

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

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**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 *Seiropora contortuplicata*, are newly recorded for Turkey. For each taxon, habitat and distributional data are presented.

**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, Verseghy 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. **Amasya**, which has an area of 5690 km<sup>2</sup>, ranges from 190 m to 2062 m (Akdağ hill) and has a semi-arid, cold Mediterranean climate (Emberger 1955). The mean annual precipitation is 430.8 mm and the rainfall regime is 'East Mediterranean Rain Regime Type I'. The mean annual maximum temperature is 30.4°C in August, while the mean minimum temperature is -0.6°C in January (Akman 1999). The dominant are *Pinus* spp. and *Quercus* spp. The lowlands are largely occupied by cultivated fields (Atalay 1994). Cretaceous and Jurassic rocks are present in the vicinity of Amasya castle (station 20), while around Taşova (stations 17, 18, 19) Neogene and Holocene deposits are present. **Tokat**, which has an area of 9958 km<sup>2</sup>, ranges from 188 m to 2385 m (Şenkayası mountain) and also has a semi-arid, cold Mediterranean climate (Emberger 1955). The mean rainfall per year is 442.9 mm and the rainfall

regime is 'East Mediterranean Rain Regime Type II'. The mean annual maximum temperature is 28.5°C in August, while the mean minimum temperature is -0.4°C in January (Akman 1999). The forests are composed of *Abies* sp., *Carpinus* sp., *Quercus* spp., *Pinus* spp. and *Populus* sp. (Atalay 1994). Holocene deposits are dominant around Turhal and Zile, while deposits of Eocene age are quite large in the Reşadiye. **Çorum** covers an area of 12,820 km<sup>2</sup>. Its elevation ranges between 200 m and 2097 m (Erenler hill on Kös mountain) and it has a semi-arid, very cold Mediterranean climate (Emberger 1955). The mean rainfall per year is 420.7 mm and the rainfall regime is 'East Mediterranean Rain Regime Type II'. The warmest month is July (mean 28.7°C) and the coldest month is January (mean -4.2°C). Summers are generally hot and dry and winters very cold (Akman 1999). A large part of its vegetation is composed of steppe, with forests of *Quercus* spp. and *Pinus* spp. (Atalay 1994). Çorum is geologically interesting, and Ketin (1961) reported from the area of Çorum city Holocene, partly Permian and Mesozoic.

### 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.

### List of species

From Amasya, Çorum and Tokat altogether 209 lichen taxa were yielded, belonging to 74 genera in *Ascomycotina*. The lichen taxa are listed alphabetically. Asterisks indicate new records for Turkey.

*Acarospora cervina* A.Massal., Loc. 1, 2, 4, 5, 6, 7, 8, 20: calcareous rock.

*A. fuscata* (Nyl.) Arnold, Loc. 2, 3, 6, 7, 8, 12, 15: calcareous rock, mortar, siliceous rock.

*A. macrospora* (Hepp) A.Massal., Loc. 12: siliceous rock.

*Amandinea punctata* (Hoffm.) Coppins & Scheid., Loc. 5, 12, 15: siliceous rock, *Quercus*.

*Anaptychia ciliaris* (L.) A.Massal., Loc. 2, 13, 14, 20: *Abies*, *Quercus*, *Pinus*.

*A. setifera* (Mereschk.) Räsänen, Loc. 13, 14, 16: *Abies*, *Quercus*, *Pinus*.

*Arthonia leucopellaea* (Ach.) Almq., Loc. 12, 14, 16: *Carpinus*, *Populus*.

*A. radiata* (Pers.) Ach., Loc. 9, 18: *Quercus*, *Prunus*.

