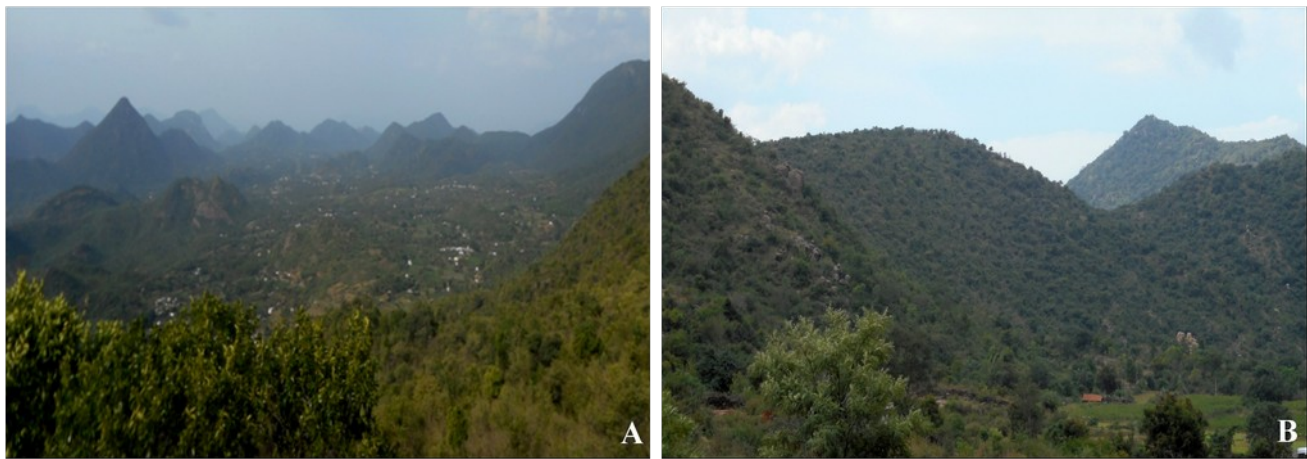


Figure 1 (A, B) Views of Bodamalai Hills

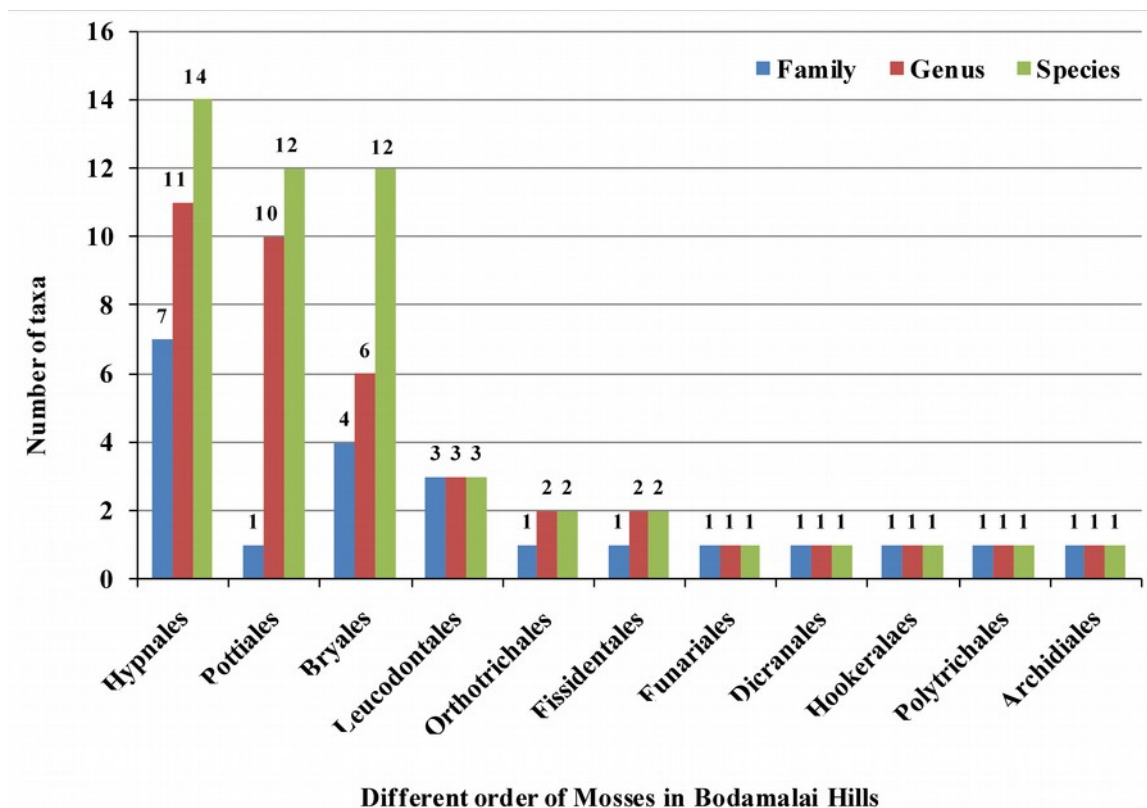


Figure 2. Representation of different orders of mosses of Bodamalai hills

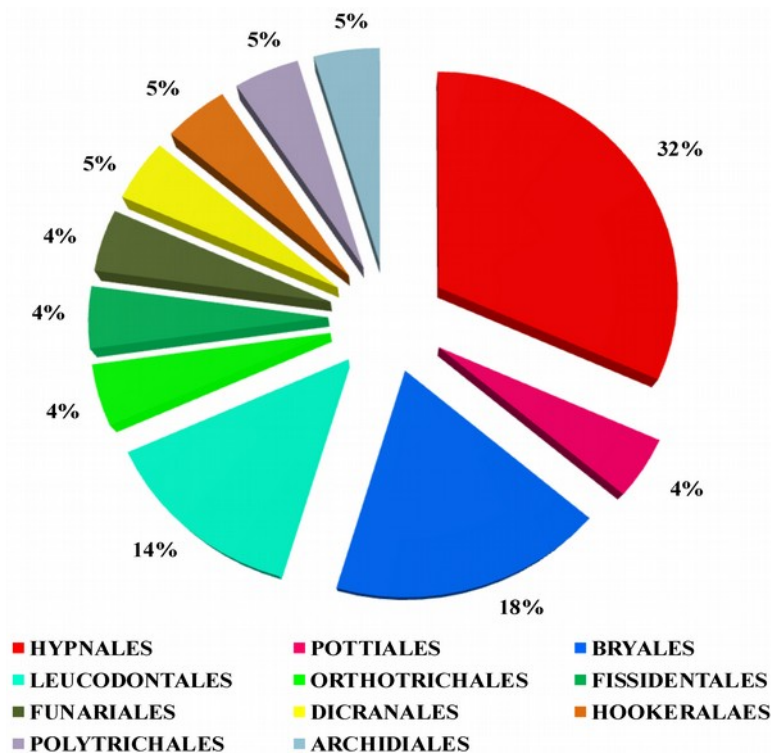
### Materials and Methods

Collections were made following traditional methods. Surveys were carried out from August 2013 to March 2016 immediately after monsoon rains. Simple methodology was adopted to collect specimens in the field. A knife was used to peel off specimens from tree barks, rocks and other substrata. Specimens were dried at room temperature on blotting paper and placed carefully in brown paper envelopes of dimension 15 × 10 cm. Collection details were noted including locality, date of collection, habitat type, altitude etc. Identifications were made with the help of Gangulee's 'Mosses of Eastern India and Adjacent

Regions' (1969-1980), Manju *et al.*, *Bryophytes of Wayanad in Western Ghats* (2005) and other related works and also by comparing with protologues. All moss taxa included in the list were checked against the database ([www.tropicos.org](http://www.tropicos.org) and [www.theplantlist.org](http://www.theplantlist.org)) and Daniels (2010) concerning current acceptable nomenclature.

### Results and Discussion

The present study on the mosses of Bodamalai hills reveals the occurrence of a total number of 52 species belonging to 38 genera and 21 families, (Table 1). The most diverse order is Hypnales with



**Figure 3.** Percentage Distribution of different orders of Mosses of Bodamalai hills

14 species, 11 genera and 7 families followed by Pottiales with 12 species belonging to 10 genera and 1 families and Bryales with 12 species, 6 genera and 4 families. The most predominant family is Pottiaceae comprising 10 genera and 12 species followed by Bryaceae with 3 genera and 10 species (Fig. 2 – 3). Most of the species are rupicolous and a few are lignicolous and only on species foliicolous. The evergreen forests in the study area harbour a maximum of 33 species. On the contrary, plantations harbour only 5 species. This observation highlights the need for conservation of the relict, fragmented evergreen forests.

### Competing Interest

The authors declare that they have no competing interests.

### Authors' contributions

All authors read and approved the final manuscript.

