

Floristic Records of Lichens in Adana, Konya and Niğde Provinces

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Abstract: In this study, 50 taxa belonging to 25 genera were determined from the provinces of Adana, Konya and Niğde. *Pertusaria velata* (Turner) Nyl. is a new record for Turkey.

Key Words: Lichen, flora, Adana, Konya, Niğde, Turkey.

Adana, Konya ve Niğde Likenlerinin Floristik Kayıtları

Özet: Bu çalışmada, Adana, Konya ve Niğde illerinden 25 cinse ait 50 takson tespit edilmiştir. *Pertusaria velata* (Turner) Nyl. Türkiye için yeni kayıttır.

Anahtar Sözcükler: Liken, flora, Adana, Konya, Niğde, Türkiye.

Introduction

Until 1995, 191 papers on lichens from Turkey had been published (John, 1992; 1995). As a result of a reappraisal of the samples collected from the provinces in different regions of Turkey in 1971, 171 taxa have been determined (John et al., 2000). Recently, studies on lichens in different regions of Turkey have gradually increased (Güvenç & Öztürk, 1997; Aslan & Öztürk, 1998; Özdemir Türk & Güner, 1998; Yazıcı, 1999a; b; Aslan, 2000).

To date, there have been several papers on lichens from Konya province (Steiner, 1905; 1909; 1916; Versegly, 1982), whereas in Niğde province, there has been only one lichen record (Steiner, 1905).

Studies determining the lichen flora of Turkey have been carried out in other provinces of Turkey including Adana (John, 1996; Nimis & John, 1998; John & Nimis, 1998; Güvenç & Öztürk, 1998) and Konya provinces (Karabulut & Özdemir Türk, 1998).

The aim of this study was to contribute to the lichen flora of Turkey.

Materials and Methods

The samples were collected from 6 different stations in the province of Adana, Konya and Niğde on 4-6 July,

2000 (Figure 1). The samples were identified with the aid of flora books and identification keys (Poelt, 1974; Purvis et al., 1994; Wirth, 1995). The specimens are kept at the Herbarium (BULU) of the Faculty of Arts and Sciences, Uludağ University, Bursa.

List of collection sites

1. Adana: Saimbeyli county; Çerelan village, in vicinity of Deliahmet stream, alt. 1350 m, 36° 05' E - 38° 02' N, 4.7.2000.
2. Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, 34° 34' E - 37° 25' N, 5.7.2000.
3. Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, 34° 34' E - 37° 25' N, 5.7.2000.
4. Niğde: Ulukışla county; Bolkar mountain, in vicinity of Karagöl lake, alt. 2400 m, 34° 34' E - 37° 25' N, 5.7.2000.
5. Konya: In vicinity of Güneysınırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, 32° 25' E - 37° 13' N, 6.7.2000.
6. Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp. L., *Pistacia* sp. L. and *Quercus* sp. L. forest, alt. 1300 m, 31° 51' E - 37° 21' N, 6.7.2000.

