A NEW SPECIES AND NEW RECORDS IN THE LICHEN FAMILY PARMELIACEAE (ASCOMYCOTINA) FROM THE PHILIPPINES

JOHN A. ELIX

Department of Chemistry, The Faculties, Australian National University, Canberra, ACT 0200, Australia
email: John.Elix@anu.edu.au

FELIX SCHUMM
Schreiberstrasse 36, D-70199 Stuttgart, Germany
email: Schumm@CompuServe.com

ABSTRACT: Parmotrema negrosorientalum from the Philippines is described as new to science. In addition, 13 species of Parmeliaceae are reported for the first time for the Philippines.

KEY WORDS: Parmotrema negrosorientalum, Hypotrachyna, Hypogymnia, Parmotrema, Platysmatia, Rimenlia

In recent years there has been a significant increase in interest and appreciation of the lichen flora of Philippines, with localised studies of lichen biodiversity (Elix & Bawingan ined.), as well as several intensive field investigations by F. Schumm (lichens) & U. Schwarz (bryophytes). We have now undertaken a detailed survey of the recent collections of Parmeliaceae from the Philippine islands of Leyte, Mindanao and Negros culminating in our describing a species new to science and 13 new records for the country. Throughout the present work chemical constituents were identified by thin layer chromatography (Culberson 1972; Culberson & Johnson 1982; Elix & Ernst-Russell 1993), high performance liquid chromatography (Feige et al. 1993; Elix et al. 1997) and comparison with authentic samples.

Parmotrema negrosorientalum Elix & Schumm, sp. nov. Fig. 1

Thallus ut in Parmotrema rampoddense sed magnus, coriaceus, superfice superiore maculata et sporis majoribus differt.
Type: PHILIPPINES. Negros, Negros Oriental Province: Mt Talinis (Cuernos de Negros), Lunga Nature Trail between Camp Vendola (9°16'N, 123°11'E) and Lake Nailig (9°15'N, 123°10'E), 1170 m, on bark, F. Schumm & U. Schwarz, 10 Aug. 2000; holo: herb. Schumm 7521.

Thallus corticolous, foliose, loosely adnate, coriaceous, to 8–12 cm wide. Lobes imbricate, subirregular, 5-12 mm wide; margins crenate or irregularly incised-dentate, ascending or revolute; cilia moderately dense, 0.2-5.0 mm long; lobules rare along the lobe margins. Upper surface pale grey to grey-green, flat, ±maculate, irregularly cracked, ±with black discoloured patches, isidia absent; soralia linear on small incised marginal laciniae or on ascending lobe margins, sometimes spreading submarginally, with marginally sorediate lobes becoming involute; soredia farinose, becoming blackened, with orange patches on older lobes in the thallus centre. Medulla white, becoming orange-red in older lobes particularly adjacent to lower cortex. Lower surface black, with a white to pale brown erizinate marginal zone; rhizines unevenly distributed, simple, slender, to 1 mm long. Apothecia rare, submarginal, stipitate to substipitate, 3-10 mm wide; disc perforate or imperforate, becoming undulate distorted; thalline exciple strongly rugose and maculate, becoming sorediate, thalline margin crenate. Ascospores ellipsoid, 26-30 × 10-17 μm. Pycnidia rare, immersed - only immature pycnidia observed.

Chemistry. Cortex K+ yellow; medulla K-, C-, KC+ red, P-; pigmented medulla K+ violet; containing atranorin (minor), chloroatranorin (minor), alectoronic acid (major), α-collatotic acid (major), dehydrocollatolic acid (minor), skyrin (minor).

Parmotrema negrosorientalum closely resembles P. rampoddense (Ny1.) Hale, as these two species have similar loosely adnate thalli with prominent cilia, marginal soralia and contain alectoronic acid, α-collatotic acid and skyrin in the medulla. However, P. negrosorientalum can clearly be separated by the larger, coriaceous thallus (membranaceous in P. rampoddense), the often maculate upper surface (emaculate in P. rampoddense), ultimately perforate apothecial discs (imperforate in P. rampoddense), and the much larger spores (26-30 × 10-17 μm cf. 10-12 x 6-7 μm). In overall morphology P. negrosorientalum closely resembles P. lobulascens (Steiner) Hale, but the latter species lacks the orange-red pigmentation of the lower medulla and soralia. This pigmentation is due to substantial concentrations of the bis-anthraquinone, skyrin. At present, the new species is known from several localities in Negros Oriental Province in the Philippines.

