

Short Communications

***Phyllobathelium nudum* Zahlbr. is a second species in the genus *Phyllocratera* (lichenized Ascomycota: Strigulaceae)**

During a revision of type material of tropical lichenized fungi housed in the herbarium of the Naturhistorisches Museum Wien (W), the first author came across the original material of *Phyllobathelium nudum*, described by Zahlbruckner (1928) from the island of Java in Indonesia. *Phyllobathelium* is a small genus of chiefly foliicolous, more rarely corticolous, lichens in the family Strigulaceae in the class Dothideomycetes (Santesson 1952; Harris 1995; Lücking *et al.* 1997; Roux & Sérusiaux 2004; Lücking 2008; Nelsen *et al.* 2009, 2011; Lumbsch & Huhndorf 2010; Lücking & Nelsen 2013). It is characterized by a shiny, grey-green thallus with metallic glance and perithecia usually covered by the thallus, and with a powdery, black mass of crystals between the thallus and excipulum.

The species described as *Phyllobathelium nudum* was considered non-lichenized by Santesson (1952: 288) and therefore not further treated in his monograph on foliicolous lichens. However, revision of the type material revealed that it is in fact lichenized with a trentepohlioid photobiont, but that it does not belong in *Phyllobathelium*, since the perithecia feature a compact, exposed, black involucrellum lacking a crystalline powder, a fact already recognized by Zahlbruckner (1928), and are instead similar to those of *Strigula*. The combination of *Strigula*-like perithecia and muriform ascospores places this species in the genus *Phyllocratera* Sérus. & Aptroot (Aptroot *et al.* 1997), which thus far includes only the type species, *P. papuana* Sérus. & Aptroot, known from Papua New Guinea.

Phyllobathelium nudum agrees with *Phyllocratera papuana* in all aspects, except that the

perithecia are smaller (0.4–0.8 mm vs. 0.8–1.2 mm), but the ascospores are longer (75–90 × 13–17 µm vs. 55–75 × 13–18 µm). These inverted size differences suggest *Phyllobathelium nudum* represents a second species in *Phyllocratera*, which is supported by its different distribution, as far as can be judged from the only available specimen. Therefore, we propose the following new combination:

***Phyllocratera nuda* (Zahlbr.) Lücking & Sérus. comb. nov.**

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Phyllobathelium nudum Zahlbr., *Ann. Crypt. Exot.* 1: 115 (1928); type: Indonesia (Java), Mt. Gede, 21 January 1924, Schiffner 3464 (W—holotype!).

(Fig. 1)

Notes. *Phyllocratera nuda* shares with *P. papuana* the general thallus and perithecial morphology and anatomy, and a full description of the latter species is given in Aptroot *et al.* (1997). The thallus is superficial and easily detached from the leaf surface. The photobiont was left unidentified by Aptroot *et al.* (1997), but is identical to that found in *Strigula phyllogena* and related species (Lücking 2008) in the development of cylindrical but strongly curved cells with interspaces, forming a characteristic network; in *Phyllocratera*, the photobiont is concentrated in lines and patches, giving the thallus surface a variegated or marmorate appearance. The perithecial involucrellum is completely carbonized and very thick and basally spreading, similar to most species of *Strigula*; the



FIG. 1. A, holotype specimen of *Phyllobathelium nudum* (W); B, *Phyllocratera nuda*, thallus and perithecia (holotype in W); C, *P. papuana*, thallus and perithecia (isotype in F). Scales: B & C = 1 mm. In colour online.

excipulum is more or less hyaline and rather thin and prosoplectenchymatous in the upper and basal portions but thicker and distinctly paraplectenchymatous along the outer basal edges. The hamathecium is very dense (see fig. 90 in Aptroot *et al.* 1997: 134). The muri-form ascospores are very similar to those of *Phyllobathelium* species (see fig. 91 in Aptroot *et al.* 1997: 135). *Phyllocratera papuana* and *P. nuda* share all of the above features, and the only differences are morphometrical, with

P. nuda having smaller perithecia (about half the size of *P. papuana* on average) but larger ascospores (about 25–30% larger on average). This inverted size difference, together with the occurrence in Indonesia (Sundaland floristic province), whereas *P. papuana* is known from Papua New Guinea (New Guinea and Bismarck Archipelago floristic province), supports the distinction of these two species and makes *Phyllocratera* a genus characteristic of the Malesia biogeographic region.

Except for the large, muriform ascospores, which are similar to those of *Phyllobathelium*, species of *Phyllocratera* closely resemble those of the *Strigula phyllogena* group; this differs from other foliicolous species of *Strigula* in the supracuticular growth and very uniform perithecial anatomy, and it was previously considered a separate genus, *Phylloporis* (Santesson 1952; Vězda 1984; Harris 1995; Lücking 2008). The very broad concept of *Strigula* currently applied (Harris 1995; McCarthy 1997, 2009; Roux & Sérusiaux 2004; Lücking & Nelsen 2013) would suggest including *Phyllocratera* within *Strigula*, because muriform ascospores occur in non-foliicolous species currently accepted in the latter. However, the morphological and anatomical uniformity within, and distinctiveness between, species recognized in *Strigula* s. str. (*S. elegans* group), the *S. phyllogena* group, and *Phyllocratera*, compared to non-foliicolous species, suggests that this group contains several distinct genus-level lineages, and molecular data are needed to address this problem. We therefore continue to recognize *Phyllocratera* as a separate genus. The marmorate disposition of the photobiont and the partially paraplectenchymatous excipulum support this view.

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