

FUSCIDEACEAE

A NEW SPECIES OF *FUSCIDEA* (LICHENES) FROM THE CAPE FOLD MOUNTAINS*Fuscidea hottentotta* Brusse, sp. nov.

Thallus crustosus, saxicola, violaceo-brunneus, ad 80 mm diametro, 100–300 μm crassus, rimoso- vel dissociareolatus. *Areolae* 0,2–2,0 mm diametro. *Hypothallus* ater, thallum marginans, margine 0,5–2,0 mm lato. *Cortex superior* circa 20 μm crassus. *Stratum gonidiale* 20–100 μm crassum; algae *Protococcoideae*, 5–16 μm diametro. *Medulla* alba, 50–200 μm crassa. *Apothecia* nigella, adnata, lecideina, ad 1,2 mm diametro, marginibus leviter brunneis vel atris, discis atris, planis vel concavis. *Excipulum* pallide brunneum, 35–45 μm crassum, anticlinale paraplectenchymatum, cellulis 4–6,5 μm latis, 4–15,5 μm longis. *Hypothecium* hyalinum, 65–95 μm crassum. *Hymenium* hyalinum, 65–75 μm altum, solum ascis J+ caeruleis; epihymenium brunneum. *Asci* clavati, tholis J+ caeruleis. *Ascospores* octonae, hyalinae sed mox fuscae, curvae vel reniformes, simplices vel interdum uniseptatae, 11,5–17,5 \times 5–8 μm . *Pycnidia* hyalina, ampulliformia, circa 80 μm lata et circa 100 μm profunda. *Pycnidiospores** hyalinae, rectae, anguste ellipsoideae, acrogenae, 3–5 \times 1–1,4 μm . *Thallus* acidum ramalinolicum continens.

TYPE.—3322 (Oudtshoorn): 40 km from the Olifants River bridge near Oudtshoorn to Mossel Bay, Robinson Pass. SW slopes of Ruitersberg. On almost vertical SW Table Mountain Sandstone rock face, on steep SW slope. Alt. 790 m (–CC). *F. Brusse* 5312, 1988.03.12 (PRE, holo.; B, BM, LD, UPS, iso.). Figure 10.

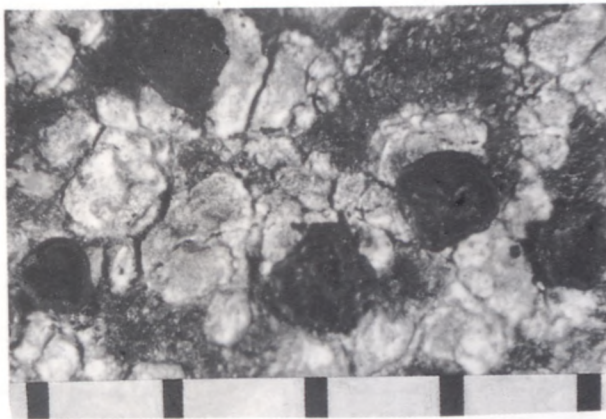


FIGURE 10.—*Fuscidea hottentotta* Brusse. Habit. *F. Brusse* 5312, holotype. Scale in mm.

Thallus crustose, saxicolous, violet-brown, to 80 mm across, 100–300 μm thick, rimose to scattered areolate. *Areoles* 0,2–2,0 mm across. *Hypothallus* black, lining thallus; lining 0,5–2,0 mm broad. *Upper cortex* about 20 μm thick. *Algal layer* 20–100 μm thick; algae *Protococcoid*, 5–16 μm diam. *Medulla* white, 50–200

* The term pycnidiospore is used here, because it implies any type of spore arising from within a pycnidium, and does not necessarily imply asexuality. As these spores may actually be spermatia (non-motile gametes), the term 'conidium' is avoided, because of its definite asexual connotations.

