TWO NEW LICHENS: CLADONIA BIMBERIENSIS AND C. WEYMOUTHII

by

ALAN W. ARCHER *

ABSTRACT


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 squamuluis parvis, supra flavo-virentibus, infra albis, nullis sorediis, marginibus crenatis. Podetia squamulitis enata, 10-25 mm altis, flavida, subcylindrica, simplicia vel scyphis angustis vel scyphis deformibus proliferatioribus marginulis; podetia cortice aspero prope basam, eorticatae et sorediis fastigis. Apothecia non visa. Pycnidia fusca terminalia, vel marginalia scyphis. Thallus K–; KC + flavus; 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 esclerotic, or with shallow, deformed scyphi with marginal proliferations; podetia rough corticate at the base and then becoming eorticulate and densely farinose sorediate, with the interior of the scyphi farinose sorediate; squamulose 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-O-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. Elks 6640 (ANU, MEL. 1047742); ibidem, J.A. Elks 6639 (NSW).


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.

*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 referable 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 vireolis, infra albis, nullis sorediis, marginibus crenatis. Podëta squamulis enata, 15-55 mm alitis, virella, simplicia vel ramosescensia ad apicem; cortice aspero prope basin, ecorticatecens et sorediis farinosis. *Apothecia* coccina; *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:**
Austral. 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°30'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 Pin Creek, 100 km W. of Launceston, 41°35'S, 145°55'E, alt. 800 m, 29.x.1983, Archer 1566A (MEL 1045448); the Hermit, 8 km SE. of Strathgordon, 42°49'S, 146°08'E, alt. 500 m, 19.1.1984, G. Kantiwils 59/84 (NSW).


**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. coriículata* Ahti & Kashiwadani but the latter species, lacking thamnolic acid, gives no yellow colour with alkali. *C. weymouthii* belongs to the infra-generic group Cocceiferae (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.

ACKNOWLEDGEMENTS
The author is grateful to J. K. Bartlett, J. A. Elix, G. Kantvilas and H. Streimann for the opportunity to examine their specimens, and to the Director, Division of Analytical Laboratories, Department of Health, New South Wales, for permission to publish this paper.

REFERENCES

Manuscript received 15 June 1984.