



RESEARCH COMMUNICATION

# *Oxyrrhynchium speciosum* (Brid.) Warnst. (Brachytheciaceae: Bryophyta) – new to the moss flora of India from the Western Ghats

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## ARTICLE HISTORY

Received: 13 September 2022  
Accepted: 14 December 2022  
Available online  
Version 1.0 : 22 February 2023



## Additional information

**Peer review:** Publisher thanks Sectional Editor and the other anonymous reviewers for their contribution to the peer review of this work.

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## CITE THIS ARTICLE

Dhanyasree B, Daniels A E D. *Oxyrrhynchium speciosum* (Brid.) Warnst. (Brachytheciaceae: Bryophyta) – new to the moss flora of India from the Western Ghats. Plant Science Today (Early Access). <https://doi.org/10.14719/pst.2118>

## Abstract

*Oxyrrhynchium speciosum* (Brid.) Warnst. which was known so far from Africa, Europe, New Zealand, China and Russia in Asia, has been discovered in some pockets of the Western Ghats of Peninsular India. This discovery adds one more species to the moss flora of India. A description with figures, a distribution map and a key to distinguish *O. speciosum* from the other indigenous species are provided.

## Keywords

*Oxyrrhynchium speciosum*, Nilgiri Hills, Western Ghats, Tamil Nadu, India

## Introduction

The genus *Oxyrrhynchium* (Schimp.) Warnst. is represented by 4 species in India: *Oxyrrhynchium muelleri* (A. Jaeger) Broth., *O. ovatum* Cardot & P. de la Varde, *O. schleicheri* (R. Hedw.) Röhl and *O. vagans* (A. Jaeger) Ignatov & Huttunen (1, 2). All 4 species have been reported from the Southern Western Ghats in Tamil Nadu with *O. vagans* distributed in the Himalayas as well (1, 2). *Oxyrrhynchium ovatum* is endemic to Palani Hills (1-4). However, *Oxyrrhynchium muelleri* is currently *Platyhypnidium muelleri* (A. Jaeger) M. Fleisch. (*vide* Tropicos: <https://tropicos.org>) which reduces the number of species to 3.

A moss collected while inventorying the bryoflora of the Nilgiri Hills in the Western Ghats was later identified as *Oxyrrhynchium speciosum* (Brid.) Warnst. Previously, this species was known from Africa, Europe, New Zealand, China and Russia in Asia. As a result, the current discovery in the Western Ghats is a new record for India, bringing the total number of *Oxyrrhynchium* (Schimp.) Warnst. species to 4. A taxonomic key is provided for the species so far recorded in India.

## Taxonomic key distinguishing *Oxyrrhynchium speciosum* from the other indigenous species

- 1a. Costa of branch leaves with a distinct abaxial spine----- 2
- b. Costa of branch leaves without an abaxial spine -----3
- 2a. Paraphyllia present, filiform; branch leaves lax, ovate, rotundate-apiculate at apex -----***O. ovatum***
- b. Paraphyllia absent; branch leaves dense, ovate-lanceolate to lanceolate, acute to acuminate at apex -----***O. speciosum***

