THREE NEW RECORDS OF LICHEN SPECIES FROM IRAN

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During an examination of lichen specimens in the Research Institute of Forest and Rangelands Herbarium (TARI), three new species of *Teloschistaceae* Zahlbr. were identified for the flora of Iran. These species have been collected from the Provinces Gilan, Alborz and Mazandaran and consist of *Caloplaca irrubescens* (Arnold) Zahlbr. *Caloplaca monacensis* (Leder.) Lettau and *Xanthoria calcicola* Oxner.

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Key words: Lichen; Lichenized; Ascomycota; *Caloplaca*; new record; Gilan; Alborz; Mazandaran; Iran

سه گزارش جدید از گلسنگ ها برای ایران

ساره سادات کاظمی، کارشناس ارشد موسسه تحقیقات جنگلها و مراتع کشور

سید رضا صفوی، عضو هیئت علمی موسسه تحقیقات جنگلها و مراتع کشور

ضمن مطالعه گلسنگ‌های هرباریوم موسسه تحقیقات جنگلها و مراتع کشور (TARI)، سه گونه جدید برای کشور از تیره Teloschistaceae Zahlbr. تشخیص داده شد. این گونه‌ها از استانهای گیلان، البرز و مازندران جمع‌آوری شده‌اند و عبارتند از: Caloplaca irrubescens (Arnold) Zahlbr.، Caloplaca monacensis (Leder.) Lettau و Xanthoria calcicola Oxner.

INTRODUCTION

The lichen diversity is very rich and abundant in Iran. About 650 taxa have been reported for the lichen flora of Iran up to now (Seaward et al. 2004 & 2008). During a study on lichen communities in Iran, three new species of the family *Teloschistaceae* have been identified for the flora of Iran in the lichen herbarium of the Research Institute of Forest and Rangelands (TARI). The *Teloschistaceae* are one of the largest families of lichenized fungi and the number of its species is estimated at some few thousands or more. They include the genera *Caloplaca* and *Xanthoria* and belong to the order *Telochistales*, subclass *Lecanoromycetidae*, class *Lecanoromycetes* and subphylum *Pezizomycotina* (Arup et al., 2013). The new records presented below have been collected from the Hyrcanian phytogeographical district, which is located between the Caspian Sea and the Alborz Mountains. Localities, descriptions, chemistry test results, habitat information, geographical distribution, photos and a distribution map are presented for the reported species.

MATERIALS AND METHODS

Most of the examined specimens of lichens were collected in September, December and May 2005, 2010 and 2011 in the Provinces Gilan, Mazandaran and Alborz. Morphologic features were observed with a Luxeo 4D stereomicroscope and a Zeiss microscope. Analytical keys have been used for determination of the specimens (Brodo et al.2001). Chemical test reagents (Orange et al., 2001) were also applied. Images have been captured with the stereomicroscope equipped with a Luxeo 4D camera, with Pixelpro Software. The identifications were approved by Dr. J. Vondrak (Pruhonice, Czech Republic) in 2013. The materials are deposited in TARI. Duplicates are in the Institute of Botany of the Academy of Sciences, Czech Republic.

RESULTS

Caloplaca irrubescens (Arnold) Zahlbr. (figs. 1 & 4).

Examined specimen: Mazandaran province: Noor,

Fig.1. *Caloplaca irrubescens* (Arnold) Zahlbr.

