TWO NEW LICHENS: CLADONIA BIMBERIENSIS AND C. WEYMOUTHII

by

ALAN W. ARCHER *

ABSTRACT

Archer, Alan W. Two new lichens: *Cladonia bimberiensis* and *C. weymouthii. Muelleria* 6(1): 93-95 (1985). — Two new lichen species, *Cladonia bimberiensis* and *C. weymouthii,* are described and discussed. Both occur in Australia and New Zealand.

TAXONOMY

For the chemical work involved, acetone extracts from specimens were examined by thin-layer chromatography, using the mobile phases described by Culberson (Culberson, 1972) and the separated compounds were detected with sulphuric acid (Culberson, 1972) and MBTH (Archer, 1978).

Cladonia bimberiensis A. W. Archer, sp. nov.

Thallus primarius squamulis parvis, supra flavo-virentibus, infra albis, nullis sorediis, marginibus crenatis. *Podetia* squamulis enata, 10-25 mm altis, flavida, subcylindrica, simplicia vel scyphis angustis vel scyphis deformibus prolificationibus marginalibus; podetia cortice aspero prope basin, ecorticatescens et sorediis farinosis. *Apothecia* non visa. *Pycnidia* fusca terminalia, vel marginalia scyphis. *Thallus* K−; KC + flavidus; Pd −; acida usnicum et barbaticum continens. Habitat ligno.

Basal squamules persistent, small, 0.5-1.0 mm long, 0.3-0.5 mm wide, esorediate, yellow-green above, white below; margins crenate. *Podetia* growing from the basal squamules, 10-25(-35) mm tall, 0.7-2.0 mm diam., pale yellow, more or less cylindrical, simple and escyphose, or with shallow, deformed scyphi with marginal proliferations; podetia rough corticate at the base and then becoming ecorticate and densely farinose sorediate, with the interior of the scyphi farinose sorediate; esquamulose or occasionally with squamules on the lower part of the podetia; podetial wall 0.15-0.2 mm thick. *Apothecia* not seen; pycnidia brown, 0.1-0.2 mm diam., 0.3-0.4 mm long, terminal or marginal on the scyphi; pycnidiospores not seen. *Thallus* K−; KC + yellow; Pd −; containing usnic, barbatic and 4-0-demethyl barbatic acids.

TYPE COLLECTION:

Australia, Australian Capital Territory, Mt. Bimberi, Bimberi Range, 49 km SW of Canberra, 35° 40'S, 148°48'E, alt. 1700 m, on decayed log, 11.xii.1979, *H. Streimann 9743* (Holotype: CBG; Isotype: H, US, TNS).

ALSO EXAMINED:

Australia. Australian Capital Territory — 1 km SE. of Bimberi Peak, Bimberi Range, alt. 1820 m, 11.xii.1979, *J.A. Elix 6640* (ANU, MEL 1047742); ibidem, *J.A. Elix 6639* (NSW).

New Zealand. South Island — Nelson Province, Red Hill Range, Richmond Forest Park, 41°09'S, alt. 1700 m, 28.xii.1980, *J. K. Bartlett 19807* (herb. J. K. Bartlett, Auckland).

DISCUSSION:

Cladonia bimberiensis is known from only two areas, one in Australia and the other in New Zealand. Both areas are sub-alpine at altitudes of 1700 m or above and in each the preferred substrate of the species was dead wood.

C. bimberiensis is related, both chemically and morphologically, to the two northern hemisphere circumpolar species *C. cyanipes* (Sommerf.) Nyl. and *C. bacilliformis* (Nyl.) Glück, each of which possesses sorediate podetia and contains usnic and barbatic acids. The simple, pale yellow, somewhat scyphose podetia of *C. bimberiensis* distinguish this species from *C. cyanipes* which has grey, branched podetia lacking scyphi, and from *C. bacilliformis* which has shorter, thicker, rarely scyphose podetia with pale brown apothecia. *C. bimberiensis* is also distinguished from the somewhat similar Hawaiian species, *C. angustata* Nyl., by the absence of didymic acid and red apothecia, both of which are present in the latter species.

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*Division of Analytical Laboratories, P.O. Box 162, Lidcombe, New South Wales, Australia 2141.

C. bimberiensis is the only member of the genus *Cladonia* in Australia to contain both usnic and barbatic acids. *C. coccifera* (L.) Willd., a corticate species with well-defined scyphi and containing usnic and barbatic acids, was reported from Australia in the nineteenth century but it has not been found by the author. Australasian specimens labelled *C. coccifera* in herbaria are referrable to other species, particularly *C. pleurota* (Flörke) Schaerer or *C. subdigitata* Nyl. *C. bimberiensis* belongs to the infra-generic group Ochroleucae (Houvinen and Ahti, 1982).