- Aspicilia caesiocinerea* (Malbr.) Arnold, Loc. 2, 7, 11: siliceous rock.  
*A. calcarea* (L.) Mudd, Loc. 2, 3, 6: calcareous rock.  
*A. cinerea* (L.) Körb., Loc. 2, 11: siliceous rock.  
*A. contorta* (Hoffm.) Kremp., Loc. 2, 8, 18: calcareous rock, siliceous rock.  
*A. epiglypta* (Norrl. ex Nyl.) Hue, Loc. 1, 2: siliceous rock.  
*A. intermutans* (Nyl.) Arnold, Loc. 2: siliceous rock.  
*A. recedens* (Taylor) Arnold, Loc. 12: siliceous rock.  
*Bacidia arceutina* (Ach.) Arnold, Loc. 9, 10: *Populus*, *Prunus*.  
*B. phacodes* Körb., Loc. 9, 10, 19: *Pinus*, *Populus*, *Prunus*.  
*B. rosella* (Pers.) De Not., Loc. 18: *Quercus*.  
*Buellia aethalea* (Ach.) Th.Fr., Loc. 2: siliceous rock.  
*B. disciformis* (Fr.) Mudd, Loc. 9, 14, 16: *Carpinus*, *Quercus*, *Prunus*.  
*Bryoria capillaris* (Ach.) Brodo & D.Hawksw., Loc. 11, 13, 14: *Abies*, *Pinus*.  
*B. fuscescens* (Gyeln.) Brodo & D.Hawksw., Loc. 13, 14, 19: *Abies*, *Pinus*.  
*Caloplaca aractina* (Fr.) Häyrén, Loc. 1, 2: siliceous rock.  
*C. arenaria* (Pers.) Müll.Arg., Loc. 2, 11, 12, 14, 15: siliceous rock.  
*C. cerina* (Ehrh. ex Hedw.) Th.Fr., Loc. 1 (det. H. Sipman), 2, 5, 8, 10, 11, 12, 13, 14, 17: *Abies*, *Carpinus*, *Malus*, *Quercus*, *Pinus*, *Populus*, *Prunus*, *Salix*, calcareous rock.  
*C. cerinella* (Nyl.) Flagey, Loc. 1, 11, 14, 16, 18: *Abies*, *Carpinus*, *Quercus*, *Pinus*, *Salix*.  
*C. cerinelloides* (Erichsen) Poelt, Loc. 12, 14: *Abies*, *Carpinus*, *Quercus*.  
*C. chalybaea* (Fr.) Müll.Arg., Loc. 20: calcareous rock.  
*C. citrina* (Hoffm.) Th.Fr., Loc. 2, 3, 6, 8, 9: calcareous rock.  
*C. decipiens* (Arnold) Blomb. & Forss., Loc. 1, 2, 3, 4, 5, 6, 20: calcareous rock, mortar.  
*C. flavorubescens* (Huds.) J.R.Laundon, Loc. 6, 8, 13, 14: *Abies*, *Carpinus*, *Quercus*, *Prunus*.  
*C. flavovirescens* (Wulfen) DT. & Sarnth., Loc., 2, 3, 10: calcareous rock.  
*C. herbidella* (Hue) H.Magn., Loc. 1, 6, 9, 11: *Quercus*, *Prunus*, *Salix*.  
*C. holocarpa* (Ach.) A.E.Wade, Loc. 1, 2, 4, 8, 10, 11, 12, 20: *Quercus*, *Pinus*, *Populus*, calcareous rock, siliceous rock.  
*C. lactea* (A.Massal.) Zahlbr., Loc., 1, 2, 8, 20: calcareous rock.  
*C. saxicola* (Hoffm.) Nordin, Loc. 2: calcareous rock.  
*C. scopularis* (Nyl.) Lettau, Loc. 2: siliceous rock.  
*C. teicholyta* (Ach.) J.Steiner, Loc. 2, 13: calcareous rock, mortar.  
*C. variabilis* (Pers.) Müll.Arg., Loc. 2, 6, 8: calcareous rock.  
*Candelaria concolor* (Dicks.) Stein, Loc. 11: *Populus*.  
*Candelariella aurella* (Hoffm.) Zahlbr., Loc. 1, 2, 3, 4, 5, 6, 9, 11, 13, 14, 16, 18, 20: calcareous rock, *Quercus*, *Populus*, siliceous rock, garden fence, mortar.  
*C. coralliza* (Nyl.) H.Magn., Loc. 2: siliceous rock.

