

## Contributions to Turkish Mycoflora from the Ardanuç district of Artvin Province

Kenan DEMİREL

Yüzüncü Yıl University, Faculty of Science and Art, Department of Biology, Van-TURKEY

Received: 18.02.1998

Accepted: 22.04.1999

**Abstract:** Macrofungi collected from the Ardanuç district between 1994-1996, and 56 taxa belonging to *Basidiomycetes* were identified.

**Key Words:** Mycoflora, Taxonomy, Artvin, Turkey.

### Ardanuç (Artvin) Yöresinden Türkiye Mikoflorasına Katkılar

**Özet:** Bu çalışma, 1994-1996 yılları arasında Ardanuç yöresinden toplanan makrofunguslar üzerinde yapılmıştır. Çalışma sonunda *Basidiomycetes* sınıfından 56 takson saptanmıştır.

**Anahtar Sözcükler:** Mikoflora, Taksonomi, Artvin, Türkiye.

### Introduction

Several studies have been done for determination of the macrofungi species grown in Ardanuç, in the Artvin district. Many species of macrofungi have been reported by Demirel and Işıloğlu (1), and Demirel (2). In addition to these works, macrofungi specimens from diverse regions of Ardanuç were collected between 1994 and 1996 (Figure 1). Due to the presence of diverse forests at the northeast of Ardanuç township, it is thought that the area might have a rich macrofungi flora. For this reason, macrofungus specimens were collected especially from this region, rather than from previously studied areas.

Identification of the species was made by comparison of the data obtained from the field and laboratorial studies that obtained by Moser (3), Ellis and Ellis (4), Breitenbach and Kranzlin (5).

Ardanuç is a town of Artvin province which takes place in the East Black Sea Region. Ardanuç, which is closer to the East Anatolia Region, has a climate that forms a transition between the terrestrial climate and the climate of the East Black Sea Region. Here the winters are cold and snowy and the summers are warm and rainy.

Vegetation varies from the bed of the Çoruh Valley upwards. Mainly *Quercus hartwissiana* Stev., populations are visible at the lower sides of the Valley. The upper sides of the Valley are covered by mixed forests of *Ulmus glabra* Huds., *U. minor* Miller subsp. *minor*, *Alnus glutinosa* (L.) Gaertner subsp. *barbata* (C. A. Mey.) Yalt., *Carpinus betulus* L., *Abies nordmanniana* (Stev.) Spach. subsp., *nordmanniana*, *Quercus hartwissiana* Stev., *Populus tremula* L. and *Tilia rubra* DC. subsp. *caucasica* (Rupr.) V. Engler up to about 1400 m. From this altitude, up to 2000 m, *Pinus sylvestris* L. forests take place. Above 2000 m, alpinic zone which is composed of mainly steppes covered by mountain meadows.

The aim of this study was to contribute to the macrofungi flora of Artvin province. All materials cited are deposited in the herbarium of the University of Yüzüncü Yıl (Van).

### Results

Macrofungi consisting of 56 taxa belonging to 19 families were identified. These taxa, their localities, dates of collection and herbarium numbers are given below.

