Two new brown subcrustose *Parmelia* species from southern Africa (lichenized Ascomycetes)

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**ABSTRACT**

Two new brown subcrustose species of *Parmelia* (Lichenes) are described from southern Africa on rock. They are *P. barda* Brusse and *P. princeps* Brusse. The affinities of the two species are discussed.

**UITTREKSEL**

Twee nuwe bruin halfkorsagtige *Parmelia*-spesies (Lichenes) is op klippe uit suidelike Afrika beskryf. Die nuwe spesies is *P. barda* Brusse en *P. princeps* Brusse. Die verwantskappe van die twee spesies word bespreek.

*Parmelia barda* Brusse, sp. nov.

Thallus subcrustosus, saxicola, usque ad 50 mm diametro. *Lobi* elongati, 0,2–0,7 mm lati, usque ad 1,5 mm longi, 75–100 µm crassi. *Thallus superne* brunneus, nitidus, isidiis sorediisque nullis. *Cortex superior* 7–17 µm crassus, anticlein prosoplectenchymatus, epicorticis poroso (Figure 2). *Stratum gonidiale* 10–35 µm crassum, fasciculatum, algis *Trebouxiae*, 5-22 µm diametro. *Medulla* alba, 20–80 µm crassa. *Cortex inferior* hyalinus, paraplectenchymatus, 9–13 µm crassus. *Thallus inferne* pallidus. *Rhizinae* non bene evolutae. *Apothecia* sessilia, numerosa, usque ad 0,8 mm diametro. *Hypothecium* hyalinum, 15–30 µm crassum. *Subhymenium* 10–15 µm crassum. *Hymenium* 44–55 µm altaum, J+ caeruleum (Figure 3). *Ascosporae* octonae, hyalinae, simplices, ellipsoidae, 7–10 x 4,0–4,5 µm. *Pycnidia* globosa, hyalina, circa 120 µm diametro. *Pycnidiosporae* hyalinae, aciculares, 7–10 x 0,8 µm. *Thallus atranorinum* (±) et materiam ignotam continens.

**TYPE.**—Cape, 3320 (Montagu): 4 km SW of Montagu, Kogmans Kloof near the old British Fort of 1899, on top of an E-W ridge, on Table Mountain Sandstone outcrops, alt. 200–250 m (–CC), *Brusse 3718*, 1981.05.12 (PRE, holo.). Figure 1.

Thallus subcrustose, saxicola, up to 50 mm diam. *Lobes* elongae, 0,2–0,7 mm broad, up to 1,5 mm long, 75–100 µm thick. *Upper surface* brown, non-isidiate and non-sorediate. *Upper cortex* 7–17 µm thick, anticl-

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nally prosoplectenchymatous, epicortex pored (Figure 2). Algal layer clustered, clusters mainly subcortical, but also scattered in the medulla, 10–35 μm thick, algae Trebouxia, 5–22 μm diam. Medulla white, 20–80 μm thick. Lower cortex hyaline, paraplectenchymatous, 9–13 μm thick. Lower surface pale. Rhizines not well developed. Apothecia sessile, numerous, up to 0.8 mm across. Hypothecium hyaline, 15–30 μm thick. Subhymenium 10–15 μm thick. Hymenium 45–55 μm high, J+ blue. Asci clavate, 8-spored, poricidal, tholus J+ blue (Figure 3). Ascospores hyaline, monolocular (but equatorial ‘plasma-bridges’ common), ellipsoid, 7–10 × 4.0–4.5 μm. Pycnidia hyaline, globose, about 120 μm diam. Pycnidiospores hyaline needles, 7–10 × 0.8 μm. Chemistry: Atranorin (±) and an unidentified substance present (Table 1: bard-1).

