

New species and combinations in *Parmelia* (Lichenes) from southern Africa

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ABSTRACT

Eight new species are described and six new combinations are made in the lichen genus *Parmelia* from southern Africa. The new species are *Parmelia astricta* Brusse, *P. clivorum* Brusse, *P. marroninipuncta* Brusse, *P. patula* Brusse, *P. scitula* Brusse, *P. spargens* Brusse, *P. unctula* Brusse and *P. vernicosa* Brusse. The new combinations are *P. aggregata* (D. Knox) Brusse, *P. cedrus-montana* (Brusse) Brusse, *P. dysprosa* (Brusse & D. Knox) Brusse, *P. exornata* (Zahlbr.) Brusse, *P. karoo* (D. Knox & Brusse) Brusse and *P. leucostigma* (Brusse) Brusse.

NEW SPECIES

Parmelia astricta Brusse, sp. nov.

Thallus minute foliosus, adnatus, saxicola, usque ad 12 mm diametro, omnino lobatus. *Lobi* lineares, 0,1–0,8 mm lati, subimbricati, sat adpressi, 75–120 µm crassi. *Thallus superne* cinereus, nitidus, epicortice poroso, emaculatus, isidiis sorediisque nullis. *Cortex superior* 10–20 µm crassus. *Stratum gonidiale* 15–25 µm crassum. *Medulla* alba, 25–90 µm crassa. *Cortex inferior* 5–10 µm crassus, brunneus. *Thallus inferne* piceus. *Rhizinae* simplices, sparsae vel moderatae, piceae, 30–90 µm crassae. *Apothecia* et *pycnidia* ignota. *Thallus atranorinum* et *acidum alectoronicum* continens.

TYPE.—Cape, 3321 (Ladismith): 17 km N of Riversdale, Garcia's Pass, SW side of Kareekop, in the Langeberg, on TMS on a steep S slope, Brusse 3626, 1981.05.10 (PRE!). (With olivetoric acid accessory and medulla C+ red.) Fig. 1.

This species is probably most closely related to *P. mongaensis* Elix with grayanic and colensonic acids (Elix, 1981), orcinol depsidones like alectoronic acid.

The following specimen is tentatively assigned here too:

CAPE.—3322 (Oudtshoorn): 19 km S of Prince Albert, top of Swartberg Pass, on TMS, on steep S slope (–AC), Brusse 3444, 1981.05.07 (PRE). (Contains atranorin, gyrophoric, alectoronic + acids.)

Parmelia clivorum Brusse, sp. nov.

Thallus foliosus, saxicola, sat adnatus. *Lobi* elongati, 1–3 mm plerumque 1,5–2,5 mm lati, 100–300 µm crassi. *Thallus superne* flavovirens, subnitidus, isidiatus, isidiis grossis, globosis, usque ad 0,3 mm crassis. *Cortex superior* 18–28 µm crassus. *Stratum gonidiale* 30–70 µm crassum. *Medulla* alba, C + rubra, 40–200 µm crassa. *Cortex inferior* 12–17 µm crassus, brunneus. *Thallus inferne*

piceus, sparse vel sat rhizinosus. *Apothecia* ignota. *Pycnidia* globosa, 70–190 µm diametris. *Pycnidiosporae* hyalinae, bacillares, rectae, 5–9 × 1 µm. *Thallus acidum usnicum* et *acidum lecanoricum* continens.

TYPE.—Cape, 3218 (Clanwilliam): 3 km W of Olyvenboskraal, Witelskloof, on large TMS boulder outcrop (–BD), Brusse 3069, 1981.05.02 (PRE). Fig. 2.

Isidiate Xanthoparmeliae are unusual in the Cape and it was a surprise to find this new unusual species, particularly as it is closest to *P. joranadia* Nash (1974a) from the state of New Mexico, USA. *P. clivorum*, however, is clearly distinguished from the latter by its pitch black lower surface. At present this species is known only from the type specimen.

Parmelia marroninipuncta Brusse, sp. nov.

Thallus foliosus, adnatus, saxicola, usque ad 8 cm diametro. *Lobi* elongati, 1,5–6 mm plerumque 2–4 mm lati, 80–200 µm crassi. *Thallus superne* virescens, nitidus, isidiis sorediisque nullis, dissite atropunctatus. *Cortex superior* 7–15 µm crassus. *Stratum gonidiale* 25–65 µm crassum. *Medulla* alba, sub atropunctis marroninis, 30–120 µm crassa. *Cortex inferior* 5–10 µm crassus, pallidus. *Thallus inferne* pallidus, sat rhizinosus. *Apothecia* usque ad 10 mm diametris. *Hymenium* 33–40 µm altum. *Subhymenium* 5–10 µm crassum. *Hypothecium* 20–40 µm crassum. *Ascospores* octonae, simplices, hyalinae, ellipsoideae, 8–10 × 4–6 µm. *Pycnidia* globosa, 100–150 µm diametris. *Pycnidiosporae* hyalinae, bacillares, rectae, 4–6 × 1 µm. *Thallus acidum usnicum*, *acidum protocetraricum* et duo usque ad quatuor pigmenta anthraquinona ignota continens.

