

Lichens from the Amasya, Çorum, and Tokat regions of Turkey

KADIR KINALIOĞLU

kkinalioglu@hotmail.com

*Giresun University, Faculty of Science and Arts, Department of Biology
28049, Giresun, Turkey*

Abstract — A total of 209 taxa were identified from 20 sampling stations in the Turkish provinces of Amasya, Çorum, and Tokat. 165 taxa are reported as new from Tokat, 63 for Amasya and 56 for Çorum. Three taxa, *Leptorhaphis parameca*, *Ramalina pontica*, and *Seiophora contortuplicata*, are newly recorded for Turkey. For each taxon, habitat and distributional data are presented. The complete checklist is available on <http://www.mycotaxon.com/resources/weblists.html>

Key Words — biodiversity, lichenized fungi, biota, new records

Introduction

An increasing number of studies on the lichen biota of Turkey have been carried out in the last decade (Aslan et al. 2002, Candan & Özdemir Türk 2008, Güvenç et al. 2006, Halıcı et al. 2007, John et al. 2000, John & Breuss 2004, Kinalioğlu 2008, Oran & Öztürk 2006, Tufan et al. 2005). Nevertheless, large gaps remain in the knowledge of lichen distribution in Turkey. Among the particularly neglected areas are Amasya, Çorum, and Tokat. Few publications report any lichens for Amasya or Çorum (John 1999, 2000, John et al. 2000, Çobanoğlu & Akdemir 2004, Leuckert & Kümmerling 1991, Lumbsch & Feige 1999, Steiner 1916, Verseghe 1982). For Tokat no published lichen records seem to exist so far. Here data are contributed from Amasya, Çorum, and Tokat, situated in the central part of the Black Sea region of Turkey (FIG. 1), based on collections from 20 sites visited on 5 October 2007 and 1 January 2008. TABLE 1 shows descriptions of Amasya, Çorum, and Tokat provinces.

Materials and methods

The collections were identified with various lichen guides (Brodo et al. 2001, Purvis et al. 1992, Wasser & Nevo 2005, Wirth 1995). Air-dried samples were examined using a stereomicroscope and a light microscope. Vouchers are deposited in the herbarium of the Faculty of Science and Arts, Giresun University, Giresun, Turkey; duplicates of some specimens studied by Etayo and Sipman in herb. Etayo and B, respectively.

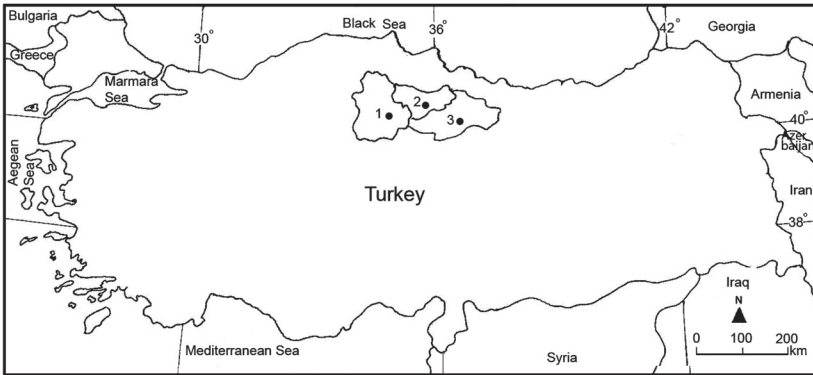


FIG. 1. Provinces from which the samples are collected: 1. Çorum, 2. Amasya, 3. Tokat.

Results and discussion

The list contains three species that are newly recorded for Turkey: *Leptorhaphis parameca*, *Ramalina pontica*, and *Seiophora contortuplicata*. *Leptorhaphis parameca* is an inconspicuous, doubtfully lichenized species known from various sites in Europe and North America (Nimis 1993) that has probably been overlooked so far in Turkey. *Ramalina pontica* is known so far only from the type locality in Romania (Vězda 1975), and its discovery in Turkey supports the hypothesis that it is an endemic from the Black Sea region, as its name suggests. Remarkably the locality is rather far from the coast. By TLC usnic and evernic acids were found (Sipman, pers. comm.). *Seiophora contortuplicata* is a rather widespread, small-foliose lichen of sunny vertical rock faces in the southern European mountains, which extends to Central Asia (Nimis 1993). It was recently reported from Iran (Seaward et al. 2008) and is probably widespread in the mountains of Turkey.

