Fungi growing on Mexican tree ferns II. First record of *Favolaschia singeriana* (Agaricales, Marasmiaceae)

Rosario Medel[1], Francisco Lorea-Hernández[2] & Gastón Guzmán[2]

[1] Instituto de Investigaciones Forestales, Universidad Veracruzana, Apartado Postal 551, Xalapa 91070, Veracruz (México)
[2] Red de Biodiversidad y Sistemática, Instituto de Ecología, Apartado Postal 63, Xalapa 91000, Veracruz (Mexico)

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Favolaschia singeriana is reported for the first time from Mexico where it is growing on *Alsophila* and *Cyathea* tree ferns in Veracruz. A detailed description and illustrations of its macro- and micromorphological characters are provided and its taxonomical status among other members of *Favolaschia* on ferns is discussed.

Keywords: Basidiomycota, *Cyathea*, *Alsophila*, cloud forest.

Favolaschia (Pat.) Pat. is a genus with representatives of wide distribution that are found mainly in tropical regions of the world. It forms characteristic poroid basidiomata and some members have been recorded as bioluminescent (Singer 1945, Dennis 1952, Johnston *et al.* 2006). The taxonomic position of *Favolaschia* is uncertain, and two families have been involved: Marasmiaceae (Kirk *et al.* 2008) and Mycenaceae (Moncalvo *et al.* 2002). Very few members of the genus are known from Mexico, namely *F. filopes* Singer & O. Fidalgo from Veracruz (Guzmán & Guzmán-Dávalos 1984), *F. teapae* Singer, and *F. dybowskyana* (Singer) Singer, the latter two from Chiapas (Singer 1974). When discussing *F.* aff. *fendleri* Singer on trunks of palm trees in Yucatan Peninsula, Guzmán (2004) pointed out that the genus is still badly known in Mexico.

This paper is part of a series intended to update the knowledge of the mycobiota associated to ferns in Mexico, of which a first installment was recently published (Medel & Lorea 2008).

Materials and Methods

Samples of fern leaves with fungi/basidiomata were collected in patches of cloud forest in central Veracruz. After proper drying of basidiomata, their macroscopic as well as microscopic features were recorded for correct species identification. Microscopic features of the

basidiomata were studied with a Leica microscope, oil immersion objective 100 X, using hand-sections of basidiomata which were mounted in 5 % KOH, Cresyl blue, and Melzer's solution. Measurements of spores and basidia are given in the form (minimum) mean ± standard deviation (maximum), Q = length/width ratio (n = 35). Color notations are from Kornerup & Wanscher (1978). The studied material is deposited in the Fungus Collection of the herbarium of the Instituto de Ecologìa (XAL).

Taxonomy

Favolaschia singeriana Dennis, Kew Bull. 7: 331, 1952. – Figs. 1–6.

Basionym. – *Favolaschia intermedia* subsp. *singeriana* (Dennis) Singer, Beih. Nova Hedwigia 50: 91, 1974

Basidiomata discoid to ovoid, white (2A1), 0.5–1 mm in diameter, with a powdery, whitish, sugar-like cover, poroid rim, slightly crenulated in some specimens. – Hymenophoral pores 4–10 (–15) per basidioma, round to isodiametric, concolorous with basidiomata or beige (2A2) in some mature specimens. – Stipe present or absent, excentric if present, shorter than 1 mm when dry. – Basidia (22–) 29.9 ± 6.8 (– 43) × 8.5 – 1.5 µm, hyaline, sterigmata (1–) 2 (–4), – Spores 10.2 ± 1.15 × 6.4 ± 1.28 µm (Q = 1.6) (n = 35), ellipsoid, wall thin, smooth, hyaline, with an apiculus, slightly amyloid. – Hyphae not gelatinous in KOH. – Acanthocysts (12–) 15–35 × (7–) 9–17 µm, hyaline, lilac in Cresyl blue, no amyloid. – Gloeovessels (32–) 35–43 (–50) × 9 – 11 (–15) µm, hyaline, with lipids inside, slightly pink or light lilac in Cresyl blue.