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**Table 1.** List of mosses occurring in Bodamalai hills

	<b>Name of the species</b>	<b>Family</b>	<b>Order</b>
	<b>Anoetangium Schwägr.</b>		
1.	<i>Anoetangium thomsonii</i> Mitt. <b>Syn.:</b> <i>Anoetangium bicolor</i> Renauld & Cardot	Pottiaceae	Pottiales
	<b>Archidium Brid.</b>		
2.	<i>Archidium birmanicum</i> Mitt. ex Dixon	Archidiaceae	Archidiales
	<b>Barbula Hedw.</b>		
3.	<i>Barbula indica</i> (Hook.) Spreng.	Pottiaceae	Pottiales
4.	<i>Barbula javanica</i> Dozy & Molk. <b>Syn.:</b> <i>Hydrogonium consanguineum</i> (Thwaites et Mitt.) Hilp.	Pottiaceae	Pottiales
	<b>Brachymenium Schwägr</b>		
5.	<i>Brachymenium leptophyllum</i> Bruch & Schimp. ex Mull.Hal.) Bruch & Schimp. ex A. Jaeger	Bryaceae	Bryales
6.	<i>Brachymenium sikkimense</i> Renauld & Cardot	Bryaceae	Bryales
7.	<i>Brachymenium acuminatum</i> Harv.	Bryaceae	Bryales
8.	<b>I. BRACHYMENIUM BRYOIDES HOOK. EX SCHWÄGR.</b>	Bryaceae	Bryales
9.	<i>Brachymenium exile</i> Dozy & Molk.) Bosch & Sande Lac.	Bryaceae	Bryales
	<b>Bryum Hedw</b>		
10.	<i>Bryum cellulare</i> Hook.	Bryaceae	Bryales
11.	<i>Bryum capillare</i> Hedw.	Bryaceae	Bryales
12.	<i>Bryum caespiticium</i> Hedw.	Bryaceae	Bryales
13.	<i>Bryum argenteum</i> Hedw.	Bryaceae	Bryales
	<b>Campylopus Brid.</b>		
14.	<i>Campylopus subluteus</i> (Mitt.) A. Jaeger	Dicranaceae	Dicranales
	<b>Didymodon Hedw.</b>		
15.	<i>Didymodon ovatus</i> (Mitt.) A. Jaeger	Pottiaceae	Pottiales
16.	<i>Didymodon asperifolius</i> (Mitt.) H.A. Crum, Steere & L.E. Anderson	Pottiaceae	Pottiales
	<b>Entodon Müll. Hal.</b>		
17.	<i>Entodon rubicundus</i> (Mitt.) A. Jaeger	Entodontaceae	Hypnales
	<b>Entodontopsis Broth.</b>		
18.	<i>Entodontopsis tavoyensis</i> (Hook. ex Harv.) W.R. Buck & Ireland	Stereophyllaceae	Hypnales
	<b>Fabronia Raddi</b>		
19.	<i>Fabronia schensiana</i> Müll.Hal.	Fabroniaceae	Hypnales
	<b>Fissidens Hedw.</b>		
20.	<i>Fissidens ceylonensis</i> Dozy & Molk. var. <i>ceylonensis</i>	Fissidentaceae	Fissidentales
21.	<i>Fissidens subangustus</i> M. Fleisch. <b>Syn.:</b> <i>Fissidens leptopelma</i> Dixon	Fissidentaceae	Fissidentales
	<b>Floribundaria M. Fleisch.</b>		
22.	<i>Floribundaria floribunda</i> (Dozy & Molk.) M. Fleisch.	Meteoriaceae	Leucodontales
	<b>Gymnostomiella M. Fleisch.</b>		
23.	<i>Gymnostomiella vernicosa</i> (Hook. ex Harv.) M. Fleisch.	Pottiaceae	Pottiales
	<b>Hymenostylium Brid</b>		
24.	<i>Hymenostylium recurvirostrum</i> (Hedw.) Dixon	Pottiaceae	Pottiales
	<b>Hyophila Brid.</b>		
25.	<i>Hyophila involuta</i> (Hook.) A. Jaeger	Pottiaceae	Pottiales
26.	<i>Hyophila nymaniana</i> (M. Fleisch.) M. Menzel	Pottiaceae	Pottiales
	<b>Hypopterygium Brid.</b>		
27.	<i>Hypopterygium flavolimbatum</i> Müll.Hal. <b>Syn.:</b> <i>Hypopterygium tibetanum</i> Mitt.	Hypopterygiaceae	Hookeriales