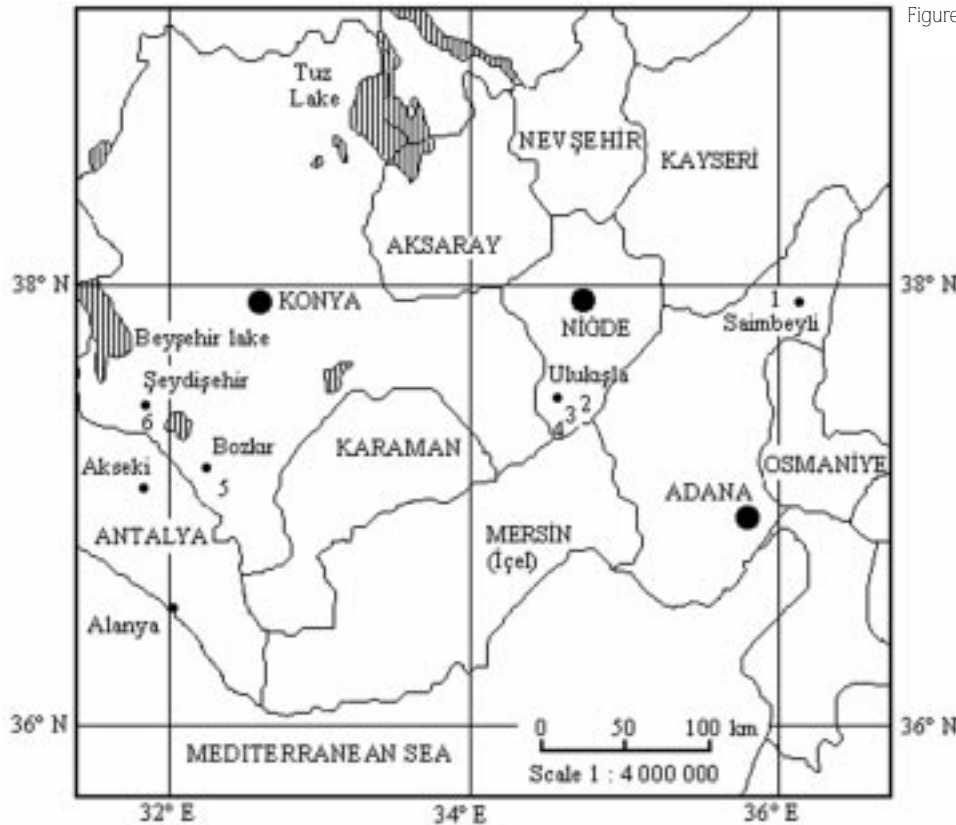


Figure 1. Localities of the collected lichens

Results

Genera and species are listed alphabetically. A new record for Turkey is marked with “#”. The names of the authors are abbreviated according to Brummitt & Powell (1992).

Acarospora cervina A.Massal.

Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, on siliceous rock containing lime, 5.7.2000, (BULU 2062). Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous rock, 5.7.2000, (BULU 2074). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2109).

Anaptychia ciliaris (L.) Körb. ex A.Massal.

Adana: Saimbeyli county; Çerelan village, in vicinity of Deliahmet stream, alt. 1350 m, 36° 05' E - 38° 02' N, 4.7.2000, on *Pinus* sp., (BULU 2050).

Aspicilia calcarea (L.) Mudd

Konya: In vicinity of Güneysınırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2092). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2106).

Aspicilia cinerea (L.) Körb.

Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, on siliceous rock, 5.7.2000, (BULU 2064).

Aspicilia contorta (Hoffm.) Kremp.

Konya: In vicinity of Güneysınırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2089).

Aspicilia desertorum (Kremp.) Mereschk.

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous rock, 5.7.2000, (BULU 2066).

Caloplaca cerina (Ehrh. ex Hedw.) Th.Fr.

Adana: Saimbeyli county; Çerelan village, in vicinity of Delia Ahmet stream, alt. 1350 m, on *Pinus* sp., 4.7.2000, (BULU 2052). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Pistacia* sp. and *Quercus* sp., 6.7.2000, (BULU 2110, 2111).

Caloplaca decipiens (Arnold) Blomb. & Forssell

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous rock, 5.7.2000, (BULU 2071).

Caloplaca dolomiticola (Hue) Zahlbr.

Konya: In vicinity of Güneysınırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2088). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2112).

Caloplaca flavescens (Huds.) J.R.Laundon

Niğde: Ulukışla county; Bolkar mountain, in vicinity of Karagöl lake, alt. 2400 m, on calcareous rock, 5.7.2000, (BULU 2077).

Caloplaca lactea (A.Massal.) Zahlbr.

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous rock, 5.7.2000, (BULU 2070).

Caloplaca variabilis (Pers.) Müll.Arg.

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2107).

Candelariella aurella (Hoffm.) Zahlbr.

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous rock, 5.7.2000, (BULU 2075).

Candelariella aurella (Hoffm.) Zahlbr. var. *unilocularis* (Elenkin) Zahlbr.

