

## A new species in the lichen genus *Pertusaria* (Pertusariaceae) from Brazil

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### Abstract

The new species, *Pertusaria elizabethae*, is reported from Brazil. The chemistry and morphology of this species are discussed.

### Introduction

An investigation of material obtained in a recent loan of South American material from the Botanical Museum, Finnish Museum of Natural History, University of Helsinki (H) revealed the presence of a new *Pertusaria* species from Brazil. In the present work, chemical constituents were identified by thin-layer chromatography (Elix and Ernst-Russell 1993) and comparison with authentic samples.

*Pertusaria elizabethae* A.W.Archer & Elix, **sp. nov.** Figs 1 & 2

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Similar to *Pertusaria novaezelandiae* Szatala but containing lichexanthone and baeomycesic acid in addition to hypothamnolic acid.

Type: Brazil. Distrito Federal: Jardim Botânico de Brasília, 15 km SSE of centre of Brasília, 15°55'S, 47°50'W, alt. 1160 m, on trees in recently burned open forest with low scrub (cerradão) on *Blepharocalyx suaveolens*; *T. Ahti* & *G. Eiten* 45833d, 17 Jan 1987; holotype: H; isotype: UB.

Thallus corticolous, off-white to pale grey; surface smooth and slightly glossy, lacking isidia and soralia. Apothecia disciform, numerous, white, conspicuous, scattered or sometimes crowded, 0.3–0.8 mm diam.; margin conspicuously inrolled; disc white-pruinose. Hymenium 200–225 µm tall, not interspersed; ascus apical dome I+ blue. Ascospores 1 per ascus, ellipsoid, colourless, 120–150 µm long, 36–54 µm wide, with a thin, single wall 2–3 µm thick.

Chemistry: hypothamnolic acid (major), baeomycesic acid (major) and lichexanthone (minor).

**Additional specimen examined: Brazil:** Rio de Janeiro, Serra da Mantiqueira Mun. Resende: 5 km ENE (12 km along road) of Alto da Serra, on road BR-485 to Planalto, vicinity of Hotel Alsene by entrance to Parque Nacional de Itatiaia, 22°22'S, 44°42'W, alt. 2320–2350 m; rocky timberline scrub (campo montano; orotemperate zone); on trunk of tree. *T. Ahti* & *P.G. Windisch* 45955, 24 Jan 1987 (H, SP158.665).