Among the further reported species, *Diploschistes candidissimus*, *Lecanora laatokkaensis*, *L. sambuci*, *Opegrapha herbarum* and *Staurolemma omphalarioides* have rarely been recorded in Turkey until now. *Diploschistes candidissimus* is known throughout Southern Europe, Asia (Egypt, India, Israel), North America, Africa, and Australia (Wasser & Nevo 2005). In Turkey, it was previously recorded only from Trabzon (John & Breuss 2004). *Lecanora laatokkaensis* (after Nimis 1993) is a widespread, but rather small and easily overlooked, lichen in the northern hemisphere. In Europe it is found mainly in the Mediterranean mountains but also in Karelia. In Turkey, *L. laatokkaensis* was previously recorded from Elazığ, Malatya (Candan & Özdemir Türk 2008). *Lecanora sambuci* is known from Europe and North America (Purvis et al. 1992). In Turkey, it was previously recorded from Bursa (Oran & Öztürk 2006, Güvenç et al. 2006) and Uşak (Kınalıoğlu 2008). *Opegrapha herbarum* is rather

TABLE 1. Descriptions of Amasya, Çorum and Tokat provinces.

	AMASYA	TOKAT	ÇORUM
AREA	5690 km ²	9958 km ²	12,820 km ²
ALTITUDINAL RANGE	190–2062 m	188–2385 m	200–2097 m
CLIMATE (Mediterranean)	semi-arid, cold	semi-arid, cold	semi-arid, very cold
ANNUAL RAINFALL	430.8 mm	442.9 mm	420.7 mm
WARMEST MONTH	August (30.4°C)	August (28.5°C)	July (28.7°C)
COLDEST MONTH	January (-0.6°C)	January (-0.4°C)	January (-4.2°C)
DOMINANT VEGETATION	<i>Pinus, Quercus</i>	<i>Abies, Carpinus, Quercus, Pinus, Populus</i>	steppe, <i>Quercus, Pinus</i>
GEOLOGICAL COMPOSITION	Cretaceous, Jurassic, Neogene, Holocene	Holocene, Eocene	Holocene, Permian, Mesozoic

widespread in Europe, Australia, and North America (Purvis et al. 1992), while in Turkey it was previously recorded only from Bursa (Oran & Öztürk 2006) and Zonguldak (Yazıcı 2007). *Physcia wainioi* appears to have also a wide distribution throughout the northern hemisphere but it is not always properly recognized. In Europe it is more common in the Mediterranean (Nimis 1993), a pattern that fits well to its presence in Turkey. In Turkey, *P. wainioi* was previously recorded from Aydın (Nimis & John 1998) and Ordu (John et al. 2000). *Staurolemma omphalarioides* is so far known to have a mediterranean-atlantic distribution in Europe. It is said to be common in Italy (Nimis 1993) and is also reported from the Cape Verde islands. In Turkey, *S. omphalarioides* was previously recorded only from Antalya (Tufan et al. 2005). Its occurrence in Turkey forms a connection to the reported presence in Iran (Seaward et al. 2004).

Acknowledgements

We would like to thank Dr. H. Sipman and Dr. Anna Guttova for critically reviewing the paper, and Dr. H. Sipman and Dr. Javier Etayo for the identification of some samples. I also would like to thank Cemal Bektaş, Yusuf Kenan Bahtiyar and Cihan Ergül for help in collecting samples.

Literature cited

- Akman Y. 1999. İklim ve Biyoiklim (Biyoiklim Metodları ve Türkiye İklimleri). Palme Yayın Dağıtım, Mühendislik Serisi, Ankara.
- Aslan A, Yazıcı K, Karagöz Y. 2002. Lichen flora of Murgul district, Artvin, Turkey. Israel Journal of Plant Sciences 50: 77–81.
- Atalay İ. 1994. Türkiye Vejetasyon Coğrafyası. Ege Üniversitesi Basımevi, Bornova, İzmir.
- Brodo IM, Sharnoff SD, Sharnoff S. 2001. Lichens of North America, Yale University Press, London.

