# *RHIZOCARPON TIMDALII* (RHIZOCARPACEAE, LICHENIZED ASCOMYCOTA), A SPECIES NEW TO POLAND

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Taxonomic revision of the non-yellow species of *Rhziocarpon* DC. with hyaline and muriform ascospores in the Nordic countries and in North America yielded the discovery of a taxon with a combination of characters that did not agree with any species in recent treatments of the genus *Rhizocarpon* (Ihlen & Fryday 2002). Those specimens, which were characterized by a brown thallus containing an unidentified fatty acid or lacking lichen products, small and more or less convex apothecia and areoles, a dark blue-green epihymenium, and distinctly eumuriform, hyaline ascospores, were described as *Rhizocarpon timdalii* Ihlen & Fryday (Ihlen & Fryday 2002).

In 2010, during a survey focused on species of the genus *Rhizocarpon* in the lichen herbarium of the Institute of Biology of the Pedagogical University in Kraków (KRAP-L), *Rhizocarpon timdalii* was discovered for the first time from Poland. The specimen was collected by Józef Kiszka in the Polish Carpathians and was determined as *Rhizocarpon obscuratum* (Ach.) A. Massal.

The specimen was identified according to Ihlen and Fryday (2002) and Ihlen (2004). Chemical analyses were performed using thin-layer chromatography (Orange *et al.* 2001) with the use of solvents A and C.

*Rhizocarpon timdalii* is characterized by a brown and areolate thallus. The areoles are convex, rounded, 5–10 areoles per 1 mm$^2$. The prothallus is distinct, black. The apothecia are irregularly arranged, rounded, black, 0.4–0.6 mm diam., the disc initially flat but distinctly convex when mature. The margin proper is 0.04–0.06 mm thick, at first distinct, becoming indistinct or absent when the disc is convex and mature, concolorous with the disc. The exciple is blue-green due to cinereorufa-green pigment (K–, HCl+ blue). The hymenium is hyaline, 100–130 µm high, and the epihymenium is blue-green (cinereorufa-green: K–, HCl+ blue). The hamathecial filaments are branched and anastomosing. The hypothecium is dark brown (arnoldiana-brown: K–). The asci contain 8 spores. The ascopsores are ellipsoid, hyaline, 25–35 × 15–18 µm, eumuriform, with a total of 12–16 cells. The thallus reacts K–, C–, Pd–, I–. Lichen products were not detected by TLC.

This species grows on acid rocks. In Europe it has been found mostly on exposed and wet rocks on a heath or in a wood, often near lakes. In the U.S.A., the recorded habitats are open forest (oak forest, pine forest and pine plantation) and coastal coniferous forest; several specimens, including the type, have been collected close to lakes or the coast (Ihlen & Fryday 2002). Previously the species has been recorded at altitudes up to 650 m (Ihlen & Fryday 2002; Ihlen 2004; Harris 2004). In Europe it has been collected up to 200 m in Fennoscandia and up to 650 m in Wales. In the U.S.A. it was collected at *ca* 520 m (Canaan Mt.). Interestingly, in Poland it was found at 960 m. Associated taxa in the Polish collection include *Lecanora polytropa*, *Lepraria* sp., *Rhizocarpon badioatrum*, *R. geographicum*, *R. lecanorinum*, *R. reductum* and *Umbilicaria* sp. In Northwest Europe *Rhizocarpon timdalii* is known from the United Kingdom (Coppins 2002; Ihlen & Fryday 2002), Norway, Sweden and Finland (Ihlen & Fryday 2002; Ihlen 2004),

and it is reported from northeast North America (Ihlen & Fryday 2002; Harris 2004).

*Rhizocarpon timdalii* is very similar to *R. reductum* Th. Fr., a name resurrected for the species previously referred to as *R. obscuratum* (Ach.) A. Massal (Ihlen & Fryday 2002). *Rhizocarpon reductum*, however, has a brownish epihymenium (atra-brown), often with a greenish tinge (cinereorufa-green), more or less flat thalline areoles, and ascospores measuring 25–35 × 10–15 µm, eumuriform, with a total of 8–14 cells per ascospore. Moreover, *R. reductum* contains stictic acid.

Specimen Examined: POLAND. Western Carpathians, Podhale, Band Gubałówka, Ligasówka, on the rocks, elev. *ca* 960 m, 19 Sept. 1964, *leg. J. Kiszka* (KRAP-L).

Additional Specimens seen: BELARUS. Vitebsk Region, Verchnedvinsk District, Mezno, granite, 3 Sept. 1988, *leg. V. Golubkov* (MSK-L). UKRAINE, Crimean Peninsula, Chatyr-Dag, granite, 27 July 2010, *leg. A. Matwiejuk* (hb. Matwiejuk).

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