

A further new species of *Monoblastia* (lichenized ascomycetes: Monoblastiaceae) from Papua New Guinea

by

Emmanuel Sérusiaux¹ and André Aptroot²

¹Research Associate F.N.R.S., Dept. Botany, Sart Tilman B22, B-4000 Liège, Belgium

²Centraalbureau voor Schimmelcultures, P.O. Box 273, NL-3740 AG Baarn, The Netherlands

With 2 figures

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Summary: *Monoblastia papillosa* Sérusiaux & Aptroot is a new epiphytic species, known from two coastal localities along the northern coast of Papua New Guinea. A key to all described species of the genus is provided.

Résumé: *Monoblastia pellucida* Sérusiaux & Aptroot est une nouvelle espèce, épiphyte et connue de deux localités situées le long de la côte Nord de la Papouasie Nouvelle-Guinée. Une clé de toutes les espèces décrites dans ce genre est présentée.

Keys words: *Monoblastia*, Monoblastiaceae, Papua New Guinea.

In a first survey of the lichens and lichenicolous fungi of a small cay island on the northern coast of Papua New Guinea (Laing Island, Madang prov.), we have reported the presence of an unknown species of the little-known lichen genus *Monoblastia* Riddle (Aptroot et al. 1995:35). The material was too scanty for a definite identification. During a second visit to the island in 1995 (together with our colleagues and friends Drs P. Lambley and H. Sipman), the same taxon was found and collected in sufficient quantity to allow a complete study. A further locality has been sampled in a coconut plantation near Madang. The material definitely represents a new species which is described in this paper.

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Monoblastia papillosa Sérusiaux & Aptroot sp. nov.

Monoblastia species insignis thallo papilloso, ostiolo excentrico et sporis ellipsoideis, et (18-)22-31 × (11-)12-15 µm metientibus.

Thallus epiphytic, epiphloeodal, covering large surfaces of the bark on which it grows (several dm²), more or less continuous but irregularly delimited at the margins, without prothallus or with a narrow, blackish border, typically green and shiny to rather dull and pale greyish green, 0.1-0.15 mm thick, with a colourless, amorphic, dense and photobiont free upper layer; papillae abundant on the upper surface (except in the parts producing numerous ascomata where they can be very few), irregularly spherical, 35-40(-60) µm in diam., dispersed over the surface or agglomerated into coralloid "bushes", usually paler than the thallus and slightly yellow, made of spherical algal cells tightly surrounded by hyphae with globose or subspherical cells (4-6 µm in diam.), looking like gonocysts s.l. (Sérusiaux 1985). Photobiont trentepohlioid, with yellow green to greenish cells.