- Candan M, Özdemir Türk A. 2008. Lichens of Malatya, Elazığ and Adıyaman provinces (Turkey). *Mycotaxon* 105: 19–22.
- Çobanoğlu G, Akdemir B. 2004. Contribution to the lichen flora of Natural Parks in Bolu and Çorum, Turkey. *Herzogia* 17: 137–156.
- Emberger L. 1955. Une classification biogéographique des climats. Recueil des Travaux du Laboratoire de Botanique, Géologie et Zoologie de la Faculté des Science de l'Université de Montpellier, série Botanique 7: 3–43.
- Güvenç Ş, Öztürk Ş, Aydın S. 2006. Contributions to the lichen flora of Kastamonu and Sinop Provinces in Turkey. *Nova Hedwigia* 83(1–2): 67–98.
- Halıcı MG, Candan M, Özdemir Türk, A. 2007. New records of lichenicolous and lichenized fungi from Turkey. *Mycotaxon* 100: 255–260.
- John V. 1999. Lichenes Anatolici Exsiccati. Fasc. 1–3(No: 1–75), *Arnoldia* 16: 1–41.
- John V. 2000. Lichenes Anatolici Exsiccati. Fasc. 4–5(No: 76–125), *Arnoldia* 19: 1–27.
- John V, Seaward MRD, Beatty JW. 2000. A neglected Lichen Collection from Turkey: Berkhamsted School Expedition 1971. *Turk J. Bot.* 24: 239–248.
- John V, Breuss O. 2004. Flechten der östlichen Schwarzmeer-Region in der Türkei (BLAM Exkursion 1997). *Herzogia* 17: 137–156.
- Ketin İ. 1961. 1/500.000 Ölçekli Türkiye Jeoloji haritası Sinop Paftası, Ankara, MTA yayınları.
- Kinalıoğlu K. 2008. Floristic lichen records from Uşak Province, Turkey. *International Journal of Botany* 4(4): 444–449.
- Leuckert C, Kümmerling H. 1991. Chemotaxonomische Studien in der Gattung *Leproloma* Nyl. ex Crombie (Lichens). *Nova Hedwigia* 52(1–2): 17–2.
- Lumbsch HT, Feige GB. 1999. Lecanoroid Lichens. Fascicle 5 (No. 81–100), Essen.
- Nimis PL. 1993. The Lichens of Italy. Museo Regionale di Scienze Naturali, Torino.
- Nimis PL, John V. 1998. A Contribution to the Lichen Flora of Mediterranean Turkey. *Cryptogamie, Bryol. Lichénol.* 19(1): 35–38.
- Oran S, Öztürk Ş. 2006. Lichens of Gemlik, İznik, Mudanya and Orhangazi District in Bursa Province (Turkey). *Turk J. Bot.* 30: 231–250.
- Purvis OW, Coppins BJ, Hawksworth DL, James PW, Moore DM. 1992. The Lichen Flora of Great Britain and Ireland. Natural History Museum & British Lichen Society, London.
- Seaward MRD, Sipman HJM, Schultz M, Maassoumi AA, Anbaran MH, Sohrabi M. 2004. A preliminary lichen checklist for Iran. *Willdenowia* 34: 543–576.
- Seaward MRD, Sipman HJM, Sohrabi M. 2008. A revised checklist of lichenized, lichenicolous and allied fungi for Iran. Eine revidierte Checkliste der lichenisierten, lichenicolous und verwandten Pilze für Iran. *Sauteria* 15: 459–520.
- Steiner J. 1916. Aufzählung der von J. Börmüller im Oriente gesammelten Flechten. *Anal. Naturhist. Mus.* 30: 24–39.
- Tufan Ö, Sümbül H, Özdemir Türk A. 2005. The lichen flora of the Termessos National Park in Southwestern Turkey. *Mycotaxon* 94: 43–46.
- Verseghy KP. 1982. Beiträge zur Kenntnis der Türkischen Flechtenflora. *Studia Botanica Hungarica* 16: 53–65.
- Vězda A. 1975. Lichenes novi quorum isotypi in fasciculo quinquagesimo tertio collectionis "Lichenes Selecti Exsiccati" distribuentur. *Folia Geobot. Phytotax.* [Prah] 10: 325–327.
- Wasser SP, Nevo E. 2005. Lichen-forming, Lichenicolous, and Allied Fungi of Israel. International Center for Cryptogamic Plants and Fungi, Institute of Evolution, University of Haifa, Israel.
- Wirth V. 1995. Die Flechten Baden-Württembergs. Ulmer, Stuttgart.
- Yazıcı K, Aptroot A, Aslan A. 2007. Lichen biota of Zonguldak, Turkey. *Mycotaxon* 102: 257–260.