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on mosses, 6.7.2000, (BULU 2114).

Candelariella vitellina (Hoffm.) Müll.Arg.

Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, on siliceous rock, 5.7.2000, (BULU 2065).

Catapyrenium lachneum (Ach.) R.Sant.

Niğde: Ulukışla county; Bolkar mountain, in vicinity of Karagöl lake, alt. 2400 m, on calcareous soil, 5.7.2000, (BULU 2079).

Collema cristatum (L.) Weber ex F.H.Wigg.

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous soil, 5.7.2000, (BULU 2068). Konya: In vicinity of Güneysınırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2091). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2096).

Collema polycarpon Hoffm.

Konya: In vicinity of Güneysınırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2094).

Dermatocarpon intestiniforme (Körb.) Hasse

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous rock, 5.7.2000, (BULU 2072).

Farnoldia jurana (Schaer.) Hertel

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous rock, 5.7.2000, (BULU 2069).

Fulgensia fulgens (Sw.) Elenkin

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous soil, 6.7.2000, (BULU 2115).

Lecanora agardhiana Ach.

Konya: In vicinity of Güneysınırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2086).

Lecanora chlarotera Nyl.

Adana: Saimbeyli county; Çerelan village, in vicinity of Delia Ahmet stream, alt. 1350 m, on *Pinus* sp., 4.7.2000, (BULU 2053).

Lecanora dispersa (Pers.) Sommerf.

Konya: In vicinity of Güneysinırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2093).

Lecanora frustulosa (Dicks.) Ach.

Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, on siliceous rock, 5.7.2000, (BULU 2060).

Lecanora muralis (Schreb.) Rabenh.

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on siliceous rock, 5.7.2000, (BULU 2073). Niğde: Ulukışla county; Bolkar mountain, in vicinity of Karagöl lake, alt. 2400 m, on calcareous rock, 5.7.2000, (BULU 2082). Konya: In vicinity of Güneysinırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2085). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2097).

Lecanora pulicaris (Pers.) Ach.

Adana: Saimbeyli county; Çerelan village, in vicinity of Delia Ahmet stream, alt. 1350 m, on *Pinus* sp., 4.7.2000, (BULU 2057). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Pistacia* sp., 6.7.2000, (BULU 2100).

Lecidea plana (J.Lahm) Nyl.

Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, on siliceous rock, 5.7.2000, (BULU 2058).

Lecidella carpathica Körb.

Konya: In vicinity of Güneysinırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2083).

Lecidella elaeochroma (Ach.) Hazsl.

Adana: Saimbeyli county; Çerelan village, in vicinity of Delia Ahmet stream, alt. 1350 m, on *Pinus* sp., 4.7.2000, (BULU 2054). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Pistacia* sp., 6.7.2000, (BULU 2095).

Lecidella stigmatea (Ach.) Hertel & Leuckert

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on siliceous rock containing lime, 5.7.2000, (BULU 2067). Niğde: Ulukışla county; Bolkar mountain, in vicinity of Karagöl lake, alt. 2400 m, on siliceous rock, 5.7.2000, (BULU 2080).

Lobothallia radiosa (Hoffm.) Hafellner

Konya: In vicinity of Güneysinırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2090). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2103).

Megaspora verrucosa (Ach.) Hafellner & V.Wirth

Adana: Saimbeyli county; Çerelan village, in vicinity of Delia Ahmet stream, alt. 1350 m, on *Pinus* sp., 4.7.2000, (BULU 2055).

Melanelia exasperata (De Not.) Essl.

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Quercus* sp., 6.7.2000, (BULU 2099).

Pertusaria albescens (Huds.) M.Choisy & Werner

Adana: Saimbeyli county; Çerelan village, in vicinity of Delia Ahmet stream, alt. 1350 m, on *Pinus* sp., 4.7.2000, (BULU 2051).

(#) Pertusaria velata (Turner) Nyl.