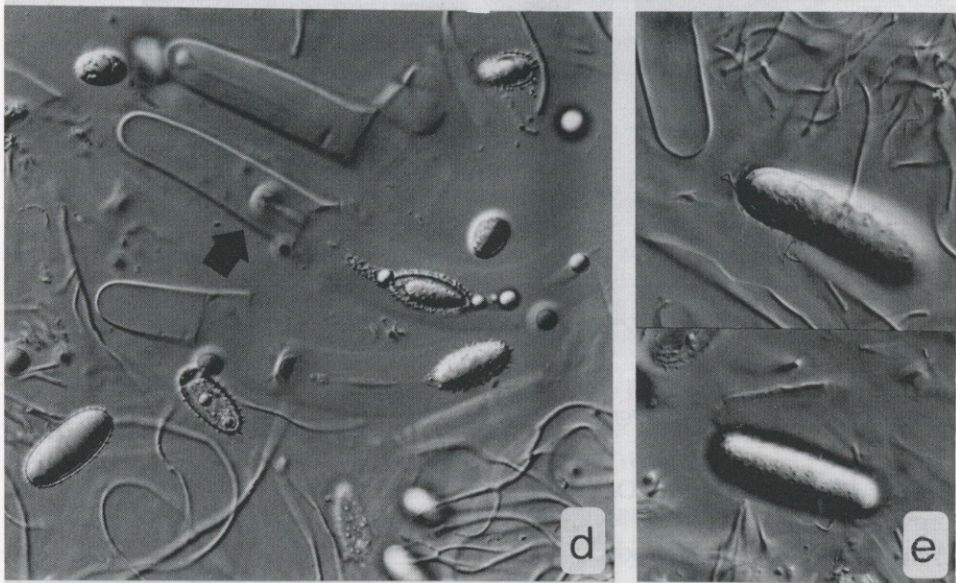
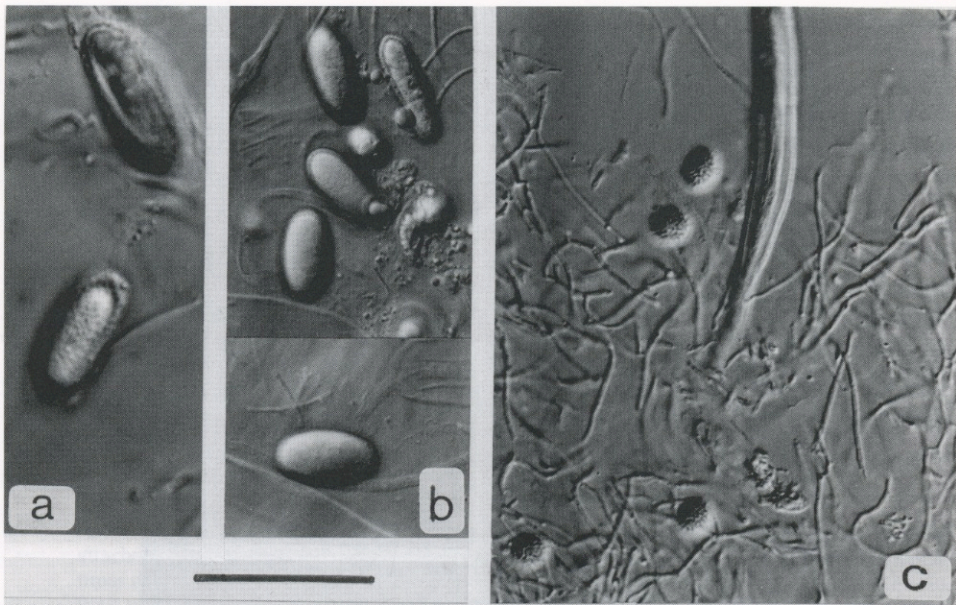
Ascomata usually present, abundant in parts of the material, immersed or half-immersed, starting within the upper layers of the tree bark and thus protruding out of them (dead bark cells usually present over parts of the ascomata wall and the thallus), elongate in section and usually with a distinct ostiolar neck, 0.4-0.5 mm in diam. and 0.3-0.5 mm high, incl. the ostiolar neck; ostiole usually strongly excentric, very rarely apical, usually seen as a small hole, sometimes with a clypeus-like structure around it. Ascoma wall carbonized, 40-55 µm thick, usually thinner at the base of the perithecia; hamathecium, asci and ascospores IKI-; hamathecium made of trabeculate pseudoparaphyses which are almost simple at their base and branched and anastomosed near the wall and ostiole; genuine paraphyses absent; asci almost cylindrical, 160-180 × 15-20 µm, with thick walls and a distinct ocular chamber and a meniscus over it (best seen in asci containing immature ascospores); ascospores (6-)8 per ascus, uniseriate, ellipsoid, with a thick wall (0.5-1 µm thick), with tiny, 2-4 µm long, bended and non-rigid spines over their surface, giving the impression of a reticulate araneous-vesiculose surface, (18-)22-31 × (11-)12-15 µm.

Pycnidia rare (found only in collection Sérusiaux 13085), immersed, c. 0.1-0.2 mm in diam., with a carbonized wall; conidiogenous cells numerous, cylindrical, 10-16 × 1.5 µm; conidia apically produced, forming vertical chains of several (up to 8) conidia, conglutinated in such a position by an amorphic and translucent gel, ellipsoid, simple, 2-3 × 1 µm.

Type: Papua New Guinea, Madang prov., Laing Island in Hansa Bay near Bogia, coastal forest on coral island, epiphytic on *Allophyllus cobe*, 25 Oct. 1995, Sérusiaux 15600 (LG-holotypus; B, NY, herb. Aptroot-isotypi).

Other material examined: same locality as the type, 20-26 July 1992, Sérusiaux

Fig. 1 - Hamathecium, asci and ascospores of several species of *Monoblastia* - a: *M. borinquensis* R. C. Harris (holotype); b: *M. cypressi* R. C. Harris (holotype); c: *M. pellucida* Aptroot (Papua New Guinea, Sipman 24162); d: *M. papillosa* Sérusiaux & Aptroot (isotype in herb. Aptroot) with the typical meniscus easily seen in a damaged ascus (arrow); e: *M. quisqueyana* R.C. Harris (holotype); f: *M. rappii* Zahlbr. (Guyana, Sipman & Aptroot 19539). Scale for a = 30 µm and for b-f = 50 µm.