Fig. 1 *Pertusaria elizabethae* A.W.Archer & Elix, holotype; bar = 1 mm

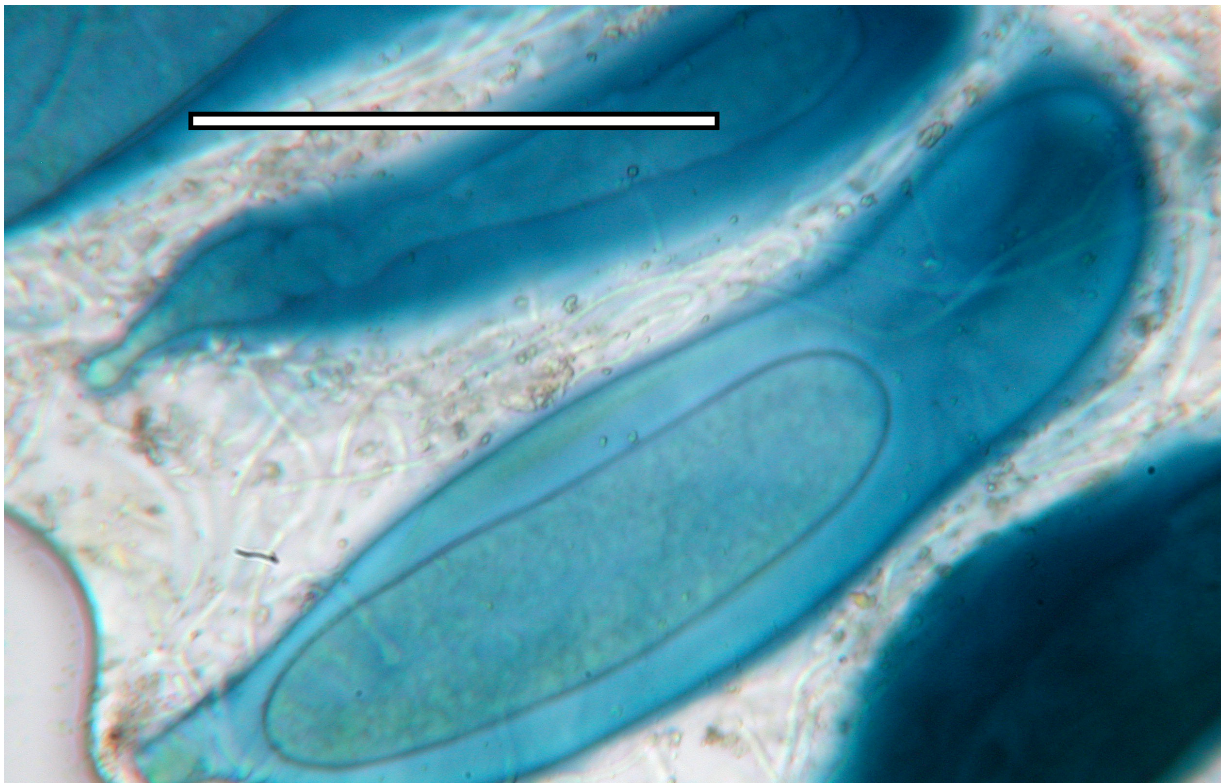


Fig. 2 *Pertusaria elizabethae* A.W.Archer & Elix, holotype, ascus and ascospore, with iodine; bar = 100  $\mu$ m



*Pertusaria elizabethae* is characterised by the disciform apothecia, asci containing a single ascospore and the presence of lichexanthone, hypothamnolic acid and baeomycesic acid.

There are a number of other corticolous *Pertusaria* species with disciform apothecia and monosporous asci which contain hypothamnolic acid, sometimes together with lichexanthone. *Pertusaria tropica* Vain. (Vainio 1901) is the most common, and this widely distributed tropical species can contain lichesterinic acid or 1'-methylhypothamnolate and elatinic acid in addition to hypothamnolic acid and  $\pm$ lichexanthone (Archer 1997; Elix et al. 2002). *Pertusaria bengalensis* Vain. (Vainio 1907) from Thailand (with hypothamnolic acid), and *P. pulchretincta* Zahlbr. (Zahlbruckner 1928) from Indonesia (also with hypothamnolic acid) are later synonyms of *P. tropica* (Archer 1997). The morphologically and chemically similar *P. hypothamnolica* Dibben from the south-eastern United States (Dibben 1980) and *P. novaezealandiae* Szatala from south-eastern Australia and New Zealand (Archer 1997) contain only hypothamnolic acid.

*Pertusaria elizabethae* is distinguished from *P. tropica*, *P. hypothamnolica* and *P. novaezealandiae* by the presence of baeomycesic acid. It is readily differentiated from other *Pertusaria* species in Brazil with disciform apothecia, such as *P. scrobicularis* Kremp. and *P. scutellaris* Müll. Arg., by 1-spored asci. Both *P. scrobicularis* and *P. scutellaris* have asci with eight ascospores and different chemistries.

On the basis of morphology and chemistry, *P. elizabethae* is placed in the subgenus *Monomurata* A.W.Archer (Archer 1993), which is characterised by disciform apothecia with single-walled ascospores, and chemically by the presence of lichexanthone, orcinol depsones (such as picrolichenic acid), C<sub>1</sub> orcinol depsides, and  $\beta$ -orcinol depsides such as elatinic, hypothamnolic, or baeomycesic acids, and  $\beta$ -orcinol depsidones such as stictic or norstictic acids. Baeomycesic acid is very uncommon in *Pertusaria*, but it does occur together with lichexanthone in *P. floridana* Dibben from the south-eastern United States (Dibben 1980). However, *P. floridana* is clearly distinguished from *P. elizabethae* by lacking hypothamnolic acid. In *Pertusaria* the co-occurrence of a  $\beta$ -orcinol *meta*-depside (such as hypothamnolic acid) with a  $\beta$ -orcinol *para*-depside (such as baeomycesic acid) was previously known only from *P. tropica* (with hypothamnolic and elatinic acids).

The new species is named in memory of Dr Elizabeth Brown (1956–2013), who was a cryptogamic botanist at the National Herbarium of New South Wales (NSW). Elizabeth was the curator of the bryophytes and lichens, and it was her interest in the latter group that led to our long association. She was always ready to assist, particularly when it came to arranging loans from other herbaria, and ensuring that I received the necessary collecting permits. In earlier days, before I had my own email address, she allowed me to use her email address; this was of great help in contacting other lichenologists, particularly those overseas. While Sureporn (Pia) Jariangprasert, Chiang Mai, Thailand, visited Sydney to study specimens held at NSW, Elizabeth kindly provided accommodation for her. In view of her assistance to me, both professional and personal, we name this new species *Pertusaria elizabethae*.

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