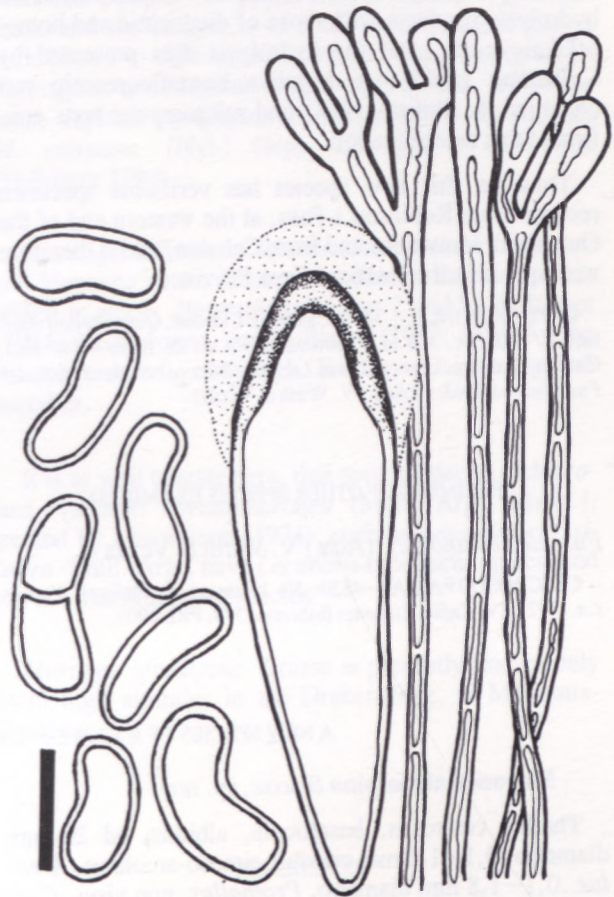


FIGURE 11.—*Fuscidea hottentotta* Brusse. Ascospores, ascus and paraphyses. Stippling indicates the amyloid reaction in Lugol's iodine solution. Heavy lines delineating the paraphyses, indicate brown walls. *F. Brusse* 5312, holotype. Bar = 10 μm .

μm thick. *Apothecia* blackish, adnate, lecideine, to 1,2 mm across, margins light brown to black, disc black, plane to concave. *Exciple* pale brown, anticlinally paraplectenchymatous, cells 4–6,5 μm wide, 4–15,5 μm long. *Hypothecium* hyaline, 65–95 μm thick. *Hymenium* hyaline, 65–75 μm high, only asci J+ blue; epihymenium brown. *Asci* clavate, eight-spored, tholus J+ blue (Figure 11). *Ascospores* 8, hyaline but soon fuscous, curved or reniform, simple but sometimes uniseptate, 11,5–17,5 \times 5–8 μm . *Pycnidia* hyaline, ampulliform, about 80 μm wide by about 100 μm deep. *Pycnidiospores** narrowly ellipsoid, hyaline, straight, acrogenous, 3–5 \times 1–1,4 μm . *Chemistry*: ramalinolic acid (major) and sekikaic acid (minor to trace).

This new species of *Fuscidea*, is fairly closely related to *Fuscidea cyathoides* (Ach.) V. Wirth & Vězda, but has slightly larger ascospores and significantly longer pycnidiospores. The ascospores are 8,5–14,0 \times 4,0–6,5 μm (James, Poelt & Wirth 1981; Oberhollenzer & Wirth 1984), as opposed to 11,5–17,5 \times 5–8 μm for *F. hottentotta*. The pycnidiospores of *F. cyathoides* are 2,8–3,5 \times 1–1,5 μm (Coppins *in litt.*), whereas those of *F. hottentotta* are longer, being 3–5 \times 1–1,4 μm . However, the most conspicuous difference between these two species is the chemistry, with *F. cyathoides* containing fumarprotocetraric and protocetraric acids

(James, Poelt & Wirth 1981; Oberhollenzer & Wirth, 1984), and *F. hottentotta* containing ramalinolic acid, with a minor amount of sekikaic acid. This was determined by thin-layer chromatographic comparisons of the hydrolysis products with those of divaricatic and homosekikaic acids, and the hydrolysis data presented by Culberson (1972). A negative homofluorescein test (Asahina & Shibata 1954) and microcrystal tests confirmed this determination.

Thus far this new species has verifiable specimen records from Robinson's Pass, at the western end of the Outeniqua Mountains and from Caledon, and is therefore widespread in the southern Cape Province.

CAPE PROVINCE.—3419 (Caledon): Caledon. Quarzitefelsen oberhalb d. Bades, c. 300 m. *J. Brunntaler s.n.*, 28.10.1909 (W 460). Cited by Zahlbruckner (1932) as *Lecidea (Biatora) rivulosa* Ach. (= *Fuscidea cyathoides* (Ach.) V. Wirth & Vězda).

SPECIMENS OF OTHER SPECIES EXAMINED

Fuscidea cyathoides (Ach.) V. Wirth & Vězda

CZECHOSLOVAKIA.—4820: Na křemenci na Plešivci. V. Los s.n. 1921. (V. Kufák, *Lichenes Bohemiae* 574; PRE 890).