Adana: Saimbeyli county; Çerelan village, in vicinity of Delia Ahmet stream, alt. 1350 m, on *Pinus* sp., 4.7.2000, (BULU 2056).

Physcia adscendens (Fr.) H.Olivier

Konya: In vicinity of Güneysinırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock together with mosses, 6.7.2000, (BULU 2091). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Quercus* sp., 6.7.2000, (BULU 2104).

Physcia aipolia (Ehrh. ex Humb.) Hampe

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed

Juniperus sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Pistacia* sp., 6.7.2000, (BULU 2117).

Physcia dubia (Hoffm.) Lettau

Niğde: Ulukışla county; Bolkar mountain, lower part of Karagöl lake, alt. 2450 m, on calcareous rock, 5.7.2000, (BULU 2076).

Physcia leptalea (Ach.) DC.

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Pistacia* sp., 6.7.2000, (BULU 2116).

Physcia stellaris (L.) Nyl.

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Quercus* sp., 6.7.2000, (BULU 2101).

Physconia grisea (Lam.) Poelt

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Quercus* sp., 6.7.2000, (BULU 2098).

Physconia perisidiosa (Erichsen) Moberg

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on *Quercus* sp., 6.7.2000, (BULU 2102).

Placocarpus schaereri (Fr.) Breuss

Konya: In vicinity of Güneysınırı – Bozkır road; 40 km from Bozkır, alt. 1250 m, on calcareous rock, 6.7.2000, (BULU 2084).

Rhizocarpon geographicum (L.) DC.

Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, on siliceous rock, 5.7.2000, (BULU 2059). Niğde: Ulukışla county; Bolkar mountain, in vicinity of Karagöl lake, alt. 2400 m, on siliceous rock, 5.7.2000, (BULU 2078).

Rinodina gennarii Bağl.

Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, on siliceous soil containing lime, 5.7.2000, (BULU 2063).

Rinodina immersa (Körb.) Zahlbr.

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2108).

Squamarina cartilaginea (With.) P.James

Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on calcareous rock, 6.7.2000, (BULU 2105).

Toninia sedifolia (Scop.) Timdal

Adana: Saimbeyli county; Çerelan village, in vicinity of Deliahmet stream, alt. 1350 m, on mosses, 4.7.2000, (BULU 2049). Konya: Seydişehir county; in vicinity of Seydişehir – Akseki road, after 12 km from Seydişehir, mixed *Juniperus* sp., *Pistacia* sp. and *Quercus* sp. forest, alt. 1300 m, on mosses, 6.7.2000, (BULU 2113).

Xanthoria elegans (Link) Th.Fr.

Niğde: Ulukışla county; Bolkar mountain, slopes 18 km S of Darboğaz, alt. 1900 m, on siliceous rock, 5.7.2000, (BULU 2061).

Discussion

In this study, 50 taxa belonging to 25 genera were determined. According to the literature, *Pertusaria velata* is a new record for Turkey.

The richest genera are *Caloplaca* Th. Fr. (6 species), *Lecanora* Ach. (6 species), *Physcia* (Schreb.) Michx. (5 species) and *Aspicilia* A.Massal. (4 species). Thirty-one species are saxicolous and terricolous, 11 are epiphytic and the others are determined on two or three different substrates. The substrates of the species collected from the study areas are similar to those in the literature (Purvis et al., 1994; Wirth, 1995).

While 24 lichen species prefer calcareous rock and soil in the study area, 7 species (*Aspicilia cinerea*, *Candelariella vitellina*, *Lecanora frustulosa*, *Lecidea plana*, *Lecidella stigmatea*, *Rhizocarpon geographicum* and *Xanthoria elegans*) prefer siliceous rock. These mentioned species are only found on siliceous rock on Bolkar mountain (Ulukışla – Niğde).

