

NEW RECORDS OF SOREDIATE LICHENS FROM IRAN

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Five species of sorediate lichens are reported as new to Iran: *Lepraria crassissima*, *L. diffusa*, *L. lobificans*, *L. vouauxii*, and *Arthonia endlicheri*.

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گزارش گونه‌های جدید گل‌سنگ از ایران

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تعداد چهار گونه گل‌سنگ زیر برای اولین بار از ایران گزارش می‌شود.

Lepraria crassissima, *L. diffusa*, *L. lobificans*, *L. vouauxii*, *Arthonia endlicheri*

Introduction

The lichen flora of Iran is still incompletely known. Seaward et al. (2004) recently published a checklist containing 396 species, but commented that it was likely that more than 1000 species occurred in the country. No species of *Lepraria* were listed by Seaward et al., but the north and north-west of Iran are suitable for this genus due to the cool, moist climate and the presence of high mountains and forest. The genus *Lepraria* comprises persistently sterile, leprose taxa; the genus is now quite well-known in Europe, as a result of studies over the past twenty years (e.g. Laundon 1992; Leuckert & Kümmerling 1995; Tønsberg 1992), although additional taxa are still being discovered (Bayerová et al. 2005). The genus *Leproloma* is now included within *Lepraria* (Ekman & Tønsberg 2002); these authors also showed that speciation in this genus must occur in the absence of sexual reproductive structures. Four species of *Lepraria* new to Iran are reported below, together with another sorediate species, *Arthonia endlicheri*.

Methods

Specimens of *Lepraria* were collected by the first author during several field trips in the north and north-

west of Iran, during the period 1999 to 2004. Specimens are deposited in NMW and the private herbaria of M. Sohrabi and of M.R.D. Seaward. Identification was confirmed by thin-layer chromatography (TLC), using the methods of Orange et al. (2001).

The Species

***Arthonia endlicheri* (Garov.) Oxner**

Thallus with conspicuous white filamentous prothallus, matt, grey-green in the herbarium, uneven, later convoluted, with convex mounds, with indistinct soralia; photobiont *Trentepohlia*; surface C + red (lecanoric acid by TLC). On rock and on soil in rock crevices, Mazandaran and Golestan. Known elsewhere from Europe (Great Britain, France, Germany, Czech Republic, Romania) and Turkey. *Dirina massiliensis* f. *sorediata* (Müll. Arg.) Tehler is similar, but differs in the usually thinner thallus, and presence of erythrin by TLC; it is not yet known from Iran, but is found in Europe, North Africa and Socotra.

Specimens examined. MAZANDARAN: Amol, towards Tehran, Haraz way, Kelerd village, alt. 600-900 m, on calcareous rocks, Hyrcanian forest (with

Parrotia persica, *Quercus*, *Crataegus*, *Prunus*), 3 January 2004, *M. Sohrabi & M. Mofid* 2690 (NMW C.2004.010.22, hb. *M. Sohrabi*); same locality and date, on shady soil in cleft in rocks, *M. Sohrabi & M. Mofid* 2710, 2763 (NMW C.2004.010.21 and 23, hb. *M. Sohrabi*). -GOLESTAN: Gorgan, Minoodasht, Dahneh Chehel chahi, around the road of Zangolab village, alt. 110-1000 m, on rock; Hyrcanian forest (*Quercus castaneifolia*, *Parrotia persica*), 2 January 2004, *M. Sohrabi & M. Mofid* 2182 (NMW C.2004.010.13, hb. *M. Sohrabi*).

Lepraria crassissima (Hue) Lettau

This species is distinguished by the pale thallus, granules with a loose surface, and the C + red and UV + white reactions (divaricatic acid, nordivaricatic acid and zeorin by TLC). One record from soil in Mazandaran. Known elsewhere from Norway, Great Britain, France and the Czech Republic; the distribution is poorly known due to confusion with *L. incana* (L.) Ach., which has usually darker, firmer granules, and contains divaricatic acid and zeorin, with only traces of nordivaricatic acid.

Specimens examined. MAZANDARAN: Chalus, alt. 400-600 m, on soil, roadside forest, 20 July 2004, *M. Sohrabi* 9130 (hb. *M. Seaward* 113205).

Lepraria diffusa (J.R. Laundon) Kukwa

Distinguished by the presence of 4-oxypannaric acid 2-methylester by TLC. Widespread in Europe, also known from Mongolia, Nepal, and western North America.

