



## A new species of the lichen genus *Parmotrema* from Argentina (Parmeliaceae, Ascomycota)

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### Abstract

A new *Parmotrema* species, *P. pseudoexquisitum*, was found in *Araucaria angustifolia* forests in northeastern Argentina. It is characterized by a coriaceous thallus with very sparsely ciliate lobes, strictly marginal soralia with farinose to subgranular soredia, a white medulla and containing conalectoronic and subalectoronic acids in addition to alectoronic and  $\alpha$ -collatolic acids. It is closely related to *P. exquisitum*, which differs in lacking marginal cilia, in having submarginal to laminal soralia with farinose soredia, and its medullary chemistry. This new species is described and illustrated in this paper. Comparisons with other sorediate *Parmotrema* species with medullary alectoronic acid are included.

**Keywords:** *Araucaria angustifolia* forests, lichens, *Parmotrema exquisitum*, *Parmotrema rampoddense*, protected areas

### Resumen

Una nueva especie de *Parmotrema*, *P. pseudoexquisitum*, fue encontrada en los bosques de *Araucaria angustifolia* en el nordeste de Argentina. Se caracteriza por presentar el talo coriáceo con lóbulos muy escasamente ciliados, soralios estrictamente marginales con soredios farinosos a subgranulares, médula blanca con ácidos conalectorónico y subalectorónico además de ácidos alectorónico y  $\alpha$ -colatólico. *Parmotrema pseudoexquisitum* está estrechamente relacionada con *P. exquisitum*, de la que se diferencia por ausencia de cilios marginales, presencia de soralios marginales a laminales con soredios farinosos y la química medular. Esta nueva especie se describe e ilustra en este trabajo. Se incluyen comparaciones con otras especies sorediadas de *Parmotrema* con ácido alectorónico medular.

**Palabras clave:** áreas protegidas, bosques de *Araucaria angustifolia*, líquenes, *Parmotrema exquisitum*, *Parmotrema rampoddense*

### Introduction

*Parmotrema* A. Massalongo (1860: 248), according to its latest circumscription (Blanco *et al.* 2005, Crespo *et al.* 2010), is characterized by an upper cortex of palisade plectenchyma or paraplectenchyma with vaults, a pored epicortex, the lack of pseudocyphellae, the presence or absence of cilia, laminal perforate or imperforate apothecia, ellipsoid ascospores, and filiform, cylindrical, bacilliform or sublageniform conidia. It is one of the larger genera in the Parmeliaceae with approximately 350 species with a distribution centred in the tropical regions of the world, especially in the Pacific Islands and South America (Blanco *et al.* 2005). Species of *Parmotrema* are common in Argentina where a total of 45 species have so far been recorded (Adler & Calvelo 2007a–b, 2010; Calvelo & Liberatore 2002; Estrabou *et al.* 2006, Ferraro 1981, Michlig & Ferraro 2010, 2012a–b; Popoff & Ferraro 2002). Although well represented in the country, the present knowledge of the genus is rather patchy since the lichen biota is virtually unexplored in some regions.

Following an intensive investigation of the Parmeliaceae from northeastern Argentina over the last seven years, a new sorediate species of *Parmotrema* was discovered and is described and illustrated in this paper.

*Parmotrema rampoddense* has ciliate lobes, marginal to submarginal soralia, and bacilliform to filiform conidia, 5–9 µm long (Spielmann & Marcelli 2009). According to Elix (1994) the cilia in this species are moderately dense to dense and the conidia are bacilliform, 5–6 µm long. According to Krog & Swinscow (1981) lobes are involute and the laminal soralia abundant; this latter character was not observed in the material studied. According to Kurokawa (1987), the cilia are conspicuous in all specimens of *P. rampoddense*, differing from *P. pseudoexquisitum*, where the cilia are very sparse. Although *Parmotrema rampoddense* is a pantropical species (Kurokawa & Lai 2001) and considered to be widely distributed, is not common in Argentina, with only three specimens recorded, from Salta (Adler & Calvelo 2007a), Tucumán (Adler & Calvelo 2010), and Misiones provinces (Osorio 1981).

In *P. arnoldii* the thallus is membranaceous, with dentate marginal ciliate laciniae, submarginal soralia developing mostly on the laciniae, and filiform conidia (Chen *et al.* 2005, Hale 1965). *Parmotrema poolii* is characterized by a loosely adnate, coriaceous thallus, lobes which are sparsely to moderately densely ciliate with marginal to rarely laminal soralia, and sublageniform conidia, 7–8 µm long (Elix 1994). In *P. louisianae* the soralia are submarginal and the lower surface black with an ivory to tan marginal zone (Chen *et al.* 2005).

Other similar sorediate species containing alectronic acid include *P. lobulascens* (J. Steiner 1903: 234) Hale (1974: 337) and *P. pseudonilgherrense* (Asahina 1954: 370) Hale (1977: 441) (lectotype, TNS!), with a markedly maculate upper surface and conspicuously developed lobules (Kurokawa & Lai 2001). *Parmotrema lobulascens* also differs by containing minor quantities of gyrophoric acid in the medulla. Kurokawa & Lai (2001) and Krog & Swinscow (1981) consider *P. pseudonilgherrense* a synonym of *P. lobulascens*, although some authors consider them as separate species (Chen *et al.* 2005, Elix 1994). Both are distinctive ciliate species differing from *P. pseudoexquisitum*.

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