TYPE.—Cape, 3221 (Merweville): 40 km NW of Merweville, Uitspannings River Pass, on a low mudstone kranz, on the S verge of a mountain (–CA), Brusse 3417, 1981.05.07 (PRE, holo!; LD, iso!). Fig. 3.

This species is very close to *P. dichromatica* Hale (1971), with which it is identical in all respects, except that it has the pigments concentrated in

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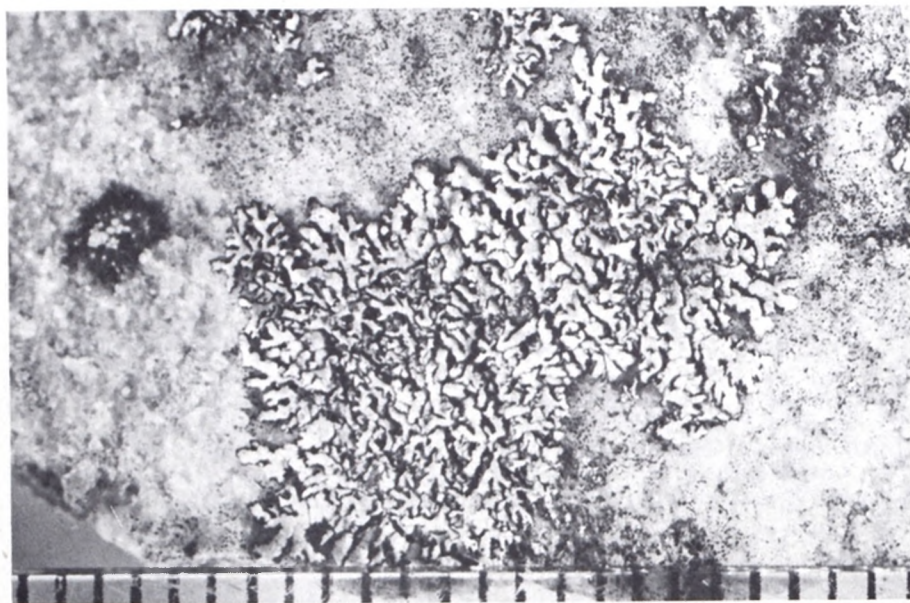


FIG. 1.—*Parmelia astricta*, Brusse 3626, holotype. Scale in mm.



FIG. 2.—*Parmelia clivorum*, Brusse 3069, holotype. Scale in mm.

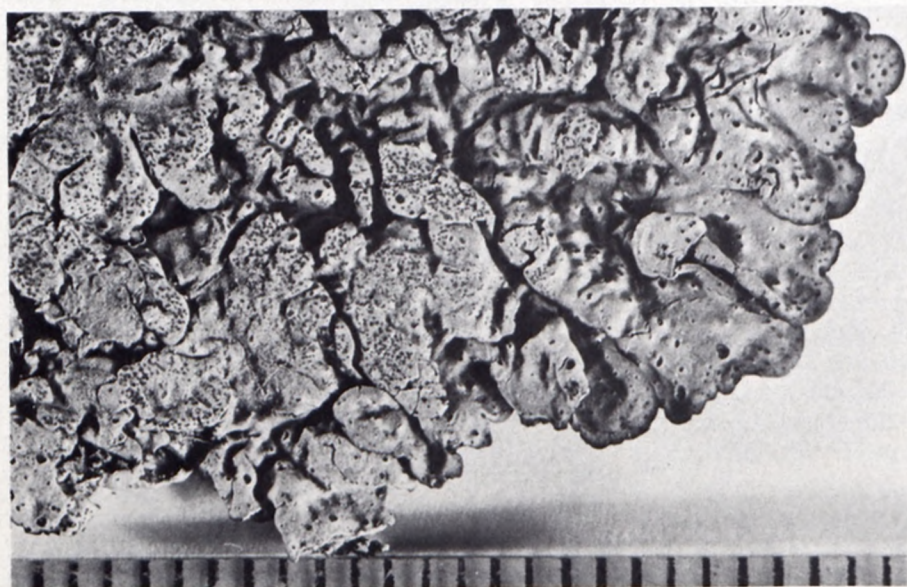


FIG. 3.—*Parmelia marroninipuncta*, Brusse 3417, holotype. Scale in mm.

pockets immediately below the black spots on the upper surface. SEM examination of these black spots, which are normally somewhat raised, reveal that they are pored areas on a non-pored epicortex (Figs 4 & 5).

