

SHORT COMMUNICATION

***Brevistachys indica*: A novel species of family Stachybotriaceae reported from Sanjay Gandhi National Park, Maharashtra, India**

**RASHMI DUBEY AND AMIT D.PANDEY**



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Department of Botany,  
University of Calcutta,  
Kolkata 700 019, India

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# ***Brevistachys indica*: A novel species of family Stachybotriaceae reported from Sanjay Gandhi National Park, Maharashtra, India**

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**RASHMI DUBEY\* AND AMIT D. PANDEY**

*Botanical Survey of India, Western Regional Centre, Pune-411001, Maharashtra*

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A novel species of *Brevistachys* is described herein collected from the natural forests of Yeeor range of Sanjay Gandhi National Park, Mumbai, Maharashtra, India. Morphological observations indicated that the species is distinct from previously identified species in having prominently verrucose, conidiophore whose upper half is hyaline and lower half is dark brown and also bears solitary conidia and is thus described as the new species, i.e. *Brevistachys indica* sp. nov.

**Key words:** Morpho-Taxonomy, solitary conidia, Stachybotriaceae, verrucose conidiophore, Yeeor range

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## INTRODUCTION

The genus *Brevistachys* (Br.) was established by Lombard & Crous, in 2016 with *B. variabilis* as a type species under Family *Stachybotriaceae* to accommodate stachybotrys-like species having distinctly short conidiophores and conidiogenous cells borne on conidiophores or directly from vegetative hyphae, not known for *Stachybotrys* s. str. (Wang *et al.* 2015). On the basis of Phylogenetic inference, it was noted that the representatives of this group of fungi formed a distinct highly supported clade distant to the *Stachybotrys* s.str. The genus possess distinct morphological characters as: Conidiophores macronematous, mononematous, short, erect, solitary or in groups, unbranched or rarely branched, hyaline or subhyaline, smooth or verrucose, 1-septate towards the bottom, sometimes with bulbous apice from which a whorl of 3–8 conidiogenous cells radiate; Conidiogenous cells borne on the apice or stipe of the conidiophores, phialidic, ellipsoidal to subcylindrical to elongate, doliform, smooth to verrucose, hyaline to subhyaline, with conspicuous collarettes; Conidia aseptate, hyaline to dark brown, smooth to verrucose, obovoid to globose to ossiform to ellipsoidal, aggregating in slimy

masses. During mycological explorations in natural forests of Sanjay Gandhi National park, a fungal species was found, which morphologically falls under the genus *Brevistachys* as the conidiophores are short and single septate.

## MATERIAL AND METHODS

The dead stem infested with the fungus was first observed under the stereomicroscope. The raised pure fungi were then grown on different culture media, viz. Malt Extract Agar and Potato Dextrose Agar, Vegetative hyphae grew on medium on 7 d but did not sporulate and culture died. The fungal structures were taken superficially from the leaves with a needle and transferred to lactophenol slide. Lastly, the slides were stuck down with DPX. Photographs and microscopic details were captured using OLYMPUS C X 41 (aided with Digi-CAM) microscope. All microscopic characters were determined on the basis of measurements of 15 mature conidia and 15 conidiophores mounted in lactophenol. Measurements of the fungal structures were taken from the microscope. Scanning electron microscopic studies were conducted by the Model EVO 18-12-97 (Zeiss, Jena, Germany) according to the protocol provided by the manufacturer.

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\*Correspondence: dr.rashmidubey@gmail.com

***Brevistachys indica*** sp. nov. Rashmi Dubey & Amit D. Pandey, (Fig.1) MB842565

*Fungi, Dikarya, Ascomycota, Pezizomycotina, Sordariomycetes, Hypocreomycetidae, Hypocreales, Stachybotryaceae.*

Saprobic on fallen dead stems. Conidiophores simple, macronematous, mononematous, single or in groups, mostly unbranched, erect, straight to slightly flexuous, 1-septate, thin-walled, initially smooth and hyaline, on maturity upper half half is hyaline and lower half is dark brown and lightly verrucose,  $20\text{--}40 \times 2\text{--}4 \mu\text{m}$ , with a slightly bulbous apice,

$4\text{--}5 \mu\text{m}$  dia, bearing a whorl of 3–8 conidiogenous cells. Conidiogenous cells terminal, elongate doliiform to subcylindrical, hyaline, smooth,  $5\text{--}8 \times 2\text{--}3 \mu\text{m}$ , with conspicuous collarettes. *Conidia* acrogenous, aggregating in slimy masses, aseptate, globose, initially smooth and hyaline becoming darkly pigmented and smooth  $3\text{--}5 \times 3\text{--}5 \mu\text{m}$  (av.  $4 \times 3 \mu\text{m}$ ).