#### 4\_ Kınalıoğlu

- C. vitellina* (Hoffm.) Müll.Arg., Loc. 1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 15, 18, 20: calcareous rock, mortar, siliceous rock.
- C. xanthostigma* (Pers.) Lettau, Loc. 9, 14, 16: *Carpinus*, *Quercus*, *Prunus*.
- Catapyrenium rufescens* (Ach.) Breuss, Loc. 2: calcareous rock.
- C. squamulosum* (Ach.) Breuss, Loc. 2, 5: soil.
- Cetraria aculeata* (Schreb.) Fr., Loc. 3: soil (det. H. Sipman).
- C. islandica* (L.) Ach., Loc. 13: soil.
- Chrysothrix candelaris* (L.) J.R.Laundon, Loc. 9, 12, 14, 17: *Abies*, *Carpinus*, *Pinus*, *Prunus*.
- Cladonia coniocraea* (Flörke) Spreng., Loc. 11, 14: dead trees, soil.
- C. fimbriata* (L.) Fr., Loc. 13, 15, 18: *Carpinus*, moss, soil.
- C. foliacea* (Huds.) Willd. Loc. 20: soil.
- C. furcata* (Huds.) Schrad., Loc. 11: soil.
- C. glauca* Flörke, Loc. 11, 13: soil.
- C. pyxidata* (L.) Hoffm., Loc. 11, 13, 18, 20: soil.
- C. rangiformis* Hoffm., Loc. 11, 20: soil.
- Collema crispum* (Huds.) Weber ex F.H.Wigg., Loc. 2, 3, 11: soil.
- C. cristatum* (L.) Weber ex F.H.Wigg., Loc. 2, 3, 4, 5, 20: calcareous rock, soil.
- C. polycarpon* Hoffm., Loc. 2, 3: calcareous rock.
- C. polycarpum* ssp. *corcyrense* (Arnold) Pisút, Loc. 3: soil (det. H. Sipman).
- C. tenax* (Sw.) Ach., Loc. 1, 2, 5, 11, 18, 20: soil.
- Dermatocarpon minutum* (L.) Mann, Loc. 2, 8, 11, 18: calcareous rock, siliceous rock.
- Dimelaena oreina* (Ach.) Norman, Loc. 18: siliceous rock.
- Diploschistes candidissimus* (Kremp.) Zahlbr., Loc. 1: calcareous rock (det. H. Sipman).
- D. ocellatus* (Vill.) Norman, Loc. 2, 4, 8, 20: calcareous rock.
- D. scruposus* (Schreb.) Norman Loc. 11: siliceous rock.
- Diplotomma alboatrum* (Hoffm.) Flot., Loc. 1, 2, 20: calcareous rock.
- D. epipolium* (Ach.) Arnold, Loc. 1, 2, 3, 4, 6, 20: calcareous rock.
- Endocarpon pusillum* Hedw., Loc. 6: calcareous rock.
- Evernia prunastri* (L.) Ach., Loc. 2, 11, 12, 14, 16, 18, 19: *Abies*, *Carpinus*, *Quercus*, *Pinus*, *Populus*.
- Flavoparmelia caperata* (L.) Hale, Loc. 10, 14: *Pinus*, *Populus*.
- Fulgensia subbracteata* (Nyl.) Poelt, Loc. 6: siliceous rock (det. H. Sipman).
- Hypocnomyce scalaris* (Ach. ex Lilj.) M.Choisy, Loc. 14, 20: *Pinus*.
- Hypogymnia physodes* (L.) Nyl., Loc. 2, 10, 18, 20: *Carpinus*, *Populus*.
- H. tubulosa* (Schaerer) Havaas, Loc. 2, 11, 18, 20: *Carpinus*, *Quercus*, *Pinus*, *Populus*.
- Immersaria athroocarpa* (Ach.) Rambold & Pietschm., Loc. 1: calcareous rock (det. H. Sipman).

