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A new *Scoliciosporum* from Madagascar

André APTROOT

Abstract: A new *Scoliciosporum* is described from rainforest in Madagascar. It superficially resembles *S. pruinosum*, but has an arachnoid hypothallus and prothallus and an olivaceous hypothecium and excipulum.

Key words: new species, rain forest

Introduction

The lichen flora of the tropics remains relatively poorly described. Among the least known regions are tropical Africa and especially Madagascar. So far, only about 250 lichen species have been reported from the island, mainly in the following few recent publications: Ahti & Aptroot (1992), Aptroot (1988, 1990, 1991), Harris (1986) and Schultz & Aptroot (2008). These publications are principally based on collections made by the author together with R. Hensen in 1984. Older publications that mention a substantial number of species are Vainio (1898), Des Abbayes (1948, 1956, 1961), Motyka (1954) and Santesson (1952), the latter based on collections of leaves by phanerogam botanists. Still older records are not very numerous, and rather dispersed in the literature but most are mentioned or repeated in Dodge (1953, 1959, 1964, 1971). Some uncertainty in the current number of species reported results from uncertainties in the identifications in older reports.

The lichen flora of Madagascar is remarkable in its large number of endemic species. For example, about 10% of the species in the two comparatively well-known taxonomic groups, *Cladonia* (Des Abbayes 1948; Stenroos 1991; Ahti & Aptroot 1992) and *Parmeliaceae* (Des Abbayes 1961; Aptroot 1991) are thought to be restricted to Madagascar. These are relatively high percentages for lichens, a group in which the level of endemism is generally low. The degree of endemism in Madagascar is much higher in phanerogams and in most terrestrial animal groups, for example more than 90% for mammals.

New, generally endemic lichen species have been described in a series of papers (Lumbsch & Aptroot 1993; Harris 1995; Henssen & Thor 1998; Lücking & Sérusiaux 1996; Clerc 2004; Sipman 2004; Sparrius 2004; Vězda 2004; Jørgensen & Sipman 2006) partly based on the 1984 collections by the author and R. Hensen. The present paper describes a further endemic species, from the rain forest belt on the eastern slopes of the island.

Material and Methods

The collection described here was made in 1984 during a two-month field trip across Madagascar. Identification and descriptive work was carried out at the Adviesbureau voor Bryologie en Lichenologie in the Netherlands using an Olympus SZX7 stereomicroscope and an Olympus BX50 compound microscope with interference contrast, connected to a Nikon Coolpix digital camera. Chemical spot reactions are only mentioned where tested. Thin-layer chromatography (TLC) was performed using TDA (solvent system A).

A. Aptroot: ABL Herbarium, G.v.d. Veenstraat 107, NL-3762 XK Soest, The Netherlands. Email: andreaptroot@wanadoo.nl

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The Species

Scoliciosporum arachnoideum Aptroot sp. nov.

Thallus corticola albogrisea, subtus hypothallo arachnoideo albo, prothallo arachnoideo nigro circumcincta, dense leprosus. Apothecia aggregata, convexa, albopruinosa, marginis extus dense albopruinosa, intus olivaceis, ascosporis sinuosicurvatis, filiformis, non septatis, 30–40 × 1–2 µm.

Typus: Madagascar, Prov. Tamatave, Périnet= Andasibe, primary tropical mountain forest, 48°16′E, 18°56′S, alt. 950 m, 10 May 1984, *A. Aptroot* 13355 & *R. Hensen* (B—holotypus; ABL—isotypus).

(Fig. 1)

Thallus corticolous, crustose, whitish grey, leprose to granular, dull, 0·2–0·4 mm thick, consisting of a confluence of tiny soredia-like thallus fragments, on a continuous, but thin, layer of white, arachnoid hypothallus that is underlying the whole thallus, covering areas of up to 50 cm diam, margins delimited by a conspicuous, white arachnoid prothallus that forms strings of up to 2 mm long and extends into crevices of the bark. Hyphae of pro- and hypothallus generally *c.* 5 µm thick, encrusted with crystals. *Algae* chlorococcoid, cells rounded to ellipsoid, *c.* 5 µm diam.

Apothecia numerous, sessile, 0·3–0·8 mm diam., solitary or often aggregated, rounded, flat to soon convex, pale ochraceous, granular white pruinose, often rejuvenating in groups on single, old apothecia of which only the hypothecium remains. *Excipulum* pale brown in surface view, densely white pruinose, eventually reflexed or excluded, internally olivaceous to bluish green, of agglutinated hyphae leaving elongated lumina, surface with crystals (brownish in section in water). *Hypothecium* dark brown to bluish olivaceous black. *Hymenium* with densely branched and anastomosing paraphyses, *c.* 50–70 µm high. *Paraphyses* tips little differentiated. *Epihymenium* with crystals (brownish in section in water). *Ascus* with IKI+ blue apical dome and a rather wide axial body (*Lecanora*-type). *Ascospores* 8 per ascus, coiled in the ascus, hyaline, corkscrew-like sinuosely curved, acicular, inconspicuously 3-septate, 30–40 × 1–2 µm, upper end rounded, lower end pointed.

Pycnidia not observed.

Chemistry. Thallus C −, KOH+ yellow, with atranorin (TLC). Pruina consisting of crystals of an unknown substance (not lobaric acid as reported in *S. pruinosum*).