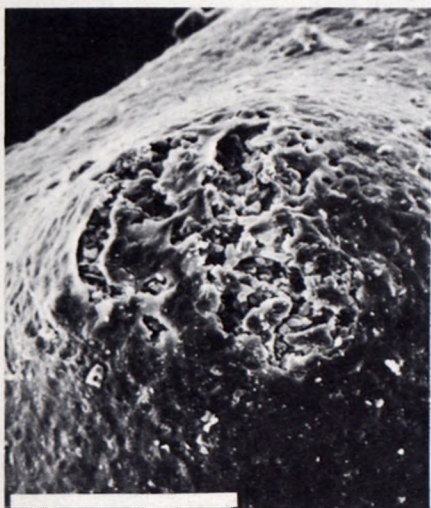


FIG. 4.—*Parmelia marroninipuncta*, Brusse 3417, holotype. SEM micrograph of a young spot. Bar = 100 μ m.

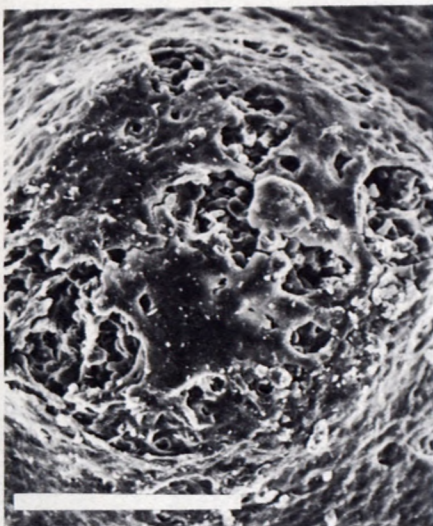


FIG. 5.—*Parmelia marroninipuncta*, Brusse 3417, holotype. SEM micrograph of an older spot. Bar = 100 μ m.

The upper cortex is also missing at these spots, so that the maroon medulla is found immediately below the epicortex. A light touch opens them, with the result that older parts appear to possess maroon pseudocyphellae. *P. marroninipuncta* appears to be restricted to the southern Cape in a broad sense. *P. dichromatica*, on the other hand, has a smooth unspotted upper surface, with the pigments spots in the medulla. It also has a different distribution, occurring in the eastern interior of the Cape Province to Lesotho and environs. The distribution

of these two species probably overlaps in the eastern Cape but, as yet, the two have not been found at the same locality. The pigments involved in both these species are the same as those in *P. endomiltodes* Nyl.

CAPE.—3124 (Hanover): 58 km from Graaff-Reinet to Cradock, Farm Bluegum House, on rock on a gentle NW slope (—DD), Retief & Looock 364, 1978.07.23 (PRE). 3320 (Montagu): 8 km S of Laingsburg, on S slopes of an E-W ridge with strata exposed near vertically (—BB), Brusse 3503, 1981.05.09 (PRE, LD). 3321 (Ladismith): Seven Weeks Poort, about 9 km from the main Calitzdorp-Ladismith road, on S faces of TMS exposures and rocks, on a steep E slope (—AD), Brusse 3472, 1981.05.08 (PRE).

***Parmelia patula* Brusse, sp. nov., thallo ut in *P. weberi* Hale, sed inferne piceo.**

Thallus saxicola, arcte adnatus, foliosus. *Lobi* elongati 0,6–3 mm plerumque 1–2 mm lati, 120–300 μ m crassi. *Thallus superne* viridus, nitidus, isidiatus. *Isidia* grossa, globosa, 0,1–0,2 mm diametris, 0,1–0,3 mm alta. *Cortex superior* 15–25 μ m crassus. *Stratum gonidiale* 30–50 μ m crassum. *Medulla* alba, 75–200 μ m crassa. *Cortex inferior* 6–10 μ m crassus, brunneus. *Thallus inferne* piceus, sat rhizinosus. *Apothecia* ignota. *Pycnidia* globosa, 100–200 μ m diametris. *Pycnidiosporae* hyalinae, bacillares, rectae, 5–7 $\times$ 1 μ m. *Thallus acidum* usnicum, acidum hypoprotocetraricum et acidum 4–0–demethylnotaticum continens.

