

New Foliicolous Lichen Records for Lichen Flora of Turkey

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Abstract – Five new foliicolous lichen records for flora of Turkey, *Byssoloma subdiscordans* (Nyl.) P. James, *Fellhanera bouteillei* (Desm.) Vezda., *Gyalectidium caucasicum* (Elenk. & Woronich) Vezda, *Gyalectidium colchicum* Vezda and *Strigula elegans* Fr., are presented. These species are collected from Trabzon and Rize provinces over foliicolous of *Buxus colchica* Pojark.

Foliicolous Lichens / New Records / Turkey

INTRODUCTION

About 1000 lichen species have been reported from Turkey, as the addition of species lists from recent publications shows. Although many studies were performed about lichen flora of Turkey, many regions of Turkey are still not worked. As the studies are done, many new species have been added to the lichen flora of Turkey (Aslan, 2000; Aslan *et al.*, 1994, 2002a,b., Gönülol *et al.*, 1995; Öztürk & Kaynak, 1999; Öztürk, 1990; Özdemirtürk, 2003; Yazıcı & Aslan, 2003, 2002; Yazıcı, 1995).

Many studies were conducted on lichen flora of Turkey, though none about foliicolous lichens exist, according to present data. This study is the first of its kind for Turkey. The northeastern part of Turkey has subtropical climate and areas with *Buxus colchica*, where rich foliicolous lichen diversity is considered to be present.

The identification of the lichen species was conducted according to related lichen flora literature (Purvis *et al.*, 1992; Wirth, 1995; Clauzade and Roux, 1985; Santesson, 1952; Vezda, 1983; Lücking, 1992; Ferraro *et al.*, 2001.) These specimens are stored at the herbarium of Ataturk University, KK Education Faculty, Erzurum.

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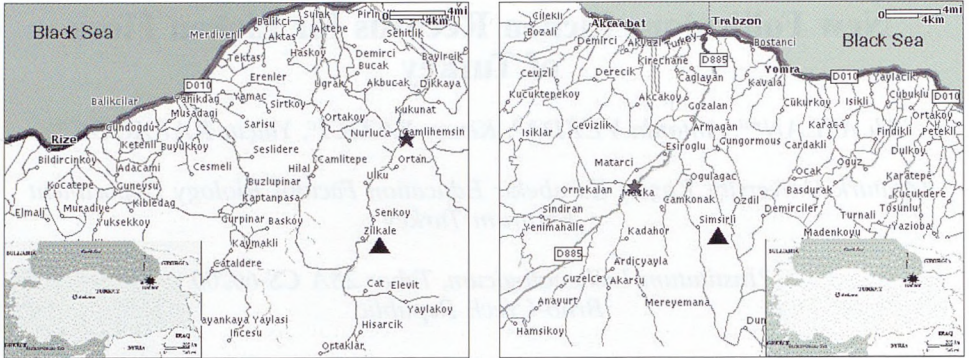


Fig. 1. Study area (▲) of Şimşirli (Maçka-Trabzon) and Zilkale (Çamlıhemşin-Rize) stations.

RESULTS

Byssoloma subdiscordans (Nyl.) P. James

P. James in *Lichenologist* 5:126, 1971. — *Chiodecton subdiscordans* Nylander in *Flora Regensburg*, 62: 221, 1879. — Syn. *B. rotuliforme* (Müll. Arg.) R. Sant. — Other synonym Santesson, 1952: 490 p.

Description: Thallus to 2 cm diam., of small irregular and dispersed patches, whitish to whitish green, the surface verrucose; prothallus present but hardly detectable. Apothecia 0,3-0,5(-0,6) mm diam., flat, sometimes clustered in groups of two to four and becoming \pm distorted; disc black, sometimes with a bluish tinge, matt with a tomentose-arachnoid margin, usually white, rarely grayish white. Ascospores $10-17 \times 3-5 \mu\text{m}$. Conidia regularly pyriform.

Byssoloma discordans is distinguished from *B. leucoblepharum* with its black apothecia surface and white or grayish white thalli (Vezda 1983, Lücking 1992, Santesson 1952, Wirth 1995, Purvis 1992, Clauzade and Roux 1985).

Distribution and ecology: On damp, shaded rocks and *Calluna* stems. Wales and coastal Ireland. Widely distributed in tropical and sub-tropical regions, spreading to temperate zones, where it typically occurs on *Buxus* leaves. Rarely occurs on leaves of other trees. Southwestern Europe, Coastal Europe (where now almost extinct). A detailed information of its distribution it provided by Santesson (1952). This species may be observed on thin branches of spine trees, barks of various trees and pebbles in humid regions (Vezda 1983, Lücking 1992, Santesson 1952, Wirth 1995, Purvis 1992).