Specimens Examined

PHILIPPINES. Negros, Negros Oriental Province: type locality, F. Schumm & U. Schwarz, 10 Aug. 2000 (CANB, herb. Schumm 7463, 7465, 7466); Mt Talinis (Cuernos de Negros), Lunga Nature Trail near Lake Yagumyum,
Figure 1. Parmotrema negrosorientalum (isotype in CANB). Scale bar = 5 mm.


New Records of Parmeliaceae for the Philippines


Previously this species was only known from Papua New Guinea (Kurokawa & Moon 2000).

*Specimen Examined*

PHILIPPINES. Mindanao, Bukidnon Province: Intavas, west of Malabalay at foot of Mt Kitanglad, 8°12'N, 124°57'E, 1270 m, on bark, F. Schumm & U. Schwartz, 18 Aug. 1999 (herb. Schumm 6237). Cotabato Province: Mt Apo,
Marbel River Campsite, 7°00′N, 125°15′E, 1490 m, on bark, F. Schumm & U. Schwartz, 9 Aug. 1999 (herb. Schumm 8031).


A widely distributed subtropical-tropical species also known from the Americas, Southeast Asia, Australia, Papua New Guinea and Hawaii (Elix 1994a; Hale 1975).

**Specimen Examined**

PHILIPPINES. Mindanao, Bukidnon Province: Intavas, west of Malabalay at foot of Mt Kitanglad, 8°12′N, 124°57′E, 1270 m, on bark, F. Schumm & U. Schwartz, 18 Aug. 1999 (CANB, herb. Schumm 6246).

**Hypotrachyna physcioides** (Nyl.) Hale, *Smithsonian Contr. Bot.* 25: 54 (1975)

A common species in tropical America, India, Thailand, Malaysia and Papua New Guinea (Hale 1975; Kurokawa 1979; Pooprang et al. 1999).

**Specimens Examined**

PHILIPPINES. Mindanao, Bukidnon Province: west of Malabalay, intermediate camp site, Mt Kitanglad, 8°10′N, 124°56′E, 1870-2800 m, on bark in tropical montane rainforest, F. Schumm & U. Schwartz, 19 Aug. 1999 (herb. Schumm 6297). Cotabato Province: summit of Mt Apo, 6°59′N, 125°16′E, 2900 m, on rocks, O. L. Bernabe, 12 Aug. 1999 (CANB, herb. Schumm 6194, 6202); between Lake Venado and summit of Mt Apo, 6°59′-7°00′N, 125°16′-125°20′E, 2200-2800 m, on bark in tropical montane rainforest, F. Schumm & U. Schwartz, 11 Aug. 1999 (herb. Schumm 6151, 6181).


A temperate and tropical species also known from Australia, Malaysia (Sabah), New Guinea, Central and South America (Elix 1994a; Hale 1975; Kurokawa 1979).

**Specimen Examined**

PHILIPPINES. Mindanao, Bukidnon Province: west of Malabalay, intermediate camp site, Mt Kitanglad, 8°10′N, 124°56′E, 1870-2800 m, on bark in tropical montane rainforest, F. Schumm & U. Schwartz, 19 Aug. 1999 (CANB, herb. Schumm 6273).
**Hypogymnia zeylanica** (R. Sant.) Awasthi & Singh

This species was previously known only from Sri Lanka, India (Awasthi & Singh 1971) and Papua New Guinea (Elix & Jenkins 1989).

**Specimen Examined**

PHILIPPINES. Cotabato Province: Mt Apo, swamp region on west bank of Lake Venado, 7°00'N, 125°16'E, 2210 m, on bark in open montane area, U. Schwartz, 20 Mar. 1999 (B, herb. Schumm 5479).


This species was previously known from Africa, Madagascar, Asia, India (Hale 1965; Krog & Swinscow 1981) and Australia (Elix 1994b).