TYPE.—Transvaal, 2529 (Witbank): between Middleburg and Loskop Dam, 'Cycad trail', on N side of Olifants River gorge (—CB), Brusse 1337, 1981.03.27 (PRE, holo.; LD, COLO, MEL, iso.). Fig. 6.

This species is similar to *P. weberi* Hale, except that it has a black lower surface. The non-isidiate counterpart is *P. domokosii* Gyeln., a Cape species. The complete complement of species in this group is now known: *P. perspersa* Stiz.—*P. neocongensis* Hale; *P. domokosii* Gyeln.—*P. patula* Brusse; *P. encrustans* Hale—*Xanthoparmelia hedbergii* D. Knox; and *P. subdomokosii* Hale—*P. weberi* Hale. However, the members of these pairs are not always absolutely identical and this is particularly true for the last pair. This is a fairly common species in the eastern half of the country and appears to extend into the south-western Cape along the mountains.

***Parmelia scitula* Brusse, sp. nov.**

Thallus subcrustosus, saxicola, usque ad 6 cm diametro. *Lobi* elongati, 0,5–1,5 mm plerumque circa 1 mm lati, 70–150 μ m crassi. *Thallus superne* viridus, nitidus, isidiis sorediisque nullis. *Cortex superior* 12–14 μ m crassus. *Stratum gonidiale* 12–30 μ m crassum. *Medulla* alba, C + rubra, 35–100 μ m crassa. *Cortex inferior* pallidus vel hyalinus, 5–10 μ m crassus. *Thallus inferne* pallidus, sparse rhizinosus. *Apothecia* usque ad 0,8 mm diametris. *Hymenium* 35–45 μ m altum. *Subhymenium* circa 10 μ m crassum. *Hypothecium* 20–40 μ m crassum. *Ascosporae* octonae, simplices, hyalinae, ellipsoideae, 8–9,5 $\times$ 5–6 μ m. *Pycnidia* globosa, 90–150 μ m diametris. *Pycnidiosporae* bacillares, rectae, hyalinae, 5–7 $\times$ 1 μ m. *Thallus acidum* usnicum et acidum lecanoricum continens.

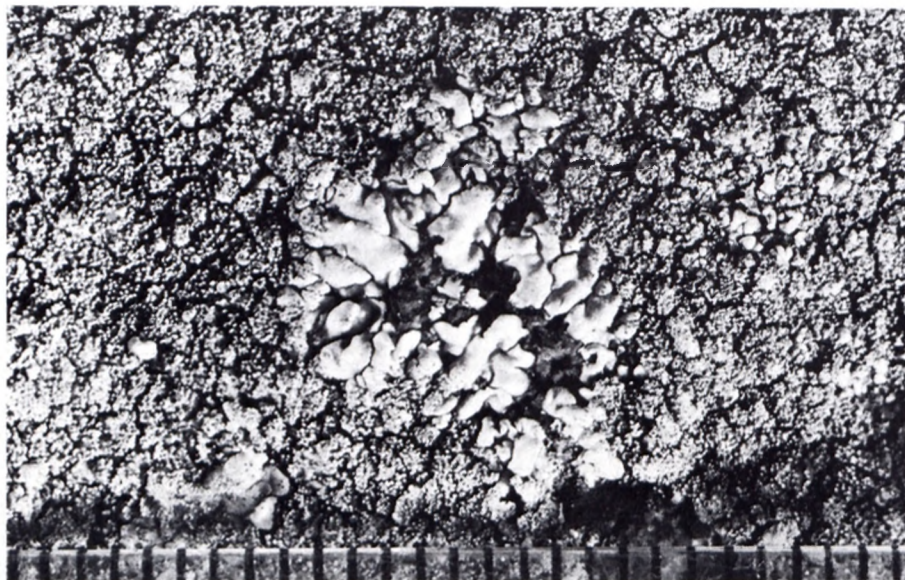


FIG. 6.—*Parmelia patula*, Brusse 1337, holotype. Scale in mm.

TYPE.—Cape, 3320 (Montagu): 8 km S of Laingsburg, on S slopes of an E–W ridge, with strata exposed near vertically (–BB), Brusse 3522, 1981.05.09 (PRE, holo.; LD, iso.). Fig. 7.

This species is the subcrustose counterpart of *P. worcesteri* J. Steiner & Zahlbr. (Zahlbruckner, 1926) and is less common than the latter. It seems to be restricted to the Karoo. *P. scitula* Brusse superficially resembles any of the other subcrustose Xanthoparmeliae such as *P. adhaerens* Nyl. (stictic acid), *P. perplexa* Stiz. (salazinic acid), *P. perspersa* Stiz. (hypoprotocetraric acid, lower side black), *P. unctula* Brusse (fatty acids) and even sometimes *Lecanora leptoplaca* Zahlbr. (salazinic acid).