The specific epithet "bimberiensis" refers to Mt Bimberi, Australian Capital Territory, where the first specimens were collected.

Cladonia weymouthii F. Wilson ex A. W. Archer, sp. nov.

Thallus primarius squamulis parvis, supra virellis, infra albis, nullis sorediis, marginibus crenatis. *Podetia* squamulis enata, 15-55 mm altis, virella, simplicia vel ramosescentia ad apicem; cortice aspero prope basin, ecorticatescens et sorediis farinosis. *Apothecia* coccinea; *pycnidia* fusca, terminalia. *Thallus* K+ flavus; KC−; Pd+ flavus; acida thamnolicum, barbaticum et didymicum continens. Habitat ligno et humo.

Basal squamules inconspicuous, persistent, small, 0.5-1 x 1-2 mm, incised, esorediate, green above, white below; margins crenate. *Podetia* growing from the basal squamules, (15-)20-40(-55) mm tall, 1-2.5(-4) mm diam., green to greenish-grey, subcylindrical or tapering to the apices, simple or branching somewhat near the tips, the branching forming deformed scyphi, lacking well-defined scyphi, axils closed; podetia corticate at the base and below the apothecia, the remainder of the podetia ecorticate and densely farinose sorediate; podetia esquamulose or with squamules on the lower part; podetial wall 0.25-0.3 mm thick. *Apothecia* rare, terminal, red, convex, 1-3 mm diam., ascospores eight per ascus, 12-15 μm long, 3-4 μm wide, ellipsoid, colourless, simple; pycnidia terminal on the podetia, red, becoming dark brown to black in old specimens; pycnidiospores not seen. *Thallus* K + yellow; KC−; Pd + yellow; containing barbatic, thamnolic and didymic acids.

TYPE COLLECTION:

Australia, Tasmania, Huon River, 5.ii.1892, *W. A. Weymouth* (Holotype: MEL 6760; Isotype: NSW).

ALSO EXAMINED:

Australia. Tasmania (selected specimens only, 5/20) — Price's Rivulet, Huon, ii.1902, *W. A. Weymouth* (NSW); near Hastings Cave, 12 km WNW. of Southport, 43°23'S, 146°50'E, alt. 250 m, 27.xi.1982, *Archer 1417D* (H, MEL 1045447); 15 km W. of Maydena, 42°45'S, 146°30'E, alt. c. 400 m, 7.xii.1983, *Archer 1545A* (CBG, NSW); Pencil Pine Creek, 100 km W. of Launceston, 41°35'S, 145°55'E, alt. 800 m, 29.xi.1983, *Archer 1566A* (MEL 1045448); the Hermit, 8 km SE. of Strathgordon, 42°49'S, 146°08'E, alt. 500 m, 19.i.1984, *G. Kantvilas 59/84* (NSW).

New Zealand. North Island — Hihitahi State Forest, 39°30'S, 175°30'E, alt. 970 m, *J. K. Bartlett 27049. South Island* — Mt Cassidy, Arthur's Pass National Park, 43°S, alt. 1800 m, 15.xii.1978, *J. K. Bartlett 21387;* Nelson Province, Hay Paddock, Mt Owen, 41°31'S, alt. 1550 m, —.i.1983, *J. K. Bartlett 21589.* (New Zealand specimens in herb. J. K. Bartlett, Auckland).

DISCUSSION:

Cladonia weymouthii is known only from Tasmania and New Zealand. It occurs between latitudes 39° and 44°S and at altitudes from 250 m to 1800 m and grows on dead wood or on soil containing fragments of dead wood. Apothecia are rare and were seen in only one specimen from the Cradle Mountain region, Tasmania (Archer 1566A). Sterile podetia are sorediate to the tips but fertile podetia become corticate just below the apothecia.

C. weymouthii is morphologically similar to *C. bacillaris* Nyl. but is distinguished from that species by the presence of branched and partly corticate podetia and of thamnolic acid. It is separated from *C. macilenta* Hoffm. by the occasionally deformed scyphi and the tall, branched, partly corticate podetia. The farinose sorediate podetia of *C. weymouthii* are somewhat similar to those of *C. corniculata* Ahti & Kashiwadani but the latter species, lacking thamnolic acid, gives no yellow colour with alkali. *C. weymouthii* belongs to the infra-generic group Cocciferae (Houvinen and Ahti, 1982).

The epithet "weymouthii" was used by F. R. M. Wilson as a manuscript name on specimens collected in Tasmania by W. A. Weymouth in 1892 at "Huon River". The exact

location is not known but was possibly near the present town of Huonville, on the Huon River, 43°02'S, 147°04'E.

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