Trabzon: Maçka, Şimşirli village, on *Buxus colchica*, at 400 m. Latitude, $40^{\circ} 47'$, Longitude, $39^{\circ} 44'$. 19. 09. 2002. **Rize:** Çamlıhemşin, Zilkale village, on *Buxus colchica*, at 550 m. Latitude, $40^{\circ} 55'$, Longitude, $40^{\circ} 57'$. 08. 09. 2003.

Fellhanera bouteillei (Desm.) Vezda 1986, 214 p.

Syn. *Catillaria bouteillei* (Desm.). Zahlbr. Zahlbrückner in Sitz.-ber. Math.-Nat. Kl. Akad. Wiss. Wien 111: 262, 1902. — *Parmelia bouteillei* Desmazière in *Ann. Sci. Nat. Bot.*, ser. 3, 8:191, 1847. Other synonym Santesson 1952: 430 p.

Description: Apothecia 0,1-0,3 mm diam; true exciple cells 2-5µm wide; hymenium 30-50 µm tall. Paraphyses 0,5-1 µm wide below, widening to 2 µm at the tips. Ascospores 9,5-14(-16) × 3,5(-7) µm, 1 septate, ovoid to ovoid-oblong, often constricted at septum and sometimes ± sole-shaped. Pycnidia 80-150 µm diam. (Vezda 1983, Lücking 1992, Santesson 1952, Wirth 1995, Purvis 1992, Clauzade and Roux 1985).

Distribution and ecology: In sheltered situations on evergreen leaves and small twigs (especially *Buxus*) damp siliceous rock or stones; local. Throughout British Is. Cosmopolitan. Some records may refer to *F. subtilis*. Its distribution is explained by Santesson (1952). This species prefers thin branches and leaves of *Abies* sp. and *Picea* sp. in very humid regions of Europe. In other regions, it was observed on leaves of *Buxus* sp., *Hedera* sp., and also *Ruscus ponticus*. (Vezda 1983, Santesson 1952, Wirth 1995, Purvis 1992).

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Gyalectidium caucasicum (Elenk. et Woronich) Vezda, Folia Geobot. Phytotax., Praha, 18: 56 (1983).

Bas.: *Sporopodium caucasicum* Elenk. & Woron., Jahrb. Pflanzenkrankh., St Petersburg, 2: 124 (1908). Syn.: *Calenia caucasica* (Elenk. & Woron.) Vezda, Sched. Lich. Sel. Exs., Fasc. LXI: 4, no. 1512 (1978).

Description: Thallus forming angular or rounded, single, dispersed or confluent patches 1-3 mm diam., sometimes much larger (up to 7 mm diam.), areolate bullate due to strong encrustation with a continuous layer of crystals, silvery to whitish grey, sometimes with an “icy” and minutely crystalline surface (especially in the western Caucasus). Hyphophores rare or absent, laminal to submarginal, their scales well developed, obliquely orientated, squamiform with irregular upper margins or rarely lacinate, 0.1-0.3 mm long broad, whitish to pale greyish. apothecia usually present, angular-rounded, 0.2-0.3 mm diam., deeply immersed in the thallus, with pale yellowish brown to greyish, thinly pruinose disc and prominent, whitish margin. Ascospores oblong-ellipsoid, 40-50 × 10-15 µm. Pycnidia not found.

Gyalectidium caucasicum is in the centre of a group characterized by areolate-bullate thalli with large, compact clusters or a continuous layer of crystals. Its hyphophores are very rare and to be found on the thallus surface near the margins, which distinguishes it from most other species placed in the *G. caucasicum* group, explained by continuous growth of the thallus after the production of the hyphophores and their eventual inclusion in the thallus. A similar phenomenon is sometimes seen in *G. gahavisukanum* and certain individuals of *G. minus*. The latter has been confused with *G. caucasicum*. We have made no attempt to locate and examine the type collection of this species and refer to Santesson (1952: 356-357) for further information on the matter. Indeed, the identity of the taxon dealt with by Elenkin & Woronichin in their original description seems to be clear as only two other species of *Gyalectidium* are known from the large collections now available from the Western Caucasus (*G. colchicum* and *G. setiferum*), and these are easily distinguished from *G. caucasicum* (Vezda, 1983). *Gyalectidium caucasicum* is often found in caucasus on *Buxus colchica* leaves and rarely on *Laurocerasus officinalis*, *Hedera colchica*, *Taxus baccata*, *Rhododendron ponticum*, *Ilex colchica*

and over phyllocladia of *Ruscus hypophyllum* and *Ruscus ponticus*. It is widely referred as semi-shade or semi-light plant, and rarely found in shaded regions. *G. caucasicum* has not been observed at altitudes of over 800 meters (Ferraro *et al.* 2001, Vezda 1983, Lücking 1992, Santesson 1952).

