

## THREE NEW SYNONYMS OF LICHENS BASED ON TYPE COLLECTION OF KÓFARAGÓ-GYELNIK

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We proposed *Parmelia maculoides* Gyeln. as a synonym of *Punctelia stictica* (Delise ex Duby) Krog; *Physcia hosseana* Gyeln. as a synonym of *Physcia stellaris* (L.) Nyl. and *Teloschistes exilis* (Michx.) Vain. f. *inaequalis* Gyeln. as a synonym of *Teloschistes nodulifer* (Nyl.) Hillmann based on the study of the Argentinian type material of Kófaragó-Gyelnik. We also confirmed the presence of *Oropogon loxensis* (syn. *Bryopogon hosseusianus* Gyeln.) in Central Argentina by comparing the type specimen with samples collected recently. Finally we excluded the presence of *Parmotrema stuppeum* (Taylor) Hale from Argentina.

Key words: Argentina, Kófaragó-Gyelnik, lichenized fungi, taxonomy, types

### INTRODUCTION

Vilmos Kófaragó-Gyelnik described several lichen species and genera based on Argentinian material provided by Dr Carl Curt Hosseus (Kófaragó-Gyelnik 1934, 1938, 1939, 1940, 1942*a, b*) who collected mainly in Central Argentina. The Hosseus lichen collection has a large number of specimens, many of them are types. They were collected almost one century ago mainly in Central Argentina. This is the first report of a project that aims to revise this collection.

### MATERIAL AND METHODS

We studied type material stored in BP (Hungarian Natural History Museum, Budapest, Hungary) and CORD (Museo Botánico, Universidad Nacional de Córdoba, Argentina) collected by Hosseus and studied by Kófaragó-Gyelnik. We also compared type specimens with fresh material recently collected in the same habitat as the type locality. Additionally photographs of the type material of *Physcia hosseana* and *Parmelia maculoides* were obtained from S and US, respectively.

The specimens were studied morphologically under stereomicroscope using standard techniques in lichenology. The anatomical characters were studied on handmade sections mounted in water. The lichen substances were

identified by TLC (Orange *et al.* 2010) using C and G solvents. Also K, C and KC spot reactions were applied when it was necessary.

## RESULTS AND DISCUSSION

*Physcia stellaris* (L.) Nyl. (1853: 155) = *Physcia hosseana* Gyeln. (1934: 308), *syn. nova* – Type: Argentina, province of Córdoba, Oro Grueso am Rio de la Candelaria auf Rinde von *Bougainvillea stipitata*, coll.: Hosseus 32, 10 July 1932, holotype: BP 34073!, isotype CORD!, isotype S-L2344, S image!. – *Physcia stellaris* was cited from Argentina twice: in Patagonia and Buenos Aires (Grassi 1950, Scutari 1992). It is easily recognised by the emaculate upper side, the pruinose apothecia, the white underside and the K– medulla. The type specimen of *P. hosseana* fit well with this species. It has a slightly pruinose upper side but no macula, no substances in medulla and the size of ascospores (22–24 × 9–11 µm) is in the range of the known anatomy of *P. stellaris* (Moberg 1986). The anatomy of lower cortex is prosoplectenchymatous mixed with isodiametric cells (Fig. 1). *Physcia stellaris* could be confused with *P. aipolia* (Ehrh. ex Humb.) Fürnr., a very common species in central Argentina (Estrabou *et al.* 2006, Rodriguez *et al.* 2016). However, the last one presents a distinctly maculate upper surface, very pruinose apothecia and zeorin in the medulla. Isotype specimen of *P. hosseana* in S has been revised as *P. stellaris* by R. Moberg, however, this nomenclatural change has never been published.

*Punctelia stictica* (Delise ex Duby) Krog (1982: 291) = *Parmelia maculoides* Gyeln., *syn. nova* – Type: Argentina, province of Córdoba, Cerro Uritorco, Südseite, alt. 1,680–1,950, coll.: Hosseus 26, 02 April 1931, holotype: BP 22636!, isotype: CORD!, isotype: US00068892 US image!. – *Punctelia stictica* is characterised by the brownish colour of the thallus especially at the margin; the black underside, the soralia originated from pseudocyphellae, partially corticated and gyrophoric acid in the medulla. In Central Argentina it is a common saxicolous species, it is also easily found on bark (Rodriguez *et al.* 2016, 2017). *Parmelia maculoides* has been synonymized under *Punctelia borneri* (Hale and DePriest 1999) based on an isotype deposited in US that consists of a small piece of thallus. However, the holotype studied in BP has the main characters of *P. stictica*. Although the thallus consists of many pieces, it is possible to observe the brownish margins, the soralia and the black underside. Also, the medulla has gyrophoric acid and the conidia are filiform up to 5 µm length. There is no indication of the substrate in the label information, but the specimen is mixed with bryophytes and it is common on rock surface in humid places like the known habitat of *P. stictica* (Rodriguez *et al.* 2017). – Additional specimens studied: Argentina: province of Catamarca: Dpto. Ambato, vuelta de Ambato, S 28° 08' 20.4", W 65° 53' 31.0", 1,617 m, 15 October 2007, on *Vachellia caven*, coll.: Rodriguez 2030 (CORD). Province of Mendoza: Dpto. Malargüe, Reser-