CAPE.—2923 (Douglas): 19 km NE of Strydenburg, Elands Mountain, on dolerite (–DD), Brusse 768 5–1–5 (J).

***Parmelia spargens* Brusse, sp. nov.**

Thallus foliosus, saxicola, sat adnatus, saepe dispersus. Lobi elongati, 1–4 mm plerumque 1,5–3 mm lati, 120–170 μ m crassi. Thallus superne viridis, nitidus, isidiatus. Isidia grossa, globosa vel elongata,

0,1–0,3 mm crassa et usque ad 0,8 mm longa. Cortex superior 10–15 μ m crassus. Stratum gonidiale 30–55 μ m crassum. Medulla alba, 50–120 μ m crassa. Cortex inferior 8–20 μ m crassus. Thallus inferne pallidus, sat rhizinosus. Apothecia sparsa, usque ad 3 mm diametris, marginibus isidiatis. Hymenium 50–60 μ m crassum. Hypothecium 35–40 μ m crassum. Ascosporae octonae, simplices, hyalinae, ellipsoideae, 8–11 $\times$ 5–6 μ m. Pycnidia globosa, 100–150 μ m diametris. Pycnidiosporae bacillares, rectae, hyalinae, 5–7 $\times$ 1 μ m. Thallus acidum usnicum et acidum lichesteranicum continens.

TYPE.—Cape, 3321 (Ladismith): Seven Weeks Poort, about 9 km from the main Calitzdorp–Ladismith road, on S faces of TMS exposures and rocks, on a steep E slope (–AD), Brusse 3481, 1981.05.08. (PRE, holo.; LD, iso.). Fig. 8.

This species occurs on the southern Cape mountains in higher rainfall areas, together with other isidiate species which are otherwise uncommon in the Cape Province [cf. Europe (Hale, 1964)], Arizona (Nash, 1974b), Texas (Egan, 1977),

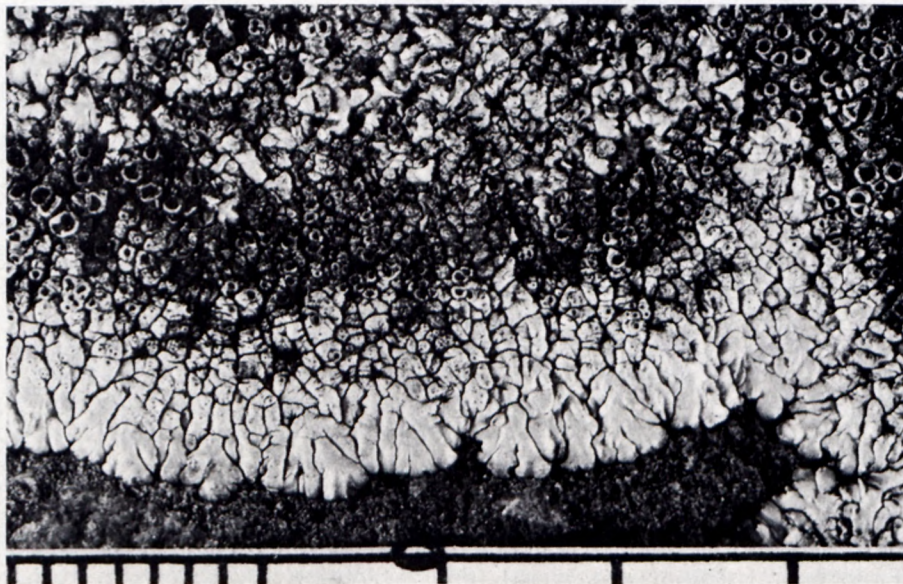


FIG. 7.—*Parmelia scitula*, Brusse 3522, holotype. Scale in cm and mm.



FIG. 8.—*Parmelia spargens*, Brusse 3481, holotype. Scale in mm.

New Zealand (Galloway, 1980), Australia (Kurokawa, 1969; Filson, 1982)). The identity of the fatty acid in *Parmelia spargens* Brusse was confirmed by co-chromatography in three solvent systems (Culbertson, 1972) with the acetone extract of *Cetraria ericetorum* Opiz (Arnold Lichen Exsiccati no. 1609, in PRE).

CAPE.—3320 (Montagu): 4 km SW of Montagu, Kogmans Kloof near the old British Fort of 1899, on S sides of an E-W ridge (—CC), Brusse 3736 (PRE), 3743 (PRE).