**Specimen Examined**

PHILIPPINES. Cotabato Province: near Ilomavis, on the road past Kidapawan, 7°02'N, 125°11'E, 730 m, on Cocos palm, F. Schumm & U. Schwartz, 7 Aug. 1999 (CANB, herb. Schumm 5885).

**Parmotrema dilatatum** (Vain.) Hale, *Phytologia* 28: 335 (1974)

This species is widespread in Africa, India, Australia, New Zealand, Papua New Guinea and South America (Elix 1994b; Hale 1965; Krog & Swinscow 1981; Louwhoff & Elix 2000).

**Specimen Examined**

PHILIPPINES. Mindanao, Bukidnon Province: west of Malabalay, intermediate camp site, Mt Kitanglad, 8°10'N, 124°56'E, 1870-2800 m, on bark in tropical montane rainforest, F. Schumm & U. Schwartz, 19 Aug. 1999 (CANB, herb. Schumm 6303).


Previously this species was known from Africa (Krog & Swinscow 1981) and Asia (Hale 1965).

**Specimens Examined**

PHILIPPINES. Mindanao, Bukidnon Province: west of Malabalay, intermediate camp site, Mt Kitanglad, 8°10'N, 124°56'E, 1870-2800 m, on bark in tropical montane rainforest, F. Schumm & U. Schwartz, 19 Aug. 1999 (herb. Schumm 6272). Cotabato Province: Mt Apo, near Lake Venado, 7°00'N, 125°16'E, 2200 m, on bark in tropical montane rainforest, F. Schumm & U. Schwartz, 10 Aug. 1999 (CANB, herb. Schumm 6071, 6084).

This species is known from Africa, India, Indonesia, Papua New Guinea, Australia, Central and South America (Elix 1994b; Hale 1965; Krog & Swinscow 1981; Louwhoff & Elix 2000).

**Specimen Examined**

PHILIPPINES. Mindanao, Cotabato Province: near the Lake Agko campsite at foot of Mt Apo, 7°01'N, 125°13'E, 1240 m, on bark, *F. Schumm & U. Schwartz*, 7 Aug. 1999 (herb. Schumm 5941).


A widespread species known from West Africa, North, Central and South America, Sri Lanka and India (Hale 1965), Australia (Elix 1994b) and Papua New Guinea (Louwhoff & Elix 2000).

**Specimens Examined**


This pantropical species has been reported previously from Central and South America, eastern and southern Africa, Papua New Guinea and Australia (Elix 1994b; Hale 1965; Krog & Swinscow 1981; Louwhoff & Elix 2000).

**Specimen Examined**

PHILIPPINES. Cotabato Province: near Ilomavis, on the road past Kidapawan, 7°02'N, 125°11'E, 730 m, on bark, *F. Schumm & U. Schwartz*, 7 Aug. 1999 (CANB, herb. Schumm 5869, 5874, 5903, 5908).

This species has been reported previously from the high mountains of Sabah, Malaysia (Culberson & Culberson 1968).

Specimen Examined
PHILIPPINES. Cotabato Province: Mt Apo, swamp region on west bank of Lake Venado, 7°00'N, 125°16'E, 2210 m, on bark in open montane area, U. Schwartz, 20 Mar. 1999 (herb. Schumm 5485).

Rimelía austrocetrata (Elix & J. Johnst.) Hale & A. Fletcher, Bryologist 93: 26 (1990)

This Australasian species is known from Australia, New Zealand, Papua New Guinea, Norfolk and Lord Howe Islands (Elix 1994c; Hale & Fletcher 1990; Louwhoff & Elix 1999, 2000).

Specimens Examined
PHILIPPINES. Cotabato Province: between Lake Venado and summit of Mt Apo, 6°59'-7°00'N, 125°16'-125°20'E, 2200-2800 m, on bark in tropical montane rainforest, F. Schumm & U. Schwartz, 11 Aug. 1999 (CANB, herb. Schumm 6126); Mt Apo, swamp region on east bank of Lake Venado, 7°00'N, 125°16'E, 2210 m, on mossy rocks, U. Schwartz, 20 Mar. 1999 (B, herb. Schumm 5441).

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LITERATURE CITED