- I. cupreoatra* (Nyl.) Calat. & Rambold, Loc. 1, 3: siliceous rock (H. Sipman).  
*Lasallia pustulata* (L.) Mérat, Loc. 1: siliceous rock (det. H. Sipman).  
*Lecanora albella* (Pers.) Ach., Loc. 5, 6, 8, 9, 12, 14, 18, 19: *Carpinus*,  
*Quercus*, *Pinus*, *Salix*.  
*L. albescens* (Hoffm.) Branth & Rostr., Loc. 2, 3, 5, 20: calcareous rock,  
mortar.  
*L. allophana* (Ach.) Nyl., Loc. 2, 6, 14, 20: *Carpinus*, *Quercus*, *Pinus*.  
*L. argentata* (Ach.) Malme, Loc. 1, 2, 5, 6, 9, 10, 11, 12, 13, 14, 16, 17, 18,  
19, 20: *Abies*, *Carpinus*, *Quercus*, *Pinus*, *Populus*, *Prunus*.  
*L. bolcana* (Poll.) Poelt, Loc. 2: siliceous rock.  
*L. campestris* (Schaer.) Hue, Loc. 2, 7, 11, 12, 18: calcareous rock, siliceous  
rock.  
*L. carpinea* (L.) Vain, Loc. 2, 5, 9, 14, 20: *Carpinus*, *Quercus*, *Pinus*,  
*Populus*.  
*L. cenisia* Ach., Loc. 1: siliceous rock (det. H. Sipman).  
*L. chlarotera* Nyl, Loc. 5, 9, 10, 12: *Abies*, *Quercus*, *Salix*.  
*L. crenulata* Hook., Loc. 1, 2, 3, 4, 6, 9, 20: calcareous rock, mortar.  
*L. dispersa* (Pers.) Sommerf., Loc. 1, 2, 3, 5, 6, 13, 20: calcareous rock,  
mortar.  
*L. gangaleoides* Nyl., Loc. 6, 11: siliceous rock.  
*L. hagenii* (Ach.) Ach., Loc. 5: *Quercus* (det. J. Etayo)  
*L. intumescens* (Rebent.) Rabenh., Loc. 12: *Pinus*.  
*L. laatokkaensis* (Räsänen) Poelt, Loc. 1: siliceous rock (det. H. Sipman).  
*L. polytropa* (Ehrh. ex Hoffm.) Rabenh., Loc. 4, 12, 14, 15: calcareous rock,  
siliceous rock.  
*L. rupicola* (L.) Zahlbr., Loc. 3: siliceous rock.  
*L. sambuci* (Pers.) Nyl., Loc. 13: *Prunus*.  
*L. subcarpinea* Szatala, Loc. 1, 8, 14, 18, 19: *Carpinus*, *Quercus*, *Pinus*,  
*Populus*.  
*L. symmicta* (Ach.) Ach., Loc. 20: *Pinus*.  
*Lecidea fuscoatra* (L.) Ach., Loc. 2, 3, 4, 11: siliceous rock.  
*Lecidella carpathica* Körb., Loc. 12: siliceous rock.  
*L. elaeochroma* (Ach.) M.Choisy, Loc. 1, 2, 5, 6, 8, 9, 10, 12, 13, 14, 18, 19:  
*Carpinus*, *Quercus*, *Pinus*, *Populus*, *Prunus*, *Salix*.  
*L. patavina* (A.Massal.) Knoph & Leuckert, Loc. 1: calcareous rock (det. H.  
Sipman).  
*L. stigmatea* (Ach.) Hertel & Leuckert, Loc. 2, 18, 20: siliceous rock.  
*Lepraria incana* (L.) Ach., Loc. 11: soil.  
*L. vouauxii* (Hue) R.C.Harris, Loc. 3: moss (det. H. Sipman).  
*Leptogium gelatinosum* (With.) J.R.Laundon, Loc. 11: moss.  
\**Leptorhaphis parameca* (A.Massal.) Körber, Loc. 5: *Prunus* (det. J. Etayo).