**Table 1** (Contd). List of mosses occurring in Bodamalai hills

	<b>Name of the species</b>	<b>Family</b>	<b>Order</b>
	<b>Macromitrium Brid.</b>		
28.	<i>Macromitrium sulcatum</i> (Hook.) Brid.	Orthotrichaceae	Orthotrichales
	<b>Philonotis Brid.</b>		
29.	<i>Philonotis hastata</i> (Duby) Wijk & Margad.	Bartramiaceae	Bryales
	<b>Pinnatella M. Fleisch.</b>		
30.	<i>Pinnatella foreauana</i> Thér. & P. de la Varde	Neckeraceae	Leucodontales
	<b>Platyhypnidium M. Fleisch.</b>		
31.	<i>Platyhypnidium muelleri</i> (A. Jaeger) M. Fleisch.	Brachytheciaceae	Hypnales
	<b>Pogonatum P. Beauv.</b>		
32.	<i>Pogonatum neesii</i> (Müll.Hal.) Mitt.	Polytrichaceae	Polytrichales
	<b>Pohlia Hedw.</b>		
33.	<i>Pohlia ludwigii</i> (Spreng. ex Schwägr.) Broth.	Bryaceae	Bryales
	<b>Pseudotaxiphyllum Z. Iwats.</b>		
34.	<i>Pseudotaxiphyllum elegans</i> (Brid.) Z. Iwats.	Hypnaceae	Hypnales
	<b>Pseudoleskea Bruch &amp; Schimp.</b>		
35.	<i>Pseudoleskea incurvata</i> (Hedw.) Loeske	Leskeaceae	Hypnales
	<b>Pterobryopsis M. Fleisch.</b>		
36.	<i>Pterobryopsis orientalis</i> (Müll.Hal.) M. Fleisch.	Pterobryaceae	Leucodontales
	<b>Pyrrhobryum Mitt.</b>		
37.	<i>Pyrrhobryum spiniforme</i> (L. ex Hedw.) Mitt.	Rhizogoniaceae	Bryales
	<b>Racopilum P. Beauv.</b>		
38.	<i>Racopilum orthocarpum</i> Wilson ex Mitt. <b>Syn.:</b> <i>Racopilum siamense</i> Dixon	Racopilaceae	Bryales
	<b>Rhynchostegiella (Schimp.) Limpr.</b>		
39.	<i>Rhynchostegiella divaricatifolia</i> (Renauld & Cardot) Broth.	Brachytheciaceae	Hypnales
40.	<i>Rhynchostegiella ramicola</i> (Broth.) Broth.	Brachytheciaceae	Hypnales
	<b>Schlotheimia Brid.</b>		
41.	<i>Schlotheimia grevilleana</i> Mitt.	Orthotrichaceae	Orthotrichales
	<b>Semibarbula Herzog ex Hilp.</b>		
42.	<i>Semibarbula ranuii</i> Gangulee.	Pottiaceae	Pottiales
	<b>Sematophyllum Mitt.</b>		
43.	<i>Sematophyllum humile</i> (Mitt.) Broth.	Sematophyllaceae	Hypnales
	<b>Splachnobryum Müll. Hal.</b>		
44.	<i>Splachnobryum assamicum</i> Dixon	Splachnobryaceae	Funariales
	<b>Stereophyllum Mitt.</b>		
45.	<i>Stereophyllum radiculosum</i> (Hook.) Mitt.	Stereophyllaceae	Hypnales
46.	<i>Stereophyllum fulvum</i> (Harv.) A. Jaeger	Stereophyllaceae	Hypnales
	<b>Taxiphyllum M. Fleisch.</b>		
47.	<i>Taxiphyllum taxirameum</i> (Mitt.) M. Fleisch.	Hypnaceae	Hypnales
	<b>Tortella (Lindb.) Limpr</b>		
48.	<i>Tortella tortuosa</i> (Schrad. ex Hedw.) Limpr.	Pottiaceae	Pottiales
	<b>Trichostomum Hedw.</b>		
49.	<i>Trichostomum subminusculum</i> Dixon & P. de la Varde	Pottiaceae	Pottiales
	<b>Trachyphyllum A. Gepp</b>		
50.	<i>Trachyphyllum inflexum</i> (Harv.) A. Gepp	Entodontaceae	Hypnales
	<b>Wijkia H.A. Crum</b>		
51.	<i>Wijkia surcularis</i> (Mitt.) H.A. Crum	Sematophyllaceae	Hypnales
52.	<i>Wijkia deflexifolia</i> (Mitt. ex Renauld & Cardot) H.A. Crum	Sematophyllaceae	Hypnales

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