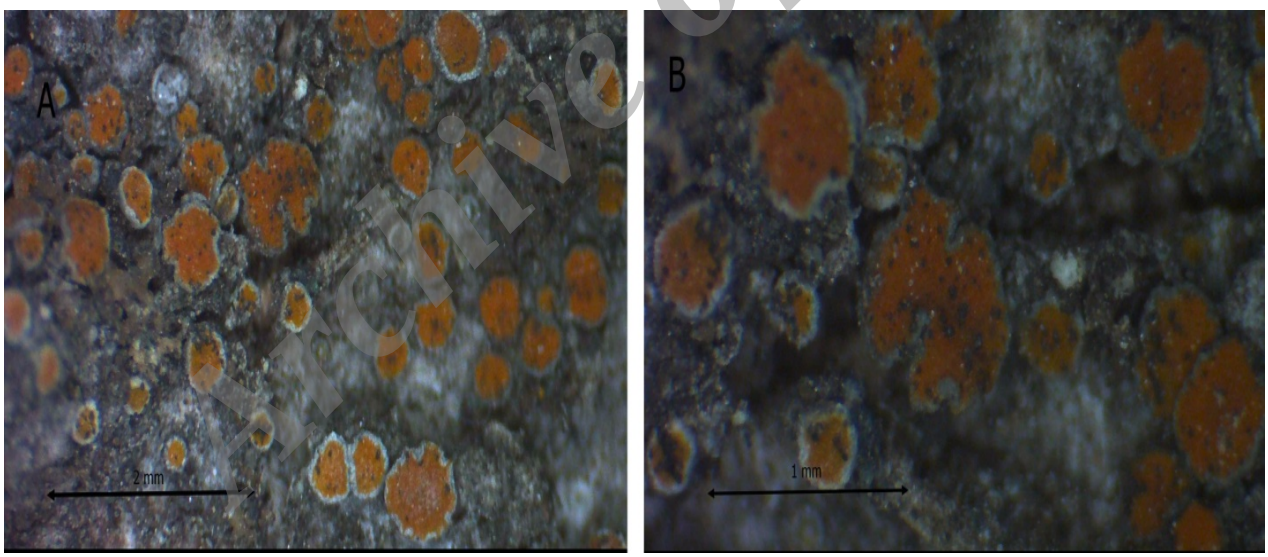

Fig.2. A&B *Caloplaca monacensis* (Leder.) Lettau.

Fig.3. *Xanthoria calcicola* Oxner.