Notes. *Scoliciosporum* is a small genus currently with *c.* 15 accepted species (Vězda 1978; Hafellner 2006). This is the first truly tropical *Scoliciosporum* to be described, although cosmopolitan species of this genus are regularly encountered in the tropics and one species, *S. camptosporum* (Vain.) Aptroot, was originally been described from Brazil (Aptroot 2002), albeit from a more subtropical environment. Two further species were described in '*Bacidia* (*Scoliciosporum*)' from subtropical Brazil by Malme (1935), but have never been transferred to *Scoliciosporum*. *Bacidia* '(*Scoliciosporum*)' *sorediosa* Groenhart was described from Java (Groenhart 1954), but ascospores were not observed by the original author, so that the generic assignment of the species is at best dubious. The new species is close in general aspect to *S. pruinosum*, with which it shares the dense white pruinosity of apothecia and thallus. It differs markedly, however, by the dark, olivaceous hypothallus and the generally conspicuous excipulum, which is also olivaceous in section. Lobaric acid is not present in the pruina. The long, coiled and slender ascospores are very typical of the genus.

The new species is known from one unidentified tree along a trail in a species diverse rain forest at 950 m altitude. It almost covered one side of the tree and was accompanied only by *Pyrgillus javanicus* Nyl. The rain forest was extremely humid and dense, with many vascular epiphytes, such as ferns and pendant lycopods. Characteristic trees in the area were the small-leaved, much branched *Pandanus* species of the section *Acanthostyla*. Since no material similar to the new species described here has been reported from elsewhere, it should provisionally be regarded as potentially endemic.

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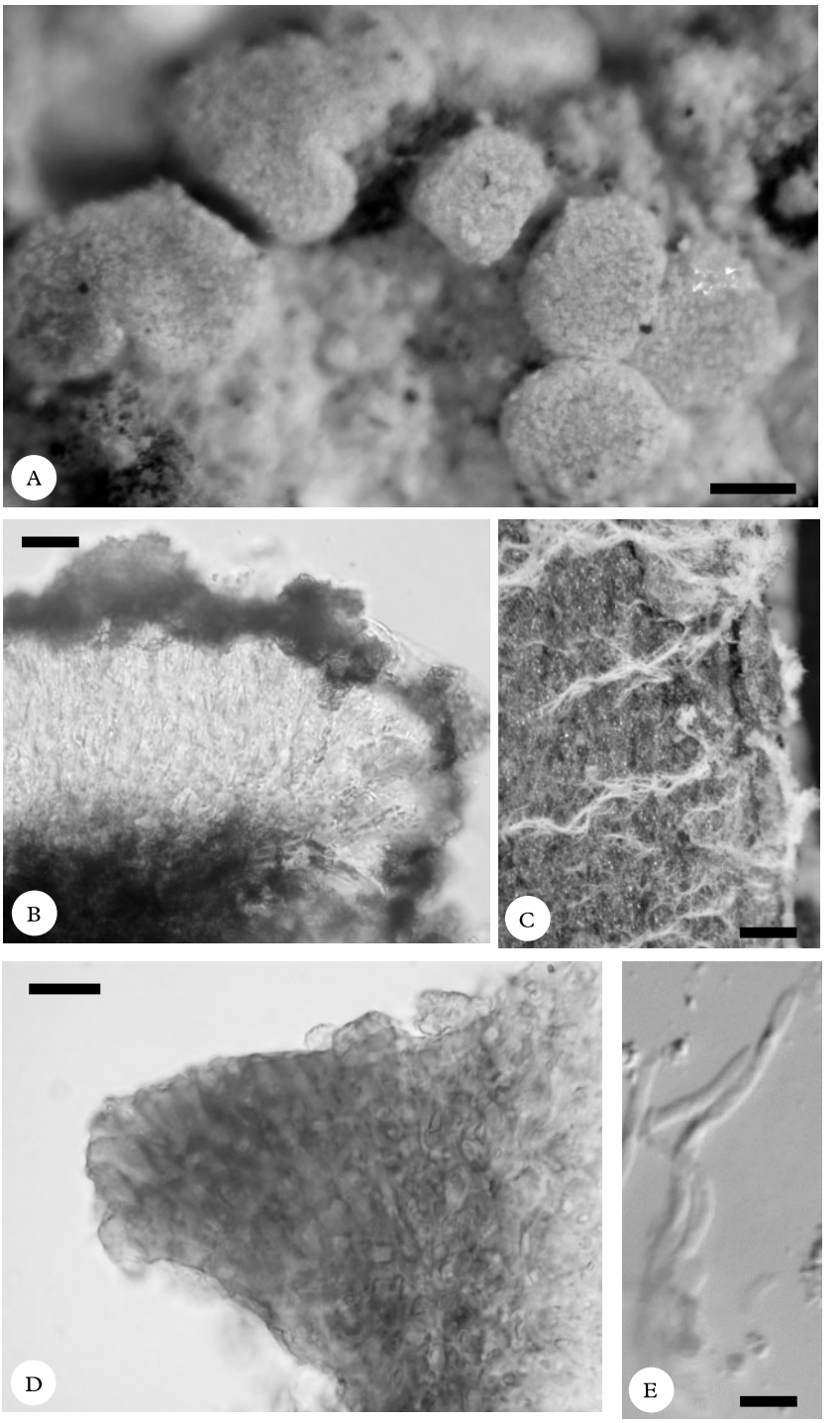


FIG. 1. *Scoliciosporum arachnoideum* holotype. A, apothecia; B, section through the apothecium; C, prothallus extending into bark fissure; D, detail of the excipulum; E, ascospores. Scales: A & C=0·1 mm; B=25 μm; D & E=5 μm.

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Several other endemic lichens have already been described from this rain forest belt on the eastern slope of Madagascar, some even from the same locality (see Introduction).

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