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Short Article

Taxonomy of asexual microfungus *Periconia* on *Phoenix* in India

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Abstract: The anamorphic fungus genus *Periconia* is worldwide in distribution and causes foliar disease on plants mostly in tropical and subtropical regions. This study presents the description and illustration of *P. palmivora* discovered on leaves of *Phoenix dactylifera* (Palmae/Arecaceae) from Terai forest region of Uttar Pradesh, India. The taxonomic determination was based on morphological characteristics of the fungus. The proposed novel species is entirely different from previously described *P. tirupatiensis*, having shorter, unbranched and smooth conidiophores and longer and smooth conidia. A key of *Periconia* species reported on *Phoenix* is provided. Descriptions and nomenclatural details were deposited in MycoBank (www.MycoBank.org).
Key words: Mycodiversity, anamorphic foliicolous fungi, *Systematics*, new species

INTRODUCTION

The anamorphic fungus genus *Periconia* was proposed by Tode (1791). According to Ellis (1971), *Periconia* includes species with macronematous conidiophores mostly with a stipe and spherical head, which branches are present or absent. Conidiogenous cells are monoblastic or polyblastic, discrete on stipe and branched. Conidia are catenate, usually spherical or sub spherical, pale to dark brown, verruculose or echinulate, unicellular.

In India, the Terai region (subtropical region) of Uttar Pradesh is a natural hot spot for fungal diversity in general and foliar fungi in particular. The climatic conditions are very favourable for the luxuriant growth and development of the foliicolous fungi. During our survey of the foliicolous anamorphic micromycetes from forest flora of Uttar Pradesh in 2008, an interesting species was collected on leaves of *Phoenix dactylifera* L. (*Arecaceae*). A detailed taxonomic study and survey of the literature as well as comparative analyses revealed that the fungus was a new species (Butler & Bisby 1954; Sarbhoy et al. 1975, Bilgrami et al; 1979, 1981, 1991; Sarbhoy et al. 1996; Jamaluddin et al. 2004). It is described and illustrated below as *P. palmivora.*

MATERIALS AND METHODS

Infected leaf samples collected near the subtropical forest of Bahraich district of Uttar Pradesh (U.P.) were placed in separate polythene bags and taken to the laboratory. The samples were processed by following the standard techniques (Hawskworth, 1974, Savile, 1962). The sun dried and pressed leaf specimens were placed in air tight polyethylene bags and then kept in paper envelops along with collection details. Mounts of surface scrapings and free-hand cut sections were prepared from infected portions of the leaf samples. The material was mounted in cotton-blue mount mixture on microscopic slides for morphological study. The fungal structures were measured and line drawings were prepared using a camera lucida. Morphotaxonomic determinations were made with the help of current literature. The type specimens have been deposited in Ajrekar Mycological Herbarium (AMH), Agharkar Research Institute (ARI), Pune; isotypes were retained in the herbarium of the Birbal Sahni Institute of Palaeobotany, Lucknow. The systematics of the taxa is given in accordance with Cannon and Kirk (2007), Kirk et al. (2008), and the Index Fungorum (www.Indexfungorum.org; accessed 8 January 2015).

RESULTS AND DISCUSSION

Periconia palmivora Shambhu Kumar & R. Singh *sp. nov.* — MycoBank MB 811235, Fig. 1

Etymology — *palmivora* in reference to the host family.

Leaf spots hyphogenous, irregular, brown on upper surface with dark brown margin, light brown on lower surface, later becoming necrotic, 2–20 mm in diam. Colonies hypophyllous, effuse, dark gray. Mycelium internal, septate, smooth, thin-walled, branched, sub hyaline to pale brown. Stromata absent. Conidiophores macronematous, mononematous, arising singly, straight to curved, erect to procumbent, simple, cylindrical, thick walled, 2–4 septate, basal cell swollen, light to dark olivaceous brown, 110–160 × 7–9 µm. Conidiogenous cells integrated, terminal, polyblastic scars absent. Conidia catenate, dry,

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acrogenous, simple, smooth, thin-walled, circular to sub circular, unicellular, hilum unthickened, sub hyaline to olivaceous brown, 5–10 µm.

Specimens examined. India, Uttar Pradesh, Bahraich, on leaves of *Phoenix dactylifera* Linn. (Arecaceae), 12 February 2008, Shambhu Kumar, **holotype** AMH-9520, **isotype** BSIPMH-007.

Notes —*Periconia tirupatiensis* (Subramanian, 1955) has been described on this host. However the conidiophores of *P. tirupatiensis* are branched, often verruculose near the base and much longer (up to 220 × 5–6 µm) in *P. tirupatiensis* as compared to conidiophores of *P. palmivora* (having unbranched, smooth near the base, shorter (110–160 × 7–9 µm). The conidia are verruculose and shorter (5–7.5 µm) in *P. tirupatiensis* while smooth and longer (5–10 µm) in *P. palmivora*. The conidia are verruculose in previously described species while smooth in *P. palmivora.* Therefore the present collection is treated as new species.