- Lobothallia radiosa* (Hoffm.) Hafellner, Loc. 1 (det. H. Sipman), 2, 4, 7, 9, 11, 12: calcareous rock, siliceous rock.
- Megaspora verrucosa* (Ach.) Hafellner & V.Wirth, Loc. 3: soil (det. H. Sipman).
- Melanohalea elegantula* (Zahlbr.) O.Blanco et al., Loc. 2, 3, 11, 20: calcareous rock, siliceous rock.
- M. exasperata* (De Not.) O.Blanco et al., Loc. 9, 12, 14, 15, 18: *Abies*, *Carpinus*, *Quercus*, *Prunus*.
- M. exasperatula* (Nyl.) O.Blanco et al., Loc. 12, 14: *Abies*, *Carpinus*, *Pinus*.
- Melanelixia subargentifera* (Nyl.) O.Blanco et al., Loc. 6, 10, 12, 14, 18, 19: *Carpinus*, *Quercus*, *Pinus*, *Populus*.
- M. subaurifera* Nyl.) O.Blanco et al., Loc. 2, 10: *Quercus*, *Populus*.
- Mycobilimbia lurida* (Ach.) Hafellner & Türk, Loc. 3: soil (det. H. Sipman).
- Nephroma parile* (Ach.) Ach., Loc. 14, 15: moss, Loc. 11: *Pinus*.
- Ochrolechia pallescens* (L.) A.Massal, Loc. 13: *Carpinus*.
- Opegrapha herbarum* Mont, Loc. 9, 18: *Quercus*.
- Parmelia saxatilis* (L.) Ach., Loc. 11: siliceous rock.
- P. sulcata* Taylor, Loc. 2, 8, 10, 13, 14, 18, 19: *Carpinus*, *Quercus*, *Populus*, moss.
- Parmelina quercina* (Willd.) Hale, Loc. 14, 18, 19: *Carpinus*, *Quercus*, *Pinus*, *Populus*.
- P. tiliacea* (Hoffm.) Hale, Loc. 2, 11, 17, 18: siliceous rock.
- Parmeliopsis ambigua* (Wulfen) Nyl. Loc. 20: *Pinus*.
- Parmotrema perlatum* (Huds.) M.Choisy, Loc. 11: *Populus*.
- Peltigera collina* (Ach.) Röhl. Loc. 20: soil.
- P. didactyla* (With.) J.R.Laundon, Loc. 11: soil.
- P. horizontalis* (Huds.) Baumg., Loc. 12, 15: soil.
- P. malacea* (Ach.) Funck, Loc. 12, 15: soil.
- P. praetextata* (Flörke ex Sommerf.) Vain., Loc. 11, 12, 15, 20: soil.
- P. rufescens* (Weiss) Humb. Loc. 20: soil.
- Pertusaria albescens* (Huds.) M.Choisy & Werner, Loc. 2: siliceous rock.
- P. amara* (Ach.) Nyl., Loc. 11: *Pinus*.
- P. flavicans* Lamy, Loc. 2: siliceous rock.
- P. lactea* (L.) Arnold, Loc. 2, 3, 4, 11: calcareous rock, siliceous rock.
- P. leucosora* Nyl., Loc. 2: siliceous rock.
- P. pustulata* (Ach.) Duby, Loc. 10, 13: *Salix*.
- Phaeophyscia chloantha* (Ach.) Moberg, Loc. 10, 13, 14, 18: *Carpinus*, *Pinus*, *Salix*.
- P. ciliata* (Hoffm.) Moberg, Loc. 11: *Populus*.
- P. nigricans* (Flörke) Moberg, Loc. 1, 2, 13: calcareous rock, *Salix*, mortar.
- P. orbicularis* (Neck.) Moberg, Loc. 1, 3, 5, 6, 8, 9, 10, 13, 14, 16, 17, 18: calcareous rock, *Carpinus*, *Quercus*, *Pinus*, *Populus*, *Prunus*, *Salix*.

