ICMADOPHILA AVERSA AND PICCOLIA CONSPERSA,  
TWO LICHEN SPECIES NEW TO BOLIVIA  

KARINA WILK  

Abstract. The species Icmadophila aversa and Piccolia conspersa are reported as new to the lichen biota of Bolivia. The studied material was collected in Madidi National Park (NW Bolivia). The species are briefly characterized and their ecology and distribution are discussed.  

Key words: lichenized fungi, new records, Madidi region, Andes, South America  

Karina Wilk, Laboratory of Lichenology, W. Szafer Institute of Botany, Polish Academy of Sciences, Lubicz 46, 31-512 Kraków, Poland; e-mail: k.wilk@botany.pl  

INTRODUCTION  

Bolivia is still one of the countries least studied biologically, but the data already available indicate a potentially high level of biodiversity (Ibisch & Mérida 2004). Knowledge of the cryptogams, including lichens, is particularly deficient (Feuerer et al. 1998). In the last decade, however, lichenological studies have progressed in Bolivia. The most recent works have provided many new discoveries: records new to the country, continent or Southern Hemisphere, and species new to science (e.g., Ferraro 2002; Feuerer & Sipman 2005; Flakus & Wilk 2006; Flakus & Kukwa 2007; Flakus & Lücking 2008; Flakus 2009; Krzewicka & Wilk 2009; Kukwa & Flakus 2009).  

While studying the material collected in the Madidi region I identified two interesting lichen species – Icmadophila aversa and Piccolia conspersa. The species are reported here as new to Bolivia. Brief descriptions and notes on their ecology and worldwide distribution are provided.  

MATERIAL AND METHODS  

The study is based on material collected in 2006–2007 in Madidi National Park. The collection sites are located in the Cordillera Apolobamba (Fig. 1). Voucher specimens are deposited in the lichen herbarium of the W. Szafer Institute of Botany of the Polish Academy of Sciences (KRAM) and in the Herbario Nacional de Bolivia (LPB).  

THE SPECIES  

Icmadophila aversa (Nyl.) Rambold & Hertel  


Thallus dimorphic, gray, consisting of podetia and crustose basal thallus. Apothecia conspicuous: pinkish, spoon-shaped, and located terminally on podetia. Podetia, together with apothecia, 1.5–2.0 cm high. Spores predominantly 0–4(–5) septate and occasionally nonseptate, elipsoid-fusiform, 24–41 × 3.5–5.0 μm.
*Icmadophila aversa* occurs in open and humid places in high mountain areas in the tropics (Rambold et al. 1993). In the Bolivian locality it grows in timberline forest of *Polylepis pepei* at 4056 m a.s.l., where the habitat is extremely humid. The forest at the site is disturbed due to intense human activity. The species occupies bryophytes on boulder.

Besides *I. aversa* there are only three species included in the genus: *I. ericetorum* (L.) Zahlbr., *I. japonica* (Zahlbr.) Ramdold & Hertel and *I. splachnirima* (Hook. f. & Taylor) D. J. Galloway (Rambold et al. 1993; Galloway 2000). Among them, *I. japonica* is most similar to *I. aversa*. The first taxon is distinguished, by having allantoids, smaller spores (19–22 × 2–3 μm) and chemistry – it contains fumarprotocetraric acid in addition to perilatic and thamnolic acids. Furthermore, *I. japonica* has a different geographical range and ecology. The species occurs in forested areas of Far East Asia (Trass 1978; Rambold et al. 1993).

**GENERAL DISTRIBUTION.** The species has a neotropical distribution range. It is known from Central and South America: Costa Rica (Umaña-Tenorio et al. 2002), Colombia (Sipman 1989), Ecuador (Nöske & Sipman 2004) and Venezuela (Figueiras & Keogh 1977). This is the first record of the species and the genus from Bolivia.

**SPECIMEN EXAMINED.** SOUTH AMERICA. BOLIVIA. La Paz Dept., Franz Tamayo Province, Madidi National Park, Cordillera Apolobamba, NE of Keara village, timberline forest of *Polylepis pepei* by Tolca Cocha lake, alt. 4056 m, 14°41’14”S, 69°05’18”W, on bryophytes on rock, 14 Oct. 2007, K. Wilk 7685.

**Piccolia conspersa** (Fée) Hafellner  Fig. 3 Bibloth. Lichenol. **58**: 109. 1995.

Thallus minutely granulose, yellowish orange. Apothecia also orange, covered by a distinct concolorous pruina, 0.3–0.8 mm in diam. Asci multispored, producing hyaline, globose spores, ca 2 μm. Pycnidia stipitate, brownish. Thallus and apothecia react K+ purple due to the presence of anthraquinones.

**Piccolia conspersa** occurs in tropical forests, both wet and dry, usually in lowland or lower mountain belts (Hafellner 1995). In the Bolivian locality it grows on bark of trees in closed montane forest at 1246 m a.s.l. in shady and moderately humid habitat.

**Piccolia conspersa** is likely to be confused with *P. nannaria* (Tuck.) Lendemer & Beeching, but the latter differs by having a yellow-green thallus and much smaller apothecia (Knudsen & Lendemer 2007). Morphologically *P. conspersa* resembles orange-colored *Caloplaca* species which, however, have entirely different anatomical features of apothecia.

**GENERAL DISTRIBUTION.** The species has a worldwide tropical or subtropical distribution range. It is known from Central and South America: Mexico, Jamaica, Costa Rica, Cuba, Colombia, Venezuela, Guyana, Ecuador, Peru, Brazil (Hafellner 1995) and Paraguay (Magnusson 1935), Africa: Kenya, Tanzania, Togo and Mascarene Islands (Hafellner 1995), Asia: Taiwan (Aptroot & Sparrius 2003), China, India, Nepal (Hafellner
Fig. 2. Habit of *Icmadophila aversa* (Nyl.) Rambold & Hertel (*K. Wilk* 7685, KRAM). Scale bar = 2 cm.

Fig. 3. Habit of *Piccola conspersa* (Fée) Hafellner (*K. Wilk* 4884, KRAM). Scale bar = 2 mm.
1995), Thailand (Aptroot et al. 2007) and Papua New Guinea (Aptroot 1997), Australia (Hafellner 1995) and North America: U.S.A. – Alabama state (Knudsen & Lendemer 2007). This is a first record of the species and the genus from Bolivia.

**Specimens examined.** SOUTH AMERICA: Bolivia. La Paz Dept., Franz Tamayo Province, Madidi National Park, Cordillera Apolobamba: San Martin, NW of Azariamas village, alt. 1246 m, 14°08′52″S, 68°44′29″W, humid montane forest, 29 May 2006, *K. Wilk 4884, 5290, 5297*

Acknowledgements. I am grateful to Zbigniew Mirek (Kraków, Poland) for promoting and supporting licheno-logical studies in Bolivia, Stephan G. Beck (La Paz, Bolivia) and the team of Herbario Nacional de Bolivia (LPB) for invaluable help and cooperation during the field studies, Peter Jørgensen (St. Louis, MO, U.S.A.), and the botanists of the Madidi project for their cooperation and welcoming reception. I thank Martin Kukwa (Washington D.C., U.S.A.), the anonymous reviewer for constructive comments on the manuscript.

**References**


Received 23 April 2010