Key to species of *Periconia* on Palmaceae /Arecaceae

1. a. Conidiophores branched and often verruculose near the base, up to 220 × 5–6 µm ……..…….. **2a**
   b. Conidiophores unbranched and smooth near the base, 110–160 × 7–9 µm ……..……..... **2b**
2. a. Conidia verruculose, 5–7.5 µm...***P. tirupatiensis***
   b. Conidia smooth, 5–10 µm…….…..***P. palmivora***

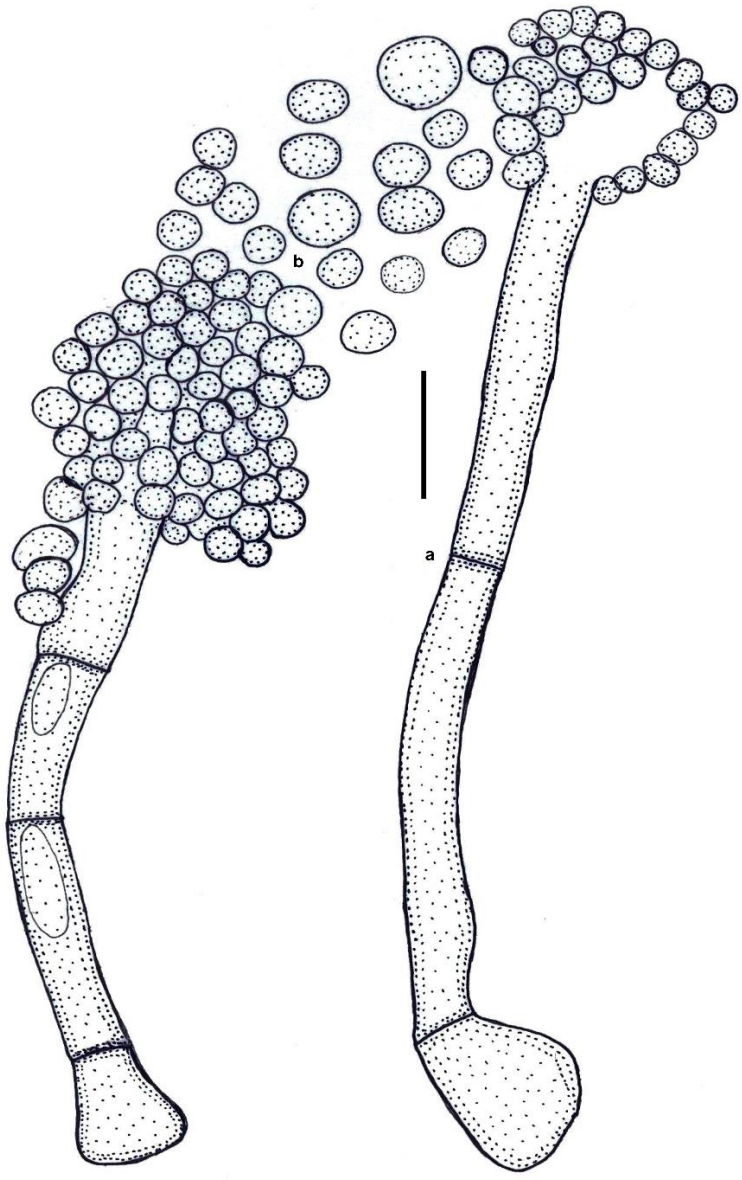

Fig. 1. ***Periconia palmivora***. **a.** Conidiophores., **b.** Conidia., Scale Bars a — b = 20 µm.

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Tode HJ. 1791. Fungi Mecklenburgenses selecti. Luneburg. Fasc. II, Generum novorum appendicem. p. 64 Tab. VIII-XVII.

تاکسونومی قارچ آنامورفیک *Periconia* روی *Phoenix* در هندوستان

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چکیده: قارچ آنامورفیک *Periconia* دارای گسترش جهانی است و موجب بیماری های برگی در مناطق گرمسیری و نیمه گرمسیری می گردد. در این مطالعه، تشریحی از گونه *P. palmivora* همراه با تصویر آن که از روی برگ های *Phoenix dactylifera* در جنگل های منطقه ترای از ایالت اوتار پرادش به دست آمده، ارائه می گردد. تشخیص تاکسونومیکی این گونه بر اساس ویژگی های مرفولوژیکی انجام گردید. این گونه پیشنهادی جدید با داشتن کنیدیوفورهای کوتاه، صاف و غیرمنشعب و کنیدیوم های بلندتر و صاف، از گونه *P. tirupatiensis* که قبلا گزارش شده است، کاملا متفاوت می باشد. یک کلید تشخیص برای گونه های روی *Phoenix* ارائه شده است. توصیف گونه و جزئیات نامگذاری در وبگاه MycoBank (www.MycoBank.org) ثبت شده است.

کلمات کلیدی: تنوع قارچی، قارچ های آنامورف رشته ای، سیستماتیک، گونه جدید

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