***Parmelia unctula* Brusse, sp. nov.**

Thallus subcrustosus, saxicola, usque ad 5 cm diametro. Lobi elongati, 1–6 mm longi, 0,3–1,5 mm lati, 80–110 μ m crassi. Thallus superne viridus, nitidus, isidiis sorediisque nullis. Cortex superior 10–13 μ m crassus. Stratum gonidiale 20–35 μ m crassum. Medulla alba 35–70 μ m crassa. Cortex inferior 6–10 μ m crassus. Thallus inferne pallidus, sparse vel sat rhizinosus. Apothecia usque ad 1,2 mm diametris. Hymenium 45–55 μ m altum. Subhymenium 5–10 μ m crassum. Hypothecium 50–75 μ m crassum. Ascospores octonae, simplices, hyalinae,

ellipsoideae, 8–10 $\times$ 5–6 μ m. Pycnidia globosa, circa 100 μ m diametris. Pycnidiosporae bacillares, rectae, hyalinae, 5–7 $\times$ 1 μ m. Thallus acidum usnicum, atranorinum et acidum aliphaticum acido protolichesterinico affine continens.

TYPE.—Cape, 3321 (Ladismith): Seven Weeks Poort, about 16½ km from the main Calitzdorp-Ladismith road, on large TMS boulders in the cove of a high water trickle (waterfall), Brusse 3582 (PRE, holo.). Fig. 9.

This species may be the perfect morph of *P. globulifera* Kurok. & Filson, another small species containing fatty acids, but the latter is globose-isidiate and has so far only been found in Australia. (Kurokawa & Filson, 1975; Filson, 1982). *P. unctula* Brusse may also be regarded as the subcrustose counterpart of *P. subdeciens* Vain. ex Lynge, which contains the same fatty acids in the medulla. The latter species is widespread in the Cape Province and Lesotho and environs, and is clearly foliose, resembling *P. subdomokosii* Hale most closely in morphology. At present this species is known only from the type locality.

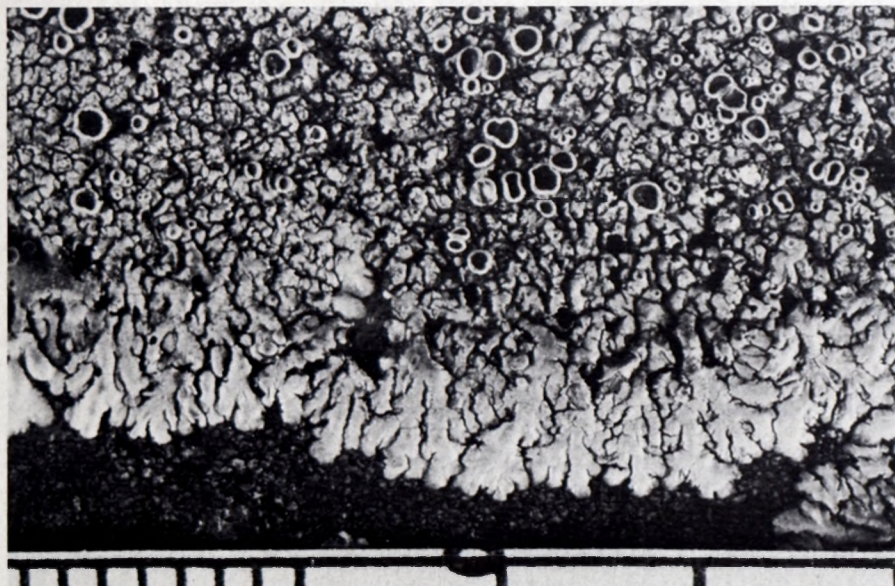


FIG. 9.—*Parmelia unctula*, Brusse 3582, holotype. Scale in cm and mm.

***Parmelia vernicosa* Brusse, sp. nov.**

Thallus foliosus, saxicola, usque ad 5 cm diametro. *Lobi* elongati, 0,5–2,0 mm lati, 120–250 μ m crassi, aequaliter adpressi. *Thallus superne* brunneus, nitidus, epicortice poroso, isidiis sorediisque nullis. *Cortex superior* 10–12 μ m crassus. *Stratum gonidiale* 20–35 μ m crassum. *Medulla* marronina vel violacea, 70–200 μ m crassa. *Cortex inferior* pallidus, 6–10 μ m crassus. *Thallus inferne* pallidus, sat rhizinosus. *Apothecia* usque ad 3 mm diametris, numerosa. *Hymenium* 40–55 μ m altum. *Subhymenium* 5–10 μ m crassum. *Hypothecium* 20–40 μ m crassum. *Ascospores* octonae, simplices, hyalinae, ellipsoideae, $7\frac{1}{2}$ –10 $\times$ 5–6 μ m. *Pycnidia* globosa, circa 120–130 μ m diametris. *Pycnidiospores* bacillares, rectae, hyalinae, 5–7 $\times$ 1 μ m. *Thallus* quatuor pigmenta anthroquinona ignota (ut in *Parmelia endomiltodes* Nyl.) solum continens.