Distribution and ecology: Obviously pantropical but rather rare; populations that lack hyphophores cannot be determined with certainty, and hence, the distribution of *Gyalectidium caucasicum* is uncertain. It seems to prefer more open and drier situations than *G. filicinum* and associates with *Bullatina aspidota* (Vain.) Vezda & Poelt and *Asterothyrium* species. It is of interest that the species is found in northern Iran and the western Caucasus but not in Europe, nor in Macaronesia (Ferraro *et al.* 2001, Vezda 1983).

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Gyalectidium colchicum Vezda

Vezda, Folia Geobot. Phytotax., Praha, 18: 58 (1983).

Typus: RUSSIA. Colchis: Lazarevskoje, Dagomys, 250m, 1979, Vezda s.n. (herb. Vezda, holotypus; Vezda, Lich. Sel. Exs. 1866, isotypi, LG).

Description: Thallus forming rounded, single or dispersed to confluent patches 0.5-1.5(-3.0) mm diam., finely verrucose, greenish to whitish grey. Hyphophores laminar, their scales well-developed, obliquely to vertically orientated, narrowly squamiform and with the upper margin blunt to irregularly incised, sometimes bent inwards and even with lateral sides touching each other, 0.15-0.2 mm long and 0.1-0.15 mm broad, whitish to pale yellowish or grey whitish, rarely dark bluish. Apothecia rare (only found in collections from Madeira), rounded but sometimes laterally confluent, 0.2-0.3 mm diam., with pale green to brownish grey disc and pale grey to brownish, sometimes rather dark brown or dark bluish margin. Ascospores ellipsoid, 30-40 × 13-18 µm. Pycnidia rare, forming dark bluish, slightly raised spots on the thallus surface. Conidia bacilliform to slightly bifusiform, 2-3 × 0.7 µm.

Gyalectidium colchicum is a typical reproduction representative of sect. *Gyalectidium* and is most closely related to *G. filicinum*, from which it is easily distinguished by the narrower, sometimes enrolled, hyphophore scales with blunt upper margin.

G. colchicum is a semi-shade lichen, usually growing on *Laurocerasus officinalis* and *Buxus colchica*. It is often encountered with *Gyalidea phyllophila*, and rarely observed alongside with *Gyalectidium caucasicum*, which requires an exposed or semi-shaded situation. (Ferraro *et al.* 2001, Vezda 1983, Santesson 1952).

Distribution and ecology: The species is known from the western part of the Caucasus (Russia and Georgia; Vezda, 1983) and from Macaronesia (Azores: São Miguel and Terceira; Madeira; Canary Islands: Gomera and La Palma). In both parts of its range, the species is often attacked by the lichenicolous hyphomycete *Hansfordiellopsis lichenicola* (Batista & Maia) Deighton which seems to be able to obliterate its growth (Ferraro *et al.* 2001, Vezda 1983).

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Strigula elegans (Fée) Müll. Arg. Müller Arg. In Flora, Regensburg, 63:41, 1880 — *Phyllocharis elegans* Fée, Essai Cryptog. écorces exot. offic. 1824 : XCIV et C. — Other synonym Santesson in Symb. bot. Upsal. 12(1):160-161, 1952.

Description: Thallus with mature perithecia containing asci and spores, spores 1-septate or apparently simple, usually biseriata and not divided into part spores, fusiform, 14-25 × 4-6 µm; thallus generally thick, pale to bright or somewhat darker green; perithecial wall in its main part black, the two spore cells of more or less equal size; perithecia 0,3-0,6 mm diam., lens-shaped to rarely hemispherical, in basal part usually immersed, ± covered by thallus tissue, of the same color as the thallus or somewhat darker, sometimes apically black, with an indistinct boundary between the perithecia and the surrounding thallus tissue; asci narrowly obclavate, 40-80 × 8-14 µm.

Strigula elegans is a very variable species as regards to the morphology of the thallus and the shape of perithecia. Very often thalli bear on only pycnidia and then are difficult to determine. It can not be easily distinguished from the sterile thallus of *Strigula nitidula* MONT. It was found in nearly all studied *Buxus* communities. It is the most common foliicolous species in the study area along with *Gyalectidium caucasicum* and *Fellhanera* (Syn. *Catillaria*) *boutillei*. It is not reported to be present on leaves of other evergreen trees, but *Buxus colchica*. *S. elegans* prefers shaded regions and is usually found on one or two years old leaves of *Buxus colchica* with *Byssoloma leucoblepharum*.

Distribution and ecology: Pantropical, even in temperate zones; the most common foliicolous lichen.

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