- P. sciastra* (Ach.) Moberg, Loc. 18: siliceous rock.  
*Physcia adscendens* (Fr.) H.Olivier, Loc. 1, 2, 5, 6, 10, 11, 13, 14, 18:  
*Carpinus, Quercus, Populus, Pinus, Salix*, mortar.  
*P. aipolia* (Ehrh. ex Humb.) Hampe, Loc. 2, 3, 4, 6, 8, 9, 10, 11, 12, 13, 14,  
18, 20: *Abies, Carpinus, Quercus, Populus, Pinus, Prunus*, dead trees.  
*P. caesia* (Hoffm.) Fürnr., Loc. 1, 2, 3, 11, 13: calcareous rock, siliceous rock,  
mortar.  
*P. dubia* (Hoffm.) Lettau, Loc. 4, 11: calcareous rock, siliceous rock.  
*P. semipinnata* (J.F.Gmelin) Moberg, Loc. 5, 12: *Pinus, Quercus*.  
*P. stellaris* (L.) Nyl., Loc. 9, 11, 12, 17, 18: *Abies, Malus, Quercus, Pinus*.  
*P. tenella* (Scop.) DC., Loc. 2, 8, 10, 11, 18: *Malus, Quercus, Populus*.  
*P. tribacia* (Ach.) Nyl., Loc. 2: siliceous rock.  
*P. wainii* Räsänen, Loc. 8 (det. H. Sipman), soil.  
*Physconia distorta* (With.) J.R.Laundon, Loc. 5, 10, 11, 12, 14, 16: *Carpinus,*  
*Quercus, Pinus, Salix*.  
*P. muscigena* (Ach.) Poelt, Loc. 15: moss.  
*P. perisidiosa* (Erichsen) Moberg, Loc. 2: dead tree.  
*Placocarpus schaeferi* (Fr.), Breuss, Loc. 2, 5, 20: calcareous rock.  
*Placynthium nigrum* (Huds.) Gray, Loc. 2, 5, 7, 20: calcareous rock.  
*Pleurosticta acetabulum* (Neck.) Elix & Lumbsch, Loc. 18: *Carpinus*.  
*Porina aenea* (Wallr.) Zahlbr., Loc. 9, 11: *Populus, Prunus*.  
*Porpidia tuberculosa* (Sm.) Hertel & Knoph, Loc. 12: siliceous rock.  
*Protoparmeliopsis muralis* (Schreb.) M.Choisy, Loc. 1, 2, 3, 4, 5, 6, 7, 8, 14,  
15, 20: calcareous rock, siliceous rock.  
*Pseudevernia furfuracea* (L.) Zopf., var. *furfuracea*, Loc. 2, 11, 18, 19, 20:  
*Quercus, Pinus, Populus*.  
*P. furfuracea* var. *ceratea* (Ach.) D.Hawksw., Loc. 14, 19: *Pinus*.  
*Punctelia subrudecta* (Nyl.) Krog, Loc. 10: *Populus*.  
*Ramalina farinacea* (L.) Ach., Loc. 9, 11, 14, 16: *Quercus, Pinus,*  
*R. fastigiata* (Pers.) Ach., Loc. 14, 19: *Carpinus, Quercus, Pinus, Populus,*  
*Salix*.  
*R. fraxinea* (L.) Ach., Loc. 11, 14, 16, 18: *Carpinus, Quercus, Pinus*.  
*R. pollinaria* (Westr.) Ach., Loc. 1, 11, 18: siliceous rock.  
*R. polymorpha* (Lilj.) Ach., Loc. 2: siliceous rock.  
\**R. pontica* Vězda, Loc. 8: siliceous rock (det. H. Sipman).  
*Rhizocarpon distinctum* Th.Fr., Loc. 2: siliceous rock.  
*R. geminatum* Körb., Loc. 3, 6, 11, 14, 18: siliceous rock.  
*R. geographicum* (L.) DC., Loc. 1, 2, 3, 11, 12, 15: siliceous rock.  
*R. lecanorinum* Anders, Loc. 6: siliceous rock.  
*Rinodina calcarea* (Arnold) Arnold, Loc. 2, 3, 6: calcareous rock.  
*R. bischoffii* (Hepp.) A.Massal., Loc. 2, 7, 8: calcareous rock.  
*R. exigua* (Ach.) Gray, Loc. 13, 14: *Carpinus*.