TYPE.—Cape, 3219 (Worcester): 17 km W of Citrusdale, top of Middleberg Pass, on W facing TMS (–CA), Brusse 3039, 1981.05.02 (PRE). Fig. 10.



FIG. 10—*Parmelia vernicosa*, Brusse 3039, holotype. Scale in mm.

The upper surface of this distinctive brown *Parmelia* does not react very clearly with concentrated nitric acid, but certainly belongs to the *Neofuscae* (Esslinger, 1977, 1978). Despite this, *P. vernicosa* is probably most closely related to the grey, *P. violacea* Kurok., a species containing succinoprotocetraric and fumarprotocetraric acids in the medulla, with or without (as in the type) atranorin in the upper cortex. Both these species are reminiscent of *P. endomiltodes* Nyl., a *Xanthoparmelia* with the same four medullary pigments, but with salazinic acid present instead.

NEW COMBINATIONS

***Parmelia aggregata* (D. Knox) Brusse, comb. nov.**

Xanthoparmelia aggregata D. Knox in Jl S. Afr. Bot., 49: 144 (1983). Type: Cape, 3118 (Vanrhynsdorp): Salt River, Van

Rhyn's Dorp Division (Cape Province), on ground (–BC), Stokoe 7721, Sept. 1941 (BOL, holo.; US, iso.).

CAPE.—3118 (Vanrhynsdorp): Knersvlakte, towards Douse the Glim, on ground (–DD), Stirton 9368, 1981.09.21 (PRE).

***Parmelia cedrus-montana* (Brusse) Brusse, comb. nov.**

Xanthoparmelia cedrus-montana Brusse in Jl S. Afr. Bot. 49: 145 (1983). Type: Cape, 3319 (Worcester): Ceres (–AD), T.B. Leslie (TUR–VAIN 33499, Hb. Vain. 34575!).

As noted by Knox & Brusse (1983), the species is a member of the *P. hypoleia* Nyl. group, even though the type specimen is only faintly maculate. The distinct to faint variation in maculation has been observed in most of the Cape species of this group. The chemistry is unusual for a *Parmelia*, containing thamnolic and squamatic acids with the unknowns Th–1 and Th–2 sometimes present as well. Some specimens contain Th–1 and Th–2 as the only medullary substances. *P. cedrus-montana* is named after the Cedarberg where it was first rediscovered

(Brusse, 1980). The citation of Brusse 772 8–2–19, 8/2/77 (J) by Knox & Brusse (1983) is unfortunate, as this species does not conform to the type in chemistry: the J specimen from Seven Weeks Poort cited below would have been a better choice.

CAPE.—3218 (Clanwilliam): 3 km W of Olyvenboskraal, Witelskloof, on large TMS boulder-outcrop (–BD), Brusse 3091 (PRE, LD), 3098 (PRE, COLO), 3099 (PRE), 3100 (PRE), 1981.05.02; top of Versveld Pass near Piketberg, on TMS boulders on W aspect (–DC), Brusse 2993, 1981.05.01. (PRE). 3318 (Cape Town): 4 km N of Mamre, on granite outcrops on a gentle W slope in hilly terrain (–AD), Brusse 2814, 1981.04.29 (PRE, LD). 3319 (Worcester): 7 km W of Tulbagh, Nuwekloof Pass, Obiqua mountains, on TMS on a steep SW slope (–AC), Brusse 2708 (PRE, LD), 2715 (PRE), 1981.04.28. 12 km E of Wellington, Bains Kloof near the Convict Graves, on W TMS cliffs (–CA), Brusse 2586, 1981.04.26. (PRE). 3321 (Ladismith): Seven Weeks Poort near Ladismith, on TMS (–AD), Brusse 772 11–3–9, 1977.02.11 (J); Seven Weeks Poort, about 9 km from the main Calitzdorp–Ladismith road, on S faces of TMS exposures and rocks on a steep E slope, (–AD), Brusse 3485, 1981.05.08 (PRE, LD); Seven Weeks Poort, about 16½ km from the main Calitzdorp–Ladismith road, on large TMS boulders in the cove of

a high water trickle (waterfall), (–AD), *Brusse 3584*, 1981.05.09 (PRE, COLO, LD).