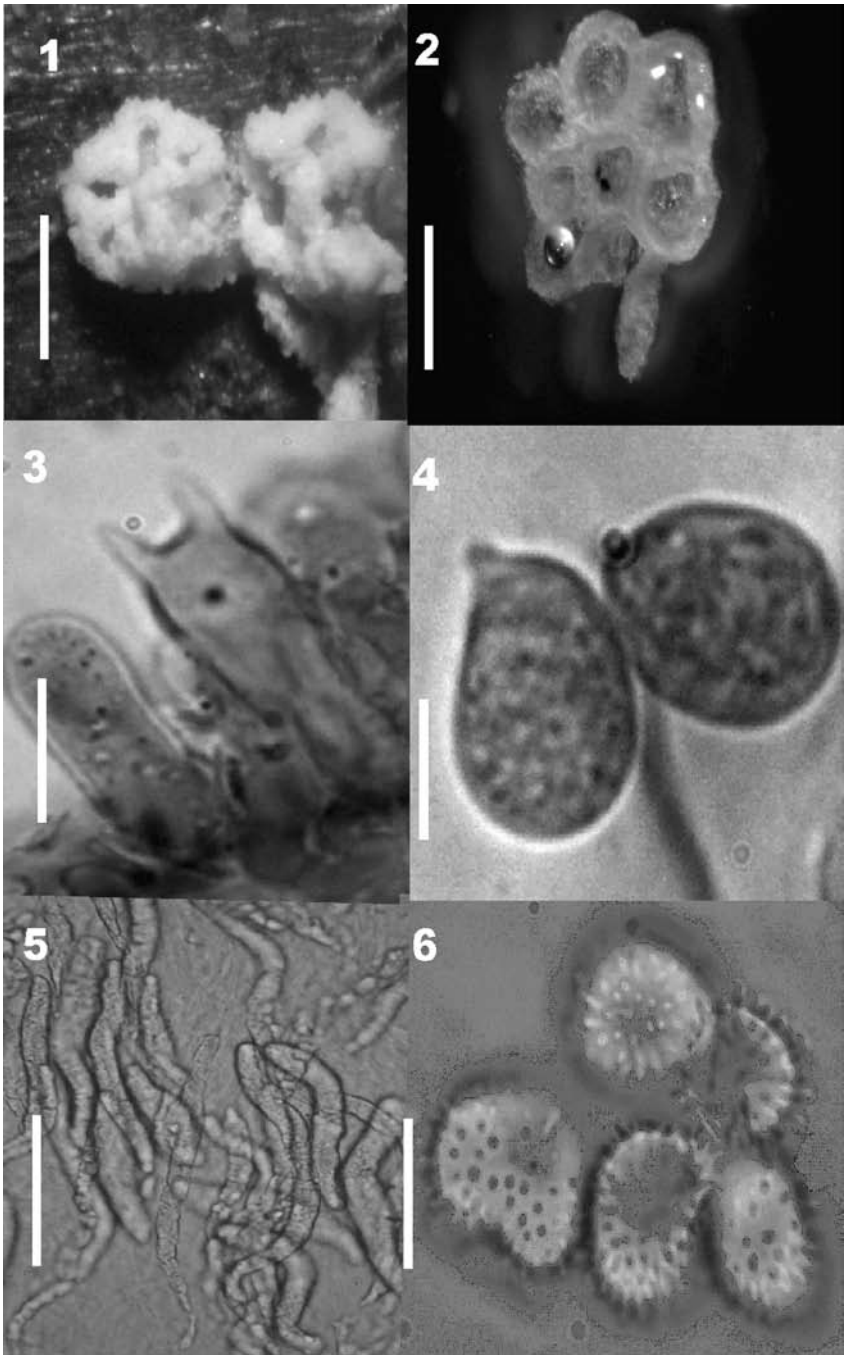
Habitat and host plant. – In cloud forest, saprobic on leaf stalks (petioles) of *Cyathea bicrenata* Liebm., *Alsophila firma* (Baker) D.S. Conant, and *Cyathea* spp.

Distribution. – Venezuela and Mexico.

Material examined. – ***Favolaschia singeriana*** Dennis: MEXICO, Veracruz, Municipio de San Andrés Tlalnelhuayocan, carretera Xalapa-San Andrés Tlalnelhuayocan, Rancho Agüita Fría, 8 May 2004, *leg. et det*. Medel 856, 861, 862, 864, 866; *23 May* 2004, *leg. et det*. Medel 878; 3 June 2005 *leg. et det*. Medel 933; 23 July 2005 *leg. et det*. Medel 986, 987, 991; Municipio de Coatepec, Zoncuantla region, Campestre San Rafael, 31 May 2008, *leg. et det*. Medel 1753 (all in XAL).

Discussion

Singer (1974) considered four taxa of *Favolaschia* growing on ferns, namely *F. alsophila* Singer, *F. intermedia* subsp. *singeriana* (= *F. singeriana*), *F. peziziformis* (Berk. & M. A. Curtis) Kuntze and *F. pterigena* Singer. Following Singer (1974), the material studied here corresponds with *F. intermedia* subsp. *singeriana* for the white and mealy pores [4–10 (–15) per basidioma], the dimensions of the spores



Figs. 1–6. – *Favolaschia singeriana*: **1.** Basidiomata (bar = 0.5 mm). **2**. Rehydrated basidioma, with 8 hymenophoral pores (bar = 0.5 mm). **3**. Basidia with 2 sterigmata (bar = 10 µm). **4**. Spores with apiculi (bar = 5 µm). **5**. Gloeovessels (bar = 20 µm). **6**. Acanthocysts (bar = 20 µm).

(7–10.5 × 4.5–7.5 µm), and the small size of the basidiomata (up to 1 mm). The presence of acanthocysts and a context with hyphae not gelatinized in our specimens discard its placement in *F. peziziformis*. In the same way, the absence of gloeocystidia with yellow granular content and the white basidiomata set the material apart from *F. pterigena* including its two varieties *F. pterigena* var. *boliviana* Singer and *F. pterigena* var. *purpurea* Singer with brown and purple basidiomata, respectively. The material studied here is also different from *F. alsophila* and *F. cyatheae* P.R. Johnst. in that both form basidiomata up to 10 mm in diameter and the latter exhibits hyphae in a gelatinous matrix (Johnston *et al.* 2006), characters that are absent in our specimens. Additionally, *F. alsophila* basidiomata present gloeovessels and those of *F. cyatheae* a gelatinized context (Singer 1974, Johnston *et al.* 2006), characters not found in the studied material.

Previously, *F. singeriana* was known only from tropical rain forests and cloud forests in Venezuela (Singer 1974, Dennis 1970). In both cases, host plants were recorded just as 'ferns'. As we mentioned before, the specimens studied here were found on different tree ferns belonging to the Cyatheaceae, and despite the wide distribution of *Favolaschia* in tropical regions, *F. singeriana* has been recorded few times, very likely because of its small-sized basidiomata; it is recorded here for the first time from Mexico where it grew on tree ferns in a cloud forest.

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