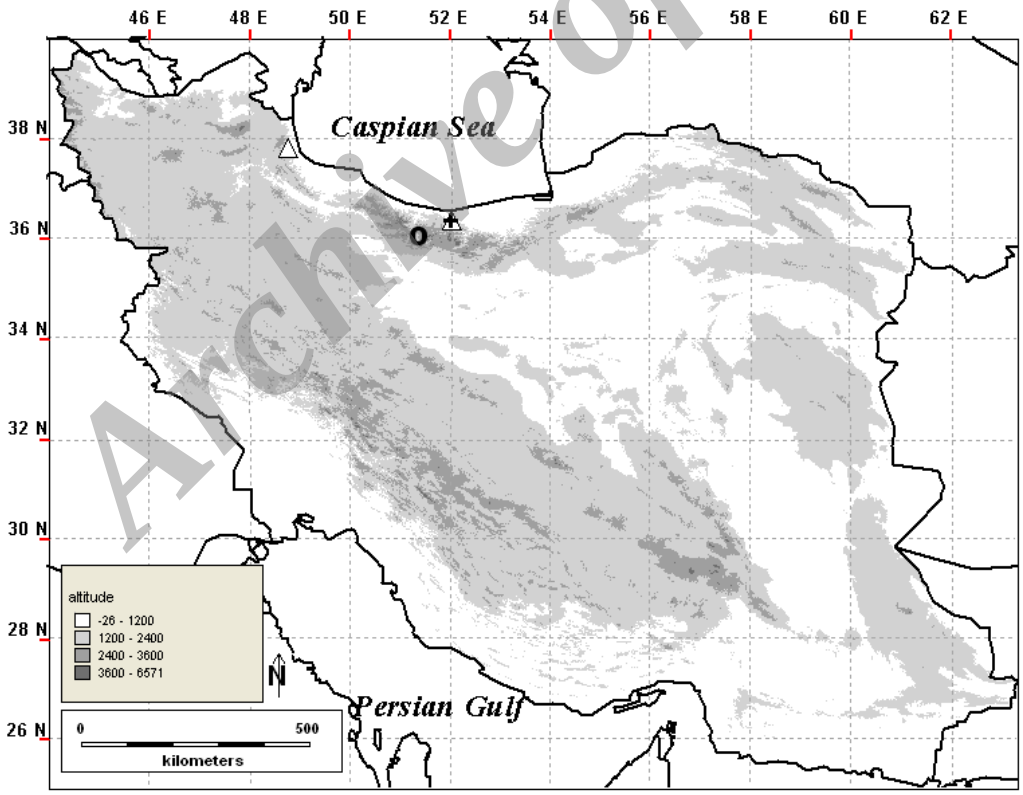

Fig.4. Distribution map of the species. Caloplaca monacensis, 4595 ✚; Caloplaca irrubescens, 4594, 0252b△; Xanthoria calcicola, 7011, 7018 ✪.

around Lavij village, 36° 22' 27"N, 52° 2' 18.99" E, 700 m, 14. 9. 2005, Safavi, 4594 (TARI); Gilan: Talesh, Marian road, Nobobolagh. 37° 49' 27.9" N, 48° 44' 50.2" E, 502m, 20. 12. 2010, A. Moradi, 0252b (TARI).

Thallus squamulose, areolate or subsquamulose, in small patches, orange, without elongated marginal lobes, of small scattered to contiguous areoles, to 0.5 mm diam., prothallus present, black, surface orange, smooth, without asexual propagules. Apothecia: adnate, numerous, scattered, 0.2-0.6 mm in diam., disc brownish orange, flat to convex; paraphyses simple, widening towards the tips, the apical cells 2-3 mm; ascospores polarilocular, 10-13 × 6-7 μm broadly ellipsoid, septum 3-5 μm wide.

Chemistry: Thallus K+ red-violet.

Habitat: On rock.

Geographical distribution: Asia (Turkey, Saudi Arabia), Europe, North America, (Feuerer 2013).

Caloplaca monacensis (Leder.) Lettau (figs. 2&4).

Examined specimen: Mazandaran: Noor, around Lavij village, 36° 22' 27"N, 52° 2' 18.99"E, 700m, 14.9.2005, Safavi, 4595(TARI).

Thallus nearly to entirely granular, scarcely with distinct areoles, especially around apothecia, scattered to continuous, thin to thick, non-pruinose, (sordid) pale to dark grey; sometimes very minutely tomentose with inconspicuous hairs formed by projecting hyphae particularly on granules; prothallus not seen. Apothecia lecanorine, abundant to rare, up to 1.2 mm diam., sessile, distinct, sometimes pruinose; disc flat to slightly convex, yellow orange to orange; paraphyses simple to branche; ascospores polarilocular,13.4-16 × 6.5-8.0 µm, ellipsoid, septum (3.0–) 4.9–7.0µm.

Chemistry: Apothecia K+ violet.

Habitat: Epiphytic in Broad leaved forests, rarely on rock.

Geographical distribution: Asia (Turkey, Russia), Europe (Czech Republic, Germany), (Soun et al. 2011; Halici et al. 2014).

Xanthoria calcicola Oxner (figs. 3&4).

Examined specimen: Alborz Province: Karaj-Chalous road, Dizin road,Varangeh Roud three way, 36° 02' 58.99"N, 51° 23' 45.99"E, 2300m, 03.05.2011, Safavi, Kazemi & Siavash, 7011, 7018 (TARI).

Thallus yellow-orange, adpressed, with wide lobes, plicate, broadening towards the apices , the apices 1-7 mm wide, rounded, convex, upper surface becoming densely covered with coralloid isidia, more so in the center, isidia 0.1-0.7 mm diam., simple, typically erect, irregularly globose-capitate, sometimes becoming flattened and lobule- like, often crowded and partially obscuring the thallus. Apothecia scattered and usually infrequent, the discs with roughened margins, almost stalked, urceolate to concave, with involute, roughened, thalline exciple. Ascospores not observed.

Chemistry: K+ bold red.

Habitat: On rock, rarely on bark or wood.

Geographical distribution: Asia (Mongolia, Syria & Turkey), Europe, South America. (Feuerer 2013).

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