- R. immersa* (Körb.) Zahlbr., Loc. 3: calcareous rock.  
*R. milvina* (Wahlenb.) Th.Fr., Loc. 14: *Carpinus*.  
*R. pyrina* (Ach.) Arnold, Loc. 5: *Quercus* (det. J. Etayo).  
*R. sophodes* (Ach.) A.Massal., Loc. 7, 8, 10, 14, 16: *Carpinus*, *Malus*,  
*Quercus*, *Pinus*.  
*R. teichophila* (Nyl.) Arnold, Loc. 1, 4, 12: calcareous rock.  
*Sarcogyne regularis* Körb., Loc. 7, 20: calcareous rock.  
*Scoliciosporum umbrinum* (Ach.) Arnold, Loc. 14: *Carpinus*.  
\**Seiophora contortuplicata* (Ach.) Frödén, Loc. 1: siliceous rock (det. H. Sipman).  
*Squamarina cartilaginea* (With.) P.James, Loc. 2, 3, 5, 6, 7: calcareous rock, soil.  
*S. lentigera* (Weber) Poelt, Loc. 2: soil.  
*Staurolemma omphalarioides* (Anzi) P.M.Jørg. & Henssen, Loc. 1: siliceous rock (det. H. Sipman).  
*Staurothela catalepta* (Ach.) Blomb. & Forss., Loc. 6: calcareous rock (det. H. Sipman).  
*Tephromela atra* (Huds.) Hafellner, Loc. 2, 11: siliceous rock.  
*Toninia candida* (Weber) Th.Fr., Loc. 2: soil.  
*T. sedifolia* (Scop.) Timdal, Loc. 1, 2, 5, 7, 11, 20: calcareous rock, siliceous rock, soil.  
*T. toniniana* (A.Massal.) Zahlbr., Loc. 2: soil.  
*Usnea esperantiana* P.Clerc, Loc. 8: *Pyrus* (det. H. Sipman).  
*U. florida* (L.) Weber ex F.H.Wigg., Loc. 12, 14: *Abies*, *Pinus*.  
*U. longissima* Ach., Loc. 12: *Abies*.  
*Verrucaria caerulea* DC., Loc. 3: calcareous rock.  
*V. calciseda* DC., Loc. 7: calcareous rock.  
*V. lecideoides* (A.Massal.) Trevis., Loc. 5: calcareous rock.  
*V. muralis* Ach., Loc. 1, 2, 8: calcareous rock, mortar.  
*V. nigrescens* Pers., Loc. 2, 3, 4: calcareous rock.  
*Xanthoparmelia conspersa* (Ach.) Hale, Loc. 2, 4, 6, 8, 11, 18: siliceous rock.  
*X. loxodes* (Nyl.) O.Blanco et al., Loc. 11: siliceous rock.  
*X. pulla* (Ach.) O.Blanco et al., Loc. 2, 3, 4, 11, 18: calcareous rock, siliceous rock.  
*X. stenophylla* (Ach.) Ahti & D.Hawksw., Loc. 2, 3, 6, 11, 12: siliceous rock.  
*X. verruculifera* (Ach.) O.Blanco et al., Loc. 11: siliceous rock.  
*Xanthoria elegans* (Link) Th.Fr., Loc. 1 (det. H. Sipman), 2, 3, 4, 11, 13: calcareous rock, siliceous rock, mortar.  
*X. fulva* (Hoffm.) Poelt & Petutschnig, Loc. 1, 3, 5, 10, 13, 20: *Abies*, *Carpinus*, *Pinus*, *Quercus*, *Prunus*, *Salix*, dead trees.  
*X. parietina* (L.) Th.Fr., Loc. 1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 17, 18: *Carpinus*, *Malus*, *Quercus*, *Pinus*, *Populus*, *Prunus*.



*X. polycarpa* (Hoffm.) Rieber, Loc.1, 2, 3, 17, 18: *Carpinus*, *Malus*, *Quercus*,  
*Populus*, *Prunus*.

## 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* (syn. *Teloschistes contortuplicatus* (Ach.) Clauz. & Rondon) 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 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 wainii*, sometimes cited as *P. caesiella* B. de Lesd. or *P. caesia* var. *caesiella* (B. de Lesd.) Clauz. & Roux (or *P. wainioi*), appears to have also a wide distribution on 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, it was previously recorded from Aydın (Nimis & John 1998) and Ordu (John et al. 2000). *Staurolemma omphalarioides*, until recently cited as *Physma omphalarioides* (Anzi) Arnold, 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). Until now the number of taxa recorded from different regions of Çorum province was 128 (John 1999, 2000, John et al. 2000, Çobanoğlu & Akdemir 2004, Leuckert & Kümmerling 1991, Lumbsch & Feige 1999). Together with the additional records from this study the number of lichen taxa in Çorum reaches 184 (Table 2). The lichen biota of Amasya province is less known than that of Çorum province (Steiner 1916 and Verseghy, 1982). The number of lichen species in Amasya now reached to 125. As to Tokay, there have been no lichen records from that province before and all of the 165 taxa reported here are new records for the province.

TABLE 2. Numbers of lichen species known from the three investigated provinces before and after the present study.

PROVINCE	Species number known before	Currently known:
AMASYA	62	125
ÇORUM	128	184
TOKAT	0	165

In spite of these figures it should be kept in mind that the lichen biota is very insufficiently known because large areas of Amasya, Çorum and Tokat remain unexplored. Additional studies are necessary to cover all variation in elevation, geology and climate, and to complete the lichen biota of these provinces.