Fig. 1. Holotype of *Physcia hosseana* (BP 34073). Thallus (top) (scale 5 mm). Longitudinal section, arrows show prosoplectenchymatous lower cortex mixed with isodiametric cells (bottom) (scale 25  $\mu$ m)

va Provincial La Payunia, La Olla, S 36° 08' 09.9", W 69° 97' 46.7", 1,915 m, 09 November 2012, on rock, coll.: Rodriguez 2437 (CORD). Province of San Luis: provincial route 5, el Filo, S 32° 22' 39.90" W 64° 55' 32.02", 2,120 m, 15 May 2011, on rock, coll.: Rodriguez 2714 (CORD). Province of Tucumán: Dpto. Tafí: Route 307 at 20 km from Route 10, El Infiernillo, S 26° 43' 08.9", W 65° 47' 36.8", 2,900 m, 10 July 2011, on rock, coll.: Rodriguez 2650 (CORD).

*Teloschistes nodulifer* (Nyl.) Hillmann (1929: 326) = *Teloschistes exilis* f. *inaequalis* Gyeln., *syn. nova* – Type: Argentina, province of Córdoba, Punilla, höchster Gipfel des Cerro Los Gigantes, Sierra Grande de Córdoba, alt. ca 2,350 m. s.m., coll.: Hosseus 81, 01 May 1933, holotype: BP 47343!. – *Teloschistes nodulifer* is a common saxicolous species in mountains from Central and North Argentina (Lamb 1953, Rodriguez *et al.* 2016, 2017). It is characterised by the orange-red bright colour, the non-ciliate reddish apothecia, the presence of “nodules” that are pycnidia and the polarilocular one-septate ascospores. The type of *T. exilis* f. *inaequalis* was mistakenly revised as *T. exilis* (Mich.) Vain. by Almborn (1989). – Additional specimens studied: Argentina: province of Córdoba: Dpto. Calamuchita, Cerro Champaquí, S 31° 59' 15.1", W 64° 56' 12.2", 2,795 m, 17 May 2009, on rock, coll.: Rodriguez 2080 (CORD). Province of San Luis: provincial route 5, el Filo, S 32° 22' 39.90" W 64° 55' 32.02", 2,120 m, 15 May 2011, on rock, coll.: Rodriguez 2717 (CORD).

*Oropogon loxensis* (Fée) Th. Fr. (1861: 49) = *Bryopogon hosseusianus* Gyeln. – Type: Argentina, province of Córdoba, Cerros Los Gigantes, 2,300 m, coll.: Hosseus 60, 01 May 1933, Holotype: BP T808!, Isotype: CORD!. – This species was mentioned from Argentina as *Bryopogon hosseusianus* Gyeln. (Calvelo and Liberatore 2002) synonymized by Esslinger (1989). Recently fresh specimens were studied and they were easily recognised by the white to brown-grey thallus, with few spinules, small and perforate pseudocyphella and the presence of atranorin, salazinic, protocetraric and methylbarbatic acid as main secondary compounds. These specimens were found in the same area where Hosseus made the collection of the specimens studied by Kőfaragó-Gyelnik. This population of *O. loxensis* seems to be very small and are restricted to a protected area in higher mountains of Córdoba province. In spite of the increase of lichen collections in the region, this is the only location of this species, and up to now, it is the southernmost record of the genus in the continent. – Additional specimens studied: Argentina: province of Córdoba, Dpto. Cruz del Eje, Los Gigantes, Quebrada de los Refugios, S 31° 24' 50.3", W 64° 48' 23.4", 2,224 m, 06 October 2019, on rock, coll.: Rodriguez 4217 (CORD).

### Excluded species

*Parmotrema stuppeum* (Taylor) Hale (1974: 339) – This species is cited from Argentina based on a specimen identified by Kőfaragó-Gyelnik as *Par-*

*melia claudelii* (Harm.) Vain. (Calvelo and Liberatore 2002). We studied this specimen stored in CORD and it corresponds with *Parmotrema reticulatum*, a very common species in our region (Estrabou *et al.* 2006, Rodríguez *et al.* 2016). It is characterised by the maculate to reticulate upper surface, the black underside and brown margin, submarginal soralia and salazinic acid in the medulla. *Parmotrema stuppeum* is emaculate or reticulate and the soralia is marginal. Up to now the presence of this species is not confirmed from Argentina. – Specimens studied: Argentina: province of Córdoba: Capilla del Monte, 23 April 1932, coll.: Hosseus 28 (CORD).

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