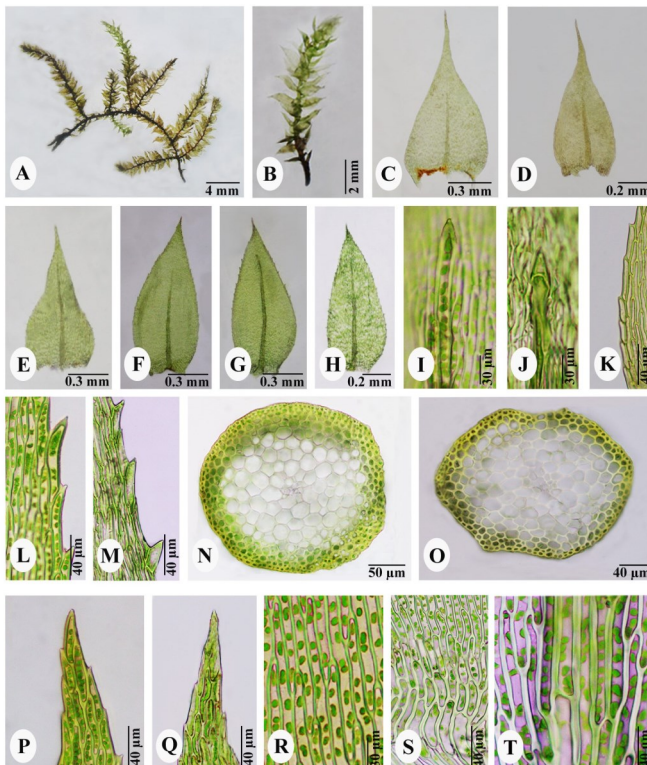
3a. Branch leaf apex twisted; laminal cells papillate

-----***O. schleicheri***

b. Branch leaf apex not twisted; laminal cells epapillate

-----***O. vagans***

***Oxyrrhynchium speciosum*** (Brid.) Warnst., Krypt.-Fl. Brandenburg, Laubm. 2: 786. 1905; Redfearn & al., Ann. Missouri Bot. Gard. 73: 196. 1986; Güray & al., Int. J. Bot. 3: 140. 2007; Adnan & al., Turk. J. Bot. 37: 372. 2013; Gabka & al., J. Bryol. 36: 181. 2014; M. Aleffi, Cryptogam. Bryol. 36: 163. 2015; M. Lüth, Moss. Europ. 3: 1152. 2019; A.J. Fife, Fl. New Zealand-Moss. 46: 22. 2020; Achoual & al., Pl. Cell Biotech. Molec. Biol. 22: 89. 2021. *Hypnum speciosum* Brid., Muscol. Recent. Suppl. 2: 105. 1812. - Type: Italy, around Rome, in Apenninis, on land, without capsule (Fig. 1).



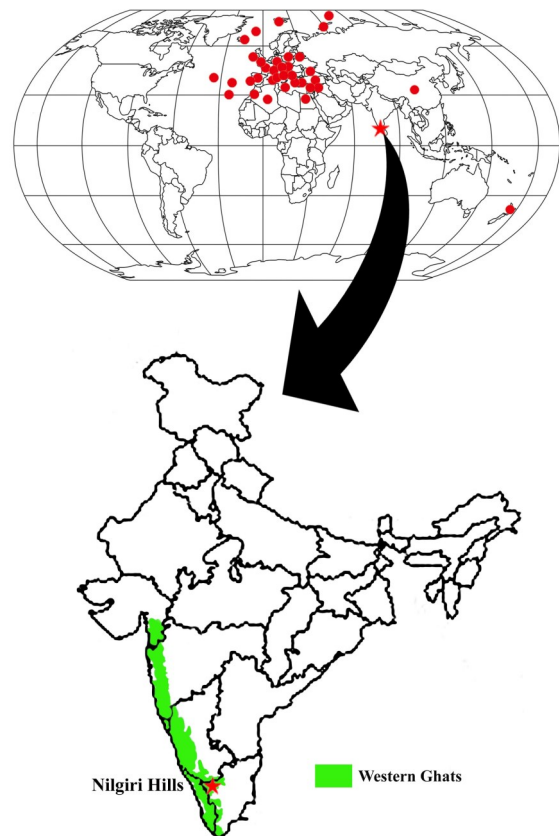
**Fig. 1.** *Oxyrrhynchium speciosum* (Brid.) Warnst. **A.** Plant **B.** Portion of plant **C-E.** Stem Leaves (**C-D.** Specimen from the Western Ghats; **E.** Specimen from Germany) **F-H.** Branch leaves (**F-G.** Specimen from the Western Ghats; **H.** Specimen from Germany) **I-J.** Spines (**I.** Specimen from the Western Ghats; **J.** Specimen from Germany) **K.** Stem leaf showing basal margin **L-M.** Branch leaf showing apical margin (**L.** Specimen from the Western Ghats; **M.** Specimen from Germany) **N-O.** Cross section of stem (**N.** Specimen from the Western Ghats; **O.** Specimen from Germany) **P-Q.** Leaf apical cells (**P.** Specimen from the Western Ghats; **Q.** Specimen from Germany) **R.** Leaf median cells **S.** Leaf basal cells **T.** Leaf base showing pitted cells (*B. Dhanyasree 252a*).