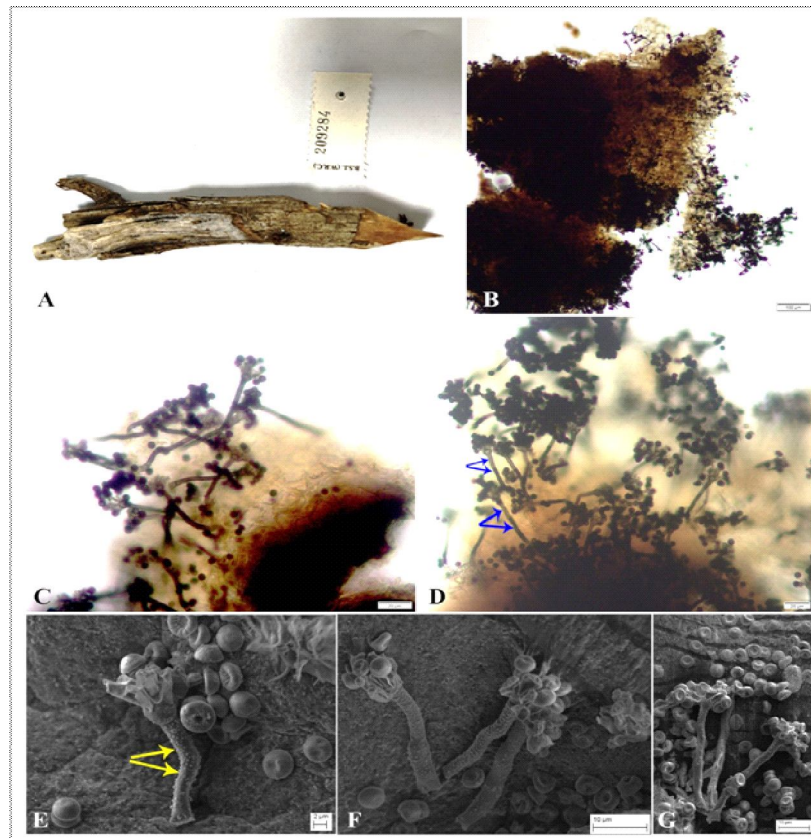
#### Holotype:

On Dead stem, Sarjamori, Yeoor Range [North], Sanjay Gandhi National Park, Palghar Dist., Maharashtra, India, date 20/12/2017, RD, 209284 BSI (WC), Accession no. BSI-F615.

#### Etymology :

Species named after the name of country, India.

As per Index Fungorum (2022), a total 5 species of *Brevistachys* are reported. *Brevistachys globosa* L., *Brevistachys lateralis* L., *Brevistachys ossiformis* L., *Brevistachys subsimplex* (Cooke) L. and *Brevistachys variabilis* L. (Lombard *et al.* 2016). The above species differs from all the species of *Brevistachys* in having prominently verrucose, variegated conidiophore whose upper half half is hyaline and lower half is dark brown, conidia are also solitary and not found in chain, whereas in the other reported species of the genus, the conidiophores are hyaline or subhyaline, smooth or are slightly verrucose and the conidia are found in chain. Thus, in contrast of all above characters (Table1) the collection deserves the rank of new species.



**Fig.1:** *Brevistachys indica* sp. nov. **A.** Host stem, **B.** Colonies, **C-D.** Conidiophores with hyaline upper half and dark brown lower half (arrowed) with solitary conidia, **E.** SEM images showing verrucose conidiophores (arrowed), **F-G.** SEM images of conidiophore and solitary conidia attached to conidiogenous cells. Scale bars: B = 100  $\mu\text{m}$ ; C-D = 20  $\mu\text{m}$ ; E = 2  $\mu\text{m}$ ; F-G = 10  $\mu\text{m}$ .

**Table 1** : Comparison of *Brevistachys indica* sp. nov with related species

Characters	<i>B.globosa</i>	<i>B.lateralis</i>	<i>B.ossiformis</i>	<i>B.subsimplex</i>	<i>B.variabilis</i>	<i>B.indica</i> sp.nov.
Conidiophores	Single or in groups mostly unbranched erect, straight to slightly flexuous, 1-septate, thin-walled, and lightly verrucose	single or in groups, mostly unbranched, erect, thin-walled, hyaline, 1-septate, smooth, 20–40 × 2–5 µm, sometimes with a slightly bulbous apice	single or in groups, unbranched, 1-septate, thick-walled, smooth, subhyaline becoming darker towards the apice.	smooth or minutely, verruculose, 100–140 µm long	Single or in groups, mostly unbranched hyaline, 1-septate, smooth, 20–40 × 2–4 µm, with a slightly bulbous apice.	Single or in groups, mostly unbranched erect, 1-septate, thin-walled, upper half is hyaline and lower half is dark brown, prominently verrucose, 20–40 × 2–4 µm.
Conidiophores cells	Terminal	Terminal or born laterally	Terminal	Terminal or born laterally	Terminal or born laterally	Terminal
Conidia	Globose, found in chain and are darkly pigmented and verrucose.	Globose to ellipsoidal, initially smooth and hyaline becoming darkly pigmented and verrucose, borne in chains.	Ossiform to ellipsoidal, initially smooth and hyaline becoming darkly pigmented and verrucose, 3.5–5.5 × 2–3 µm (av . 4.5 × 3 µm), borne in chains.	Conidia verrucose 6–9 µm diam.	Globose to obovoid to ellipsoidal, initially smooth and hyaline becoming darkly pigmented and verrucose, (3–4–8 × 3–4 µm, borne in chains.	Conidia dark brown, globose, solitary, not found in chain, smooth

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