Specimens examined. GOLESTAN: Gorgan, Golestan National Park, Tangeh gol toward Golzar around road, alt. 450-600 m, on mosses on soil in Hyrcanian forest (with *Parrotia persica*, *Quercus*, *Crataegus*, *Prunus*), 30 June 1999, *Sohrabi* 1637 (NMW C.20.04.010.7, hb. *M. Sohrabi*). -MAZANDARAN: Chalus, 400-600 m, on soil, roadside forest, 20 July 2004, *M. Sohrabi* 9195 (hb. *M. Seaward*).

Lepraria lobificans Nyl.

Distinguished by the blue-grey thallus with a soft and spongy texture, and the presence of stictic acid, constictic acid, zeorin and atranorin by TLC. Recorded from bark and soil in Mazandaran and Golestan. Known elsewhere from Europe (widespread), North and South America, Asia, Africa and Australasia.

Specimens examined. GOLESTAN: Gorgan, Golestan National Park, Naharkhoran toward Zyarat, alt. 300 m, on trees and wood, Hyrcanian forest (with *Parrotia persica*, *Quercus*, *Crataegus*, *Prunus*), 30 October 2002, *M. Sohrabi* 5013 (NMW C.2004.010.9, hb. *M. Sohrabi*). -MAZANDARAN: Amol, towards Tehran, Haraz way, Kelerd village, alt. 600-900 m, on mosses growing on soil, Hyrcanian forest (with *Parrotia persica*, *Quercus*, *Crataegus*, *Prunus*), 3 January 2004, *M. Sohrabi & M. Mofid* 2791 (NMW C.2004.010.18, hb. *M. Sohrabi*). - same locality and date, *M. Sohrabi & M. Mofid* 2750 (NMW C.2004.010.19). - same locality and date, *M. Sohrabi & M. Mofid* 2701 (NMW C.2004.010.20, hb. *M. Sohrabi*). - same locality and date, on mosses on soil and calcareous rocks, *M. Sohrabi* 2692 (hb. *M. Sohrabi*).

Lepraria vouauxii (Hue) R.C. Harris

Distinguished by the presence of pannaric acid 6-methylester as a major substance by TLC; the thallus is grey or blue-grey, with a diffuse or slightly delimited margin, with thallus granules 80-180 µm wide, but TLC is needed for confirmation. Recorded on bark, soil, and calcareous rock in East Azerbaijan and Golestan. Known elsewhere from Europe (very widespread), Africa, N. India, Nepal, Japan, Papua New Guinea, Tasmania, New Zealand, Hawaiian Islands, S. America, Greenland.

Specimens examined. EAST AZERBAIJAN: Tabriz, Jolfa, Hadishahr, Daran village, around the road toward the Kiamakidagh, alt. 1500-2700 m, on calcareous rocks, 25 May 1999, *M. Sohrabi* 67 (NMW C.2004.010.1, hb. *M. Sohrabi*). - Tabriz, Jolfa, Hadishahr, Daran village, around the road toward the Kiamakidagh and around village, alt. 1500-2700 m, on mosses growing on soil, 2 June 2001, *M. Sohrabi* 688 (NMW C.2004.010.4, hb. *M. Sohrabi*). -same locality and date, on soil and on calcareous rocks, *M. Sohrabi* 788 (NMW C.2004.010.3, hb. *M. Sohrabi*). - Tabriz, Jolfa toward Khodaafrin, Missan village, around village and towards the forest part, alt. 1000-1500 m, on bark and wood, Arsbaran Forest (with *Quercus*, *Crataegus*, *Prunus*, *Paliuris spina-christi*), 5 June 2003, *M. Sohrabi* 1539 (NMW C.2004.010.6, hb. *M. Sohrabi*). - Mianeh toward Bostanabad around tunnel no. 2, alt. 1500-2000 m, on shady part of soil in cleft of rocks, 11 July 2002, *M. Sohrabi* 1835 (NMW C.2004.010.5, hb. *M. Sohrabi*). -GOLESTAN: Gorgan, Golestan National Park, Almeh valley, alt. 450-600 m, on mosses growing on rock and soil, Hyrcanian forest (with *Parrotia persica*, *Quercus*, *Crataegus*, *Prunus*), 20 June 2003, *M. Sohrabi* 1299 (NMW C.2004.010.11). - Gorgan,

Golestan National Park, Sharlegh area, alt. 450-600 m, on trees and wood, Hyrcanian forest (with *Parrotia persica*, *Quercus*, *Crataegus*, *Prunus*), 22 May 2003, M. Sohrabi 5115 (NMW C.2004.010.10, hb. M. Sohrabi).

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