The rather narrow ascospores of this species are like those of the genus Protoparmelia Choisy. Protoparmelia differs from this species in many other respects even though it is also brown. The paraphyses are not capitate and capped, and the tholus iodine reaction differs significantly from Protoparmelia. At present the degree of tholus reaction variation is rather marked in Parmelia, but it is not yet clear how much variation there is within one species. If the iodine reaction pattern within the tholus proves to be consistent, one could use these patterns for generic segregation of the genus Parmelia, particularly if these correlate with the presently used thalline and chemical characters. The thallus anatomy of Protoparmelia badia, the type of Protoparmelia (Hafellner 1984) is also divergent from that of this new species. It was therefore thought best to place this species in the genus Parmelia. In fact the cortex reacts green with concen-
trated nitric acid, and can be considered a small subcrustose member of the *Neofuscae* (Esslinger 1977), despite the additional presence of atranorin. *P. barda* was tested twice for chemical contents, the second run revealed no atranorin. The type specimen is growing on a rock with two micro-aspects and this may explain this difference. More exposed positions usually support specimens with a greater quantity of a particular lichen substance.

Although the substance in the medulla was not identified further, the spot characteristics indicated that it may be an orcinol para-depside. The R, data for ‘bard-1’ are similar to those given for loxodellic acid (Esslinger 1977, p.19), but this could not be confirmed by direct comparison, for lack of a lichen at PRE containing loxodellic acid, or a confirmatory test such as a micro-crystal test (no published data). Nevertheless all the known subcrustose species of the section *Neofusca* contain depsides, with the exception of the New Zealand endemic, *P. minuta* Essl. which contains gyrophoric acid (Esslinger 1977).

At present this species is known only from the type specimen from Kogmans Kloof near Montagu.

**Parmelia princeps** Brusse, sp. nov.

Thallus subcrustosus, saxicola, usque ad 25 mm diametro. *Lobi* elongati, 0,1–0,3 lati, usque ad 1 mm longi, 80–95 μm crassi. *Thallus superne* atro-brunneus, nitidus, isidiis sorediisque destitutus. *Cortex superior* 7–10 μm crassus, epicortice poroso (Figure 5). *Stratum gonidiale* 15–35 μm crassum, algis *Trebouxia*ae, 5–18 μm diametro. *Medulla* alba, 20–45 μm crassa. *Cortex inferior* paraplectenchymatus, circa 15 μm crassus, brunneus. *Thallus inferne* piceus. *Rhizinae* non bene

**TYPE.**—Cape, 3218 (Clanwilliam), 3 km W of Olyvenboskraal, Witelskloof, on large Table Mountain Sandstone outcrop, alt. 450–500 m (-BD), F. Brusse 3074, 1981.05.02 (PRE, holo.). Figure 4.

Thallus subcrustose, saxicolous, up to 25 mm across. Lobes elongate, 0,1–0,3 mm broad, up to 1 mm long, 80–95 μm thick. Upper surface dark brown, glossy, non-isidiate and non-sorediate. Upper cortex 7–10 μm thick, epicortex pored (Figure 5). Algal layer 15–35 μm thick, algae *Trebouxia*, 5–18 μm diam. Medulla white, 20–45 μm thick. Lower cortex paraplectenchymatous, around 15 μm thick, brown. Lower surface black. Rhizines not well developed. *Apothecia* sessile, rare, up to 0,5 mm across. *Hypothecium* hyaline, 30–33 μm thick, paraplectenchymatous, cells 3,5–7,5 μm diam. *Subhymenium* 30–45 μm thick. *Hymenium* hyalinum, 50–60 μm high, J+ blue. *Asci* clavate, poricidal, tholus J+ blue (Figure 6). *Ascosporae* hyaline, monolocular, ellipsoid, 9,5–12,5 × 5,0–6,0 μm. *Pycnidia* not seen.

Chemistry: cortical substances absent, squamatic acid and an unidentified substance (Table 1: princ.-l) in the medulla.

*Parmelia princeps* is another brown lichen that is not assignable to *Protoparmelia* Choisy, presently used for the *Lecanora badia* group, due to important structural differences (see the discussion of the previous species for these). The cortex of this species does not react with concentrated nitric acid (nor with 2 molar potassium hydroxide solution), but could probably still be assigned to the *Neofuscae*, as some members of this group are negative with concentrated nitric acid (Esslinger 1977). The only other subcrustose species containing squamatic acid is *Parmelia squamatica* Brusse (1980, 1986) but this is yellow–green coloured, with usnic acid in the upper cortex.

*Parmelia princeps* is presently known only from the type locality south-west of Clanwilliam.

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**REFERENCES**