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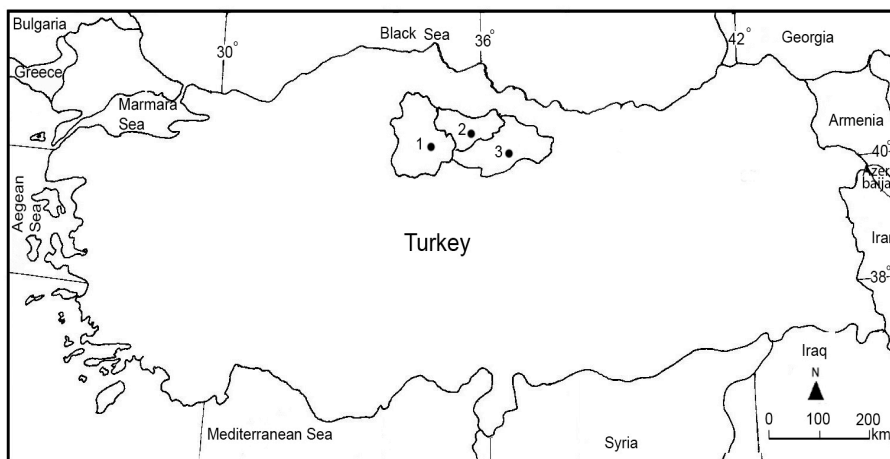


Figure 1. Position of the provinces from which the samples are collected: 1. Çorum, 2. Amasya, 3. Tokat

TABLE 1. The collecting sites.

	Locality	Coordinates	Altitude (m)	Date
1.	Çorum: Center, Çanakçı village, rocky field	40°36'02"N 34°49'30"E	1083	1.01.2007
2.	Çorum: Center, SW of Çorum dam, oak woodland	40°34'29"N 34°59'13"E	910	2.01.2007
3.	Çorum: Center, Hacikerim village, open rocky field	40°42'31"N 35°09'38"E	1320	3.01.2007
4.	Çorum: Center, Hacıpaşa village, rocky field	40°35'28"N 34°43'04"E	960	3.01.2007
5.	Tokat: E of Zile castle, oak woodland	40°18'16"N 35°53'18"E	756	15.02.2007
6.	Tokat: Zile, Istasyon village, woodland	40°16'53"N 35°56'00"E	653	16.02.2007
7.	Tokat: N of Zile, woodland	40°17'07"N 35°53'29"E	718	17.02.2007
8.	Tokat: Zile, northern slope of Hüseyin Gazi hill, oak woodland	40°16'42"N 35°53'38"E	808	17.02.2007

14\_ *Kınaloğlu*

9.	Tokat: SW of Turhal Castle, agricultural field	40°23'05"N 36°04'18"E	550	18.02.2007
10.	Tokat: Turhal, Bahçebaşı village, oak woodland	40°14'12"N 36°04'51"E	650	19.02.2007
11.	Tokat: Turhal, E of Sarıçiçek village, forest area	40°22'16"N 36°20'05"E	1256	19.02.2007
12.	Tokat: Reşadiye, Bozcalı yaylası, mixed forest formation of <i>Abies</i> sp. and <i>Pinus</i> sp.	40°35'17"N 37°18'27"E	1600	6.07.2007
13.	Tokat: Reşadiye district, N of Bozcalı village, mixed forest formation of <i>Abies</i> sp. and <i>Pinus</i> sp.	40°33'00"N 37°18'12"E	1500	6.07.2007
14.	Tokat: Reşadiye district, W of Bayırbaşı village, <i>Pinus</i> sp. forest	40°24'08"N 37°26'05"E	1360	8.07.2007
15.	Tokat: Reşadiye, Işıklar village, rocky field	40°23'32"N 37°20'29"E	552	8.07.2007
16.	Tokat: Reşadiye, Çakmak village, woodland	40°25'07"N 37°12'13"E	444	8.07.2007
17.	Amasya: Taşova, Türkmendamı village, woodland	40°45'17"N 36°14'08"E	415	4.10.2008
18.	Amasya: Taşova, N of Türkmendamı village, open field	40°45'45"N 36°13'27"E	442	4.10.2008
19.	Amasya: Taşova, N of Kırkharman village, woodland	40°47'01"N 36°11'38"E	1025	4.10.2008
20	NW of Amasya Castle, rocky field nex to woodland	40°39'26"N 35°49'34"E	580	5.10.2008