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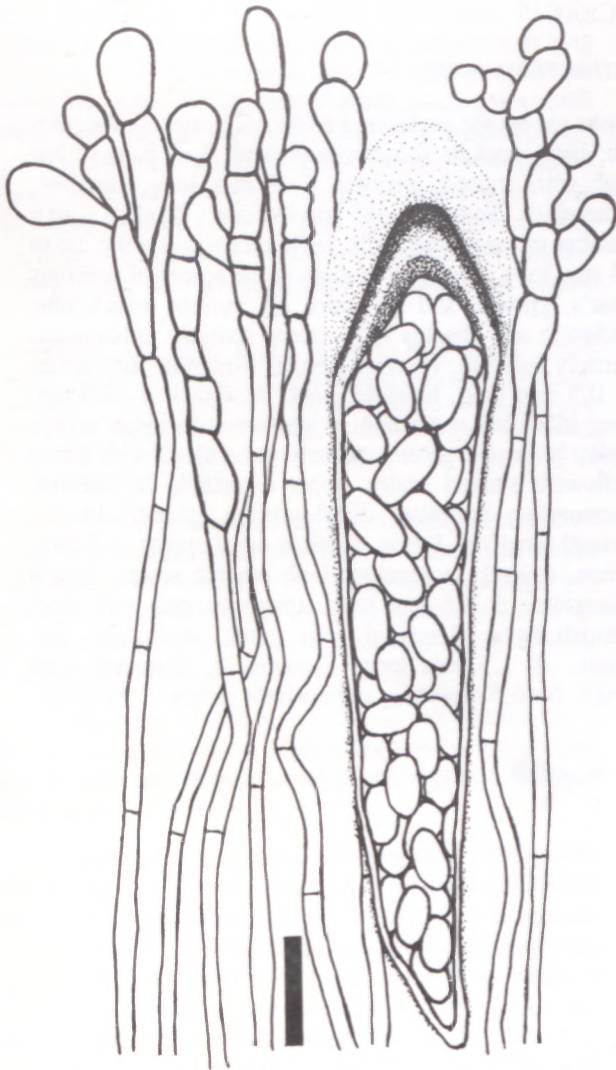


FIGURE 13.—*Maronea afroalpina* Brusse, ascus and paraphyses. The heavy lines at the tips of the paraphyses indicate brown walls. Stippling indicates the reaction in Lugol's iodine solution. F. Brusse 5553, holotype. Bar = 10 μm .

or acuminate-clavate, tholus J+ blue (Figure 13). *Ascospores* numerous (± 100 or more), simple, hyaline, ellipsoid, small, $5-9 \times 3,2-5,2 \mu\text{m}$. *Pycnidia* not seen. *Chemistry*: divaricatic acid only.

This is a unique new species of *Maronea*, because the apothecia are lecideine and the thallus is saxicolous, whereas all other species of *Maronea* known up to now have lecanorine apothecia and are corticolous. The lecanorine condition is characterized by a very reduced proper exciple and a well developed thalline exciple, not always in a protruded state. Oberhollenzer & Wirth (1984) treated several types of exciples in a single octosporous genus, *Fuscidea* V. Wirth & Vězda. The species with sunken apothecia and reduced exciples could be considered to have lecanorine apothecia, e.g. *Fuscidea atlantica* (Magn.) James & Poelt, originally described as a *Lecanora*. In a similar vein, Hertel (1984) has treated several lichens with *Lecanora*-type ascus apices, and curved acrogenous pycnidiospores with lecideine exciples, as species of *Lecanora* rather than of *Lecidea*, as would have been done in the past. The creation of a new genus for this lichen, therefore, seemed unwarranted.

Under the old system of classification of lichens, this species would key out at *Sarcogyne* Fw. (Magnusson 1935; Poelt 1969; Zahlbruckner 1926), but this genus often has a poorly developed thallus (mostly cryptothal-line), and the exciple is of a different structure and is dark brown to carbonized in colour. The paraphyses in *Sarcogyne* are ecapitate and strongly gelled, unlike the loose capitate paraphyses of *Maronea afroalpina*, and *M. constans* (Nyl.) Hepp, the type of *Maronea* (Hafellner 1984).

The major difference, the one which places *Sarcogyne* and *Maronea* in two different families, is the ascus apex, which is amply illustrated in Figure 2 and by Hafellner (1984) for *Maronea*, and by Brusse (1987, 1988) for the *Acarosporaceae*, of which *Sarcogyne* is a typical member.

It is as well to state here, that several species of *Maronea* [section *Pseudomaronea* (Müll. Arg.) Magn.], treated by Magnusson (1934), such as *Lecanora crassilabra* Müll. Arg., have *Lecanora*-type ascus apices, and are not true *Maronea* species.

Maronea afroalpina Brusse is presently known only from high altitudes in the Drakensberg, at Mont-aux-Sources.

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