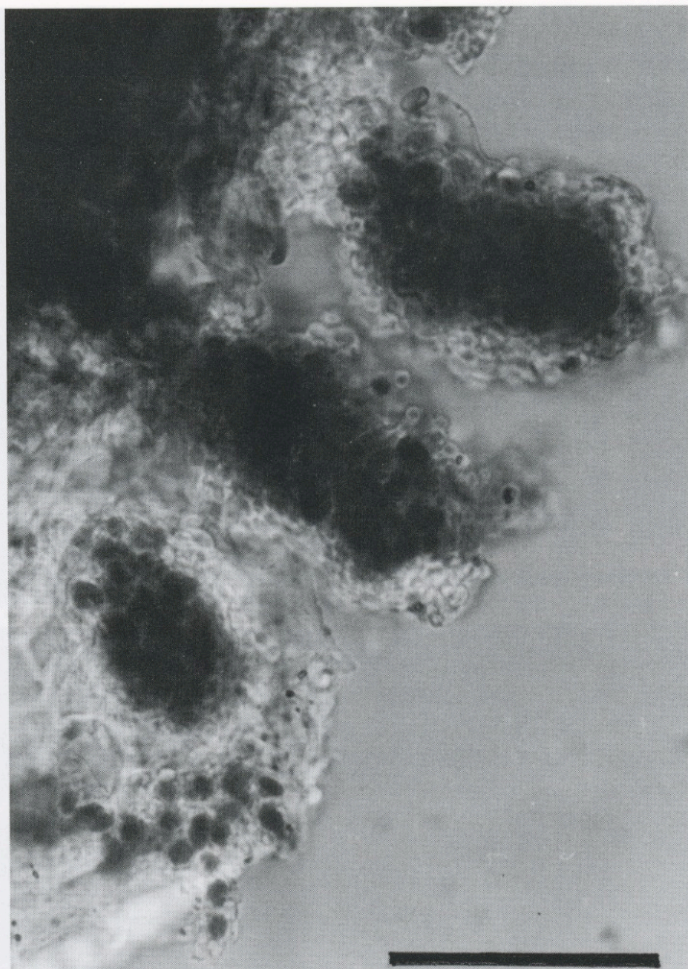


Fig. 2 - Papillae of *Monoblastia papillosa* Sérusiaux & Aptroot (holotype). Scale = 50 μ m.

3067 & 13085 (LG) and 25 Oct. 1995, Aptroot 36901 (LG, herb. Aptroot). Madang prov., Jais Aben Resort c. 10 km NW of Madang, 4 Nov. 1995, on *Terminalia*, Aptroot 38283 (herb. Aptroot).

This new species definitely belongs to the little-known genus *Monoblastia* Riddle as defined by Harris (in Eriksson & Hawksworth 1993: 178): it has a trentepohlioid photobiont, perithecioid ascomata, all ascomatal elements IKI-, trabeculate pseudo-paraphyses, asci with thick walls and a medium ocular chamber and meniscus, and ascospores simple with a reticulate ornamentation. The genus is placed in the Monoblastiaceae W. Watson together with *Acrocordia* Massal., *Anisomeridium* (Müll. Arg.) Choisy and *Musaespora* Aptroot & Sipman by Harris (1990, 1995) and by Aptroot (1991a). Harris (1995: 112-113 & 123) has reduced *Megalotremis* Aptroot into syn-

onymy with *Anisomeridium*. We agree that *Megatotremis*, as typified by *M. verrucosa* (Makhija & Patwardan) Aptroot and first placed into the Trypetheliaceae (Aptroot 1991b: 118-127), does indeed belong to the Monoblastiaceae but we suggest to keep it separate from *Anisomeridium* for the time being. See Lücking & Sérusiaux (1997) and Aptroot & al. (1997) for further discussion on the relationships between *Megatotremis* and *Musaespora*.

Nine species are currently known in the genus and can be identified with the following key. We have studied material from all species, except *M. palmicola* Riddle and we publish ascospores photographs of several species, to show the variation of their shape, size and surface. *M. papillosa* differs from all others by its papillate, rather thick and greyish green thallus and by its ascospores size. *M. echinulospora* and *M. borinquensis* have got spores of the same size but the latter is a saxicolous species with a pale smooth thallus and an apical ostiole, and the former has a smooth, olivaceous, *Pyrenula*-like thallus.