References

- Aslan A, Öztürk Ş (1998). Lichens of Akdamar Island. *Bulletin of Pure and Applied Sciences*. Vol. 17B (No. 2): 67 – 70.
- Aslan A (2000). Lichens from the regions of Artvin, Erzurum and Kars (Turkey). *Israel J Plant Sci* 48(2): 143 – 155.
- Brummitt RK, Powell CE (1992). *Authors of plant names*. Kew: Royal Botanical Gardens.
- Güvenç Ş, Öztürk Ş (1997). Spil dağından (Manisa) bazı saksikol ve terrikol liken türleri. *The Herb Journal of Systematic Botany* 4(1): 73 – 76.
- Güvenç Ş, Öztürk Ş (1998). Some lichen species from Adana and Hatay. *The Herb Journal of Systematic Botany* 5(1): 97 – 102.
- John V (1992). Flechten der Türkei I. (Türkiye Likenleri I.), Das die Türkei betreffende lichenologische Schrifttum (Türkiye Likenleri ile ilgili literatür), *Pfalzmuseum für Naturkunde (Polichia – Museum)*, Bad Dürkheim.
- John V (1995). Flechten der Türkei IV. (Türkiye Likenleri IV.), Ergänzungen zum die Türkei betreffende lichenologischen Schrifttum (Türkiye Likenleri ile ilgili literatüre ilaveler), *Pfalzmuseum für Naturkunde (Polichia – Museum)*, Bad Dürkheim.
- John V (1996). Preliminary catalogue of lichenized and lichenicolous fungi of Mediterranean Turkey. *Bocconea* 6: 173 – 216.
- John V, Nimis PL (1998). Lichen Flora of Amanos Mountain and Province of Hatay. *Tr J of Botany* 22: 257 – 267.
- John V, Seaward MRD, Beatty JW (2000). A Neglected Lichen Collection From Turkey: Berkhamsted School Expedition 1971. *Turk J Bot* 24: 239 – 248.
- Karabulut F, Özdemir Türk A (1998). Lichens of the Akşehir District (Konya). *Tr J of Botany* 22: 191- 198.
- Nimis PL, John V (1998). A contribution to lichen flora of Mediterranean Turkey. *Cryptogamie Bryol Lichénol* 19 (1): 35 – 58.
- Özdemir Türk A, Güner H (1998). Lichens of the Thrace Region of Turkey. *Tr J of Botany* 22: 397 – 407.
- Poelt J (1974). *Bestimmungsschlüssel Europäischer Flechten*, Vaduz: J Cramer der AR Gantner Verlag Kommanditgesellschaft.
- Purvis OW, Coppins BS, Hawksworth DL, James PW, Moore DM (eds) (1994). *The Lichen Flora of Great Britain and Ireland*. London: Natural History Museum Publications in association with the British Lichen Society.
- Steiner J (1905). Lichenes in: "Ergebnisse einer Natur Wissenschaftlichen Reise zum Erciyas Dagh (Kleinasien)" von Dr. Arnold Penter und Dr. Eberich Zederbauer im Jahre 1902. *Ann Naturhist Mus* 20(4): 369 – 384.
- Steiner J (1909). Lichenes, Ergebnisse einer im Juni des Jahres 1899 nach dem Sultan Dagh in Phrygien unternommenen botanischen Reise nebst einigen anderen Beiträgen zur Kenntnis der Flora dieser Landschaft Inner – Anatoliens. J. Bommüller. *Beih Bot Centralb* 24: 500 – 501.
- Steiner J (1916). Aufzählung der von J. Bommüller im Oriente gesammelten Flechten. *Annal Naturhist Mus* 30: 24 – 39.
- Verseghy KP (1982). Beiträge zur Kenntnis der Türkischen Flechtenflora. *Studia Botanica Hungarica* 16: 53 – 65.
- Wirth V (1995). *Die Flechten Baden - Württembergs Teil 1-2*. Stuttgart: Eugenn ulmer GmbH & Co.
- Yazıcı K (1999a). Lichen Flora of Trabzon. *Tr J of Botany* 23: 97 – 112.
- Yazıcı K (1999b). Lichen Species in the North of Karacabey County, Bursa Province, Turkey. *Tr J of Botany* 23: 271 – 276.