Plants glossy, yellow-green, forming mats. Main stems creeping, 1.6-8.3 cm, appressed, 0.27-0.42 × 0.24-0.39 mm in cross-section, slightly ovate, with a central strand; cortex 2- or 3-layered; cells 6-12 × 3-9 μm, rounded-quadrate, thick-walled; medullary cells 24-42 × 18-36 μm, quadrate-hexagonal, thin-walled; branches irregularly pinnate, 0.4-1.0 cm tall, erect. Paraphyllia absent. Stem leaves distant, patent, 0.9-1.2 × 0.4-0.7 mm, broadly ovate, slightly decurrent, serrulate at the margin, acuminate at apex; costa lacking an abaxial spine; branch leaves dense, imbricate, erectopatient to

patent, appressed to stem when dry, 1.4-1.6 × 0.5-0.7 mm, ovate-lanceolate to lanceolate, slightly asymmetric at base, distinctly toothed almost to base, acute to acuminate at apex; costa ca ¾ as long as the leaf, with an abaxial spine at apex; spine 30-72 × 10.8-13.2 μm; cells linear-rhomboid; apical cells 42-60 × 5.4-9 μm; median cells 48-120 × 5.4-9 μm, sometimes faintly papillate at apex; basal cells pitted, 36-72 × 6-12 μm; alar region not distinct. Sporophyte not seen.

**Habitat:** Rupicolous, in degraded evergreen forests, ca 1143 m.

**Distribution:** Africa, Europe, New Zealand and Asia: China, Russia and India: Western Ghats of Tamil Nadu, Nilgiri Dist. (present study) (Fig. 2).



**Fig. 2.** Distribution of *Oxyrrhynchium speciosum* (Brid.) Warnst.

- Earlier records
- ★ Present record for India from the Western Ghats

**Specimens examined:** India, Western Ghats, Tamil Nadu, Nilgiri Dist., Naduvattom, ca 1143 m, 30.6.2022, *B. Dhanyasree 252a* (SCCN); Germany, Baden-Wuerttemberg, Ravensburg District, Alpine foothills, 28 August, 2006, *A. Schäfer-Verwimp & I. Verwimp 26142*, Herb. Schäfer-Verwimpex Herbarium Senckenbergianum (FR!).

### Discussion

*Oxyrrhynchium speciosum* is closely allied to *O. ovatum* in possessing an abaxial spine at the costal apex. However, *O.*

*speciosum* can be readily distinguished from *O. ovatum* by the absence of paraphyllia. Moreover, branch leaves are dense in *O. speciosum* whereas they are lax in *O. ovatum*. On the other hand, leaves are ovate, rotundate-apiculate in *O. ovatum* but ovate-lanceolate to lanceolate and acute to acuminate in *O. speciosum*. The other 2 species *O. schleicheri* and *O. vagans* are easily distinguishable from *O. speciosum* since they lack the abaxial costal spine.

### Acknowledgements

The authors thank the Tamil Nadu State Forest Department for permission to explore the study area and for help in the field and the Principal, Scott Christian College, for facilities.

### Authors contributions

BD: Collection, dissection and preparation of figure and photographic plates; AEDD: Identification and preparation of the MS.

### Compliance with ethical standards

**Conflict of interest:** The authors declare that they have no competing interests.

**Ethical issues:** None.

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