***Parmelia dysprosa* (Brusse & D. Knox) Brusse, comb. nov.**

Xanthoparmelia dysprosa Brusse & D. Knox in Jl S. Afr. Bot. 49: 148 (1983). Type: Cape, 3318 (Cape Town): Platteklip, Vlotenberg (–AD), on granite rock, *Garside 5035 (a)* (BOL, holo.; US, iso.).

CAPE.—3218 (Clanwilliam): 3 km W of Olyvenboskraal, Witelskloof, on large TMS boulder outcrop (–BD), *Brusse 3102*, 1981.05.02. (PRE).

***Parmelia exornata* (Zahlbr.) Brusse, comb. nov.**

Parmelia conturbata Müll. Arg. var. *exornata* Zahlbr. Zahlbruckner, A., Ann. Cryptog. exot. 5: 251 (1932).

Xanthoparmelia exornata (Zahlbr.) Brusse & D. Knox in Jl S. Afr. Bot. 49: 150 (1983). Type: Cape, 2917 (Springbok): Namaqualand, Steinkopf (–BD), Leg. Pastor G. Meyer (*Van der Bijl 950*, W 315, holo!).

This is a very common species and is easily recognized at drier sites by its discrete, convex and maculate lobes. The lower surface may be pitch black as in the type specimen, or tan which is very common, but the two are not distinct enough to warrant an additional name. In this case, the extent of blackening varies from specimen to specimen. The specimens seen are too numerous to cite individually. This species is allied to *P. fistulata* Tayl. of South America.

***Parmelia karoo* (D. Knox & Brusse) Brusse, comb. nov.**

Xanthoparmelia karoo D. Knox & Brusse in Jl S. Afr. Bot. 49: 154 (1983). Type: Cape, 3219 (Wuppertal): 32 km NE of Clanwilliam, Klipfonteinrand (–AA), *Brusse 768 10–3–7* (J. holo!).

The similarity between this and *P. hypoprotocetrarica* Kurok. & Elix was mentioned by Knox & Brusse (1983). Further evidence for the maintenance of this taxon as a species is that hypoprotocetraric acid is the only substance found in this form, whereas in the *P. hypoleia* Nyl. group, protocetraric acid predominates (*P. hypoleia* Nyl.), followed by hypoprotocetraric acid (*P. hypoprotocetrarica* Kurok. & Elix), thamnolic acid and related substances (*P. cedrus-montana* (Brusse) Brusse), barbatic acid (*P. burmeisteri* Elix) and finally evernic acid [*P. dysprosa* (Brusse & D. Knox) Brusse]. The species is common in Namaqualand and extends as far south as Clanwilliam District. The specimens seen are cited by Brusse (1980).

***Parmelia leucostigma* (Brusse) Brusse, comb. nov.**

Xanthoparmelia leucostigma Brusse in Jl S. Afr. Bot. 49: 155 (1983). Type: Cape, 3322 (Oudtshoorn) 18 km N of De Rust, Meiringspoort (–BC), *Brusse 772 14–1–17* (PRE, holo!); *772 14–1–13* (LD, iso!).

This species is somewhat reminiscent of *Parmelia exornata* (Zahlbr.) Brusse, but is not as coarsely

lobed and contains gyrophoric instead of salazinic acid and related compounds in the medulla. The species seems to be intermediate between *P. exornata* and the more usual *Xanthoparmeliae*. The two species are not related to the *P. hypoleia* group despite the maculation. Their closest relatives are *P. fistulata* Tayl. and *P. pachyderma* Hue with the same lobe anatomy (Culberson & Culberson, 1981).

CAPE.—3320; (Montagu): 4 km SW of Montagu, Kogmans Kloof near the Old British Fort of 1899, on S side of an E–W ridge (–CC), *Brusse 3710*, 1981.05.12 (PRE).

UITTREKSEL

Agt nuwe soorte word beskryf en ses nuwe kombinasies word gemaak in die liggende genus *Parmelia* in suidelike Afrika. Die nuwe soorte is *Parmelia astricta* Brusse, *P. clivorum* Brusse, *P. marroninipuncta* Brusse, *P. patula* Brusse, *P. scitula* Brusse, *P. spargens* Brusse, *P. unctula* Brusse en *P. vernicosa* Brusse. Die nuwe kombinasies is *P. aggregata* (D. Knox) Brusse, *P. cedrus-montana* (Brusse) Brusse, *P. dysprosa* (Brusse & D. Knox) Brusse, *P. exornata* (Zahlbr.) Brusse, *P. karoo* (D. Knox & Brusse) Brusse en *P. leucostigma* (Brusse) Brusse.

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