- 1a Ascomata wall not carbonized, pale ochraceous, with an apical ostiole; thallus rather loosely attached to the substratum, byssoid and green, except sometimes for a thin white margin, sometimes nearly squamulose and with fimbriate lobulate margins; ascospores subglobose to ellipsoid, 9-13 × 7-9 μm.....*M. pellucida* Aptroot (epiphytic species, known from the northern coast of Papua New Guinea, Australia/Queensland and Guyana; Aptroot 1991a; McCarthy 1994: 15)
- 1b Ascomata wall carbonized.....2
- 2a Thallus saxicolous on limestone; ascomata with an apical ostiole; ascospores ellipsoid, 20-30 × 8-12 μm..... *M. echinulospora* (Riddle) R. C. Harris (known from Cuba, Haiti and Puerto Rico; Harris 1990: 36)
- 2b Thallus epiphytic.....3
- 3a Ostiole apical or slightly excentric; ascospores ellipsoidal, 32-45 × 17-22 μm.....*M. cypressi* R. C. Harris (known from USA/Florida; Harris 1995: 132)
- 3b Ostiole strongly excentric.....4
- 4a Ascospores large, well over 30 μm long and always oblong-ellipsoid.....5
- 4b Ascospores smaller, at most 31 μm long, oblong-ellipsoid or not.....6
- 5a Ascospores at first 8/ascus, 2-4 when mature, 32-36 (-50) × 15-17 (-20) μm.....*M. palmicola* Riddle (known only from the Isles of Pines, South of Cuba; Riddle 1923: 71)
- 5b Ascospores initially 4/ascus and sometimes 1-2 aborting, 45-50 (-67) × 17-21 μm.....*M. quisqueyana* R.C. Harris (known from a mangrove locality in the Dominican Republic; Harris 1995: 132-133)
- 6a Thallus with papillae; ascospores ellipsoid, (18-)22-31 × (11-) 12-15 μm.....*M. papillosa* Sérusiaux & Aptroot (known from the northern coast of Papua New Guinea)
- 6b Thallus absent or without papillae.....7
- 7a Ascospores globose or ellipsoid (even in the same ascoma), 11-15 μm across or 14-18 × 7-10 μm.....*M. rappii* Zahlbr.

- (known from USA/Florida and Louisiana, St Barthelemy in the West Indies and Guyana; Aptroot 1991 a: 404-405; Harris 1990: 36; Tucker & Harris 1980: 10)
- 7b Ascospores always ellipsoid, never globose, over 18 µm long.....8
- 8a Ascospores 18-24 × 8-10 µm..... *M. borinquensis* R.C. Harris
(known from USA/Mississippi and Puerto Rico; Harris 1995: 132)
- 8b Ascospores 24-30 × 8-9 µm..... *M. buckii* R.C. Harris
(known from USA/Florida; Harris 1990: 36)

Monoblastia papillosa is known from Laing Island, along the northern coast of Papua New Guinea, where it grows in a rather shaded and protected part of the "central" forest described by De Sloover (1992) as being dominated by *Terminalia catappa* associated with *Myristica schleinitzii* and *Planchonella obovata*. The tree on which it was found in 1995 could be identified as *Allophylus cobe* (L.) Räsusch. (Sapindaceae). The most abundant associated species is *Porina mastoidea* (Ach.) Müll. Arg. Two further species can be added to the floristic list of species found on Laing Is. (Aptroot et al. 1995): *Anisomeridium subprostans* (Nyl.) R.C. Harris and *Trypethelium nitidiusculum* (Nyl.) R.C. Harris.

Its second locality is a highly artificial one as it was found on a trunk of a *Terminalia* in a rather open coconut plantation near the sea; it nevertheless shelters interesting species like *Buellia corallizans* Zahlbr., a species described from Bougainville Is and so far only known from Papua New Guinea, *Cresponea leprieurioides* (Nyl.) Egea & Torrente, a species only known from its type locality in Malaysia/Malaya peninsula and from a mangrove site near Bogia on the northern coast of Papua New Guinea, *Graphina cinereoalba* (Vain.) Zahlbr., which is usually found in sheltered forests and shows on this exposed locality a white (instead of greenish) thallus with many crystals, and *Lithothelium hyalosporum* (Nyl.) Aptroot.

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