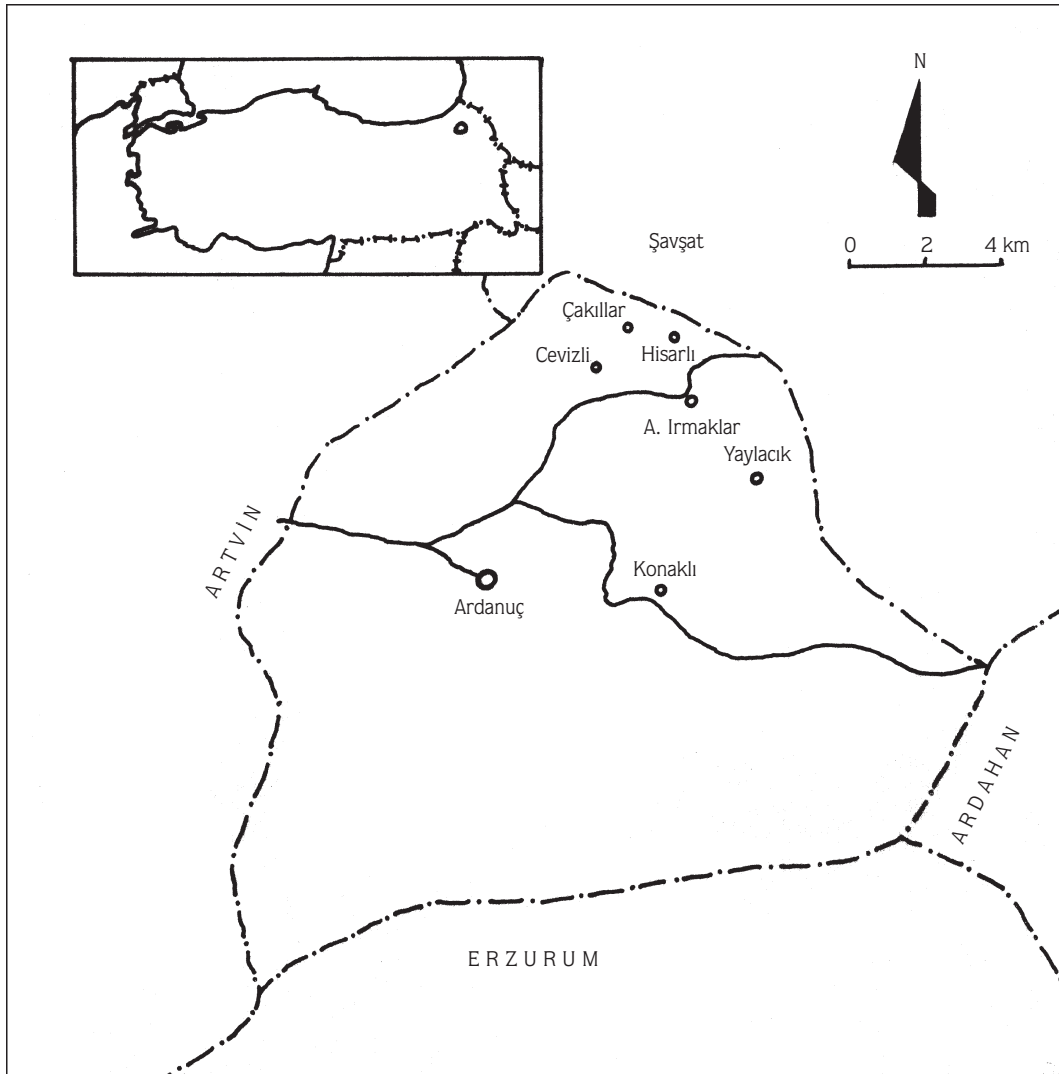


Figure 1. Study area.

### Basidiomycetes

#### Lycoperdaceae

##### 1. *Bovista plumbea* Pers.

Artvin: Ardanuç, Hisarlı, on soil, grassland, 27.07.1994, D. 328.

##### 2. *Lycoperdon molle* Pers.

Artvin: Ardanuç, Çakıllar, on soil in broad-leaved woods, 02.08.1995, D. 409.

##### 3. *L. perlatum* Pers.

Artvin: Ardanuç, Çakıllar, in pine forest, 02.08.1995, D.408., around Hisarlı, in

coniferous woods, 10.08.1995, D. 443, around Bağlıca, on soil in mixed woodland, 10.08.1995, D. 438.

##### 4. *L. lividum* Pers.

Artvin: Ardanuç, around çakıllar, on soil in open, grassy areas, 20.08.1995, D. 446.

#### Sclerodermataceae

##### 5. *Scleroderma verrucosum* (Bull.) Pers.

Artvin: Ardanuç, Cevizli, road side, 11.08.1995, D. 422.

#### Melanogastraceae

##### 6. *Melanogaster broomeianus* Berk. ex Tul.

Artvin: Ardanuç, around Cevizli, in coniferous and deciduous woods, 02.08.1994, D. 315., Hisarlı, in coniferous woods, 20.08.1995, D. 330.

#### Telephoraceae

##### 7. *Sarcodon glaucopus* Maas Geesteranus Nannf.

Artvin: Ardanuç, Hisarlı, on soil in coniferous woods, 10.08.1995, D. 435.

8. *Hydnellum ferrugineum* (Fr: Fr) Karst.

Artvin: Ardanuç, around Çakıllar, in coniferous woods, 31.07.1995. D. 368.

9. *H. peckii* Banker apud Peck.

Artvin: Ardanuç, Cevizli, in coniferous woods, 11.08.1995. D. 425.

#### Ramariaceae

10. *Ramaria flava* (Schaef: Fr.) Quel.

Artvin: Ardanuç, Cevizli, on soil in deciduous woods, 25.08.1996. D. 756.

11. *R. formosa* (Fr.) Quel.

Artvin: Ardanuç, A. Irmaklar, on soil among leaf litter in broad-leaved woods, 10.08.1994. D. 349.

#### Polyporaceae

12. *Polyporus arcularius* Batsch: Fr.

Artvin: Ardanuç, Hisarlı, on dead wood of broad-leaved trees, 27.07.1994. D. 324.

13. *P. badius* (Pers. ex S.F. Gray) Schw.

Artvin: Ardanuç, Hisarlı, on dead wood of broad-leaved trees, when above ground or buried in soil, 11.08.1996. D. 731.

14. *Abortiporus biennis* (Bull: Fr.) Sing.

Artvin: Ardanuç, Cevizli, on soil from buried dead wood of broad-leaved trees, 10.08.1995. D.426.

15. *Trametes pubescens* (Schum: Fr.) Pil.

Artvin: Ardanuç, hisarlı, on dead wood of deciduous trees, 11.08.1996. D. 738.

16. *Trametes versicolor* (Fr.) Pilat.

Artvin: Ardanuç, Hisarlı, on dead wood of broad-leaved trees, 11.07.1994, D. 312.

17. *Heterobasidion annosum* (Fr.) Bref.

Artvin: Ardanuç, Hisarlı, on living trunks of coniferous trees, 26.08.1995, D. 459.

#### Ganodermataceae

18. *Ganoderma applanatum* (Pers. ex Wallr.) Pat.

Artvin: Ardanuç, Cevizli, on wood of living or dead broad-leaved trees,

18.07.1994. D. 313.

19. *G. lucidum* (Fr.) Karst.

Artvin: Ardanuç, Hisarlı, on wood of stumps of broad-leaved, more rarely coniferous, trees, 05.08.1996. D. 707.,

20. *Inonotus hispidus* (Fr.) Karst.

Artvin: Ardanuç, Cevizli, on wood of living or dead broad-leaved trees, 10.08.1995. D. 428.

#### Schizophyllaceae

21. *Schizophyllum commune* Fr.

Artvin: Ardanuç, Cevizli, on dead wood of broad-leaved trees, 15.07.1994. D. 314.

#### Boletaceae

22. *Boletus edulis* Bull.: Fr.

Artvin: Ardanuç, Hisarlı, on soil in woodland, 31.07.1995. D. 385.

23. *B. luridus* Schaeff.: Fr.

Artvin: Ardanuç, Cevizli, on soil in broad-leaved trees, 30.07.1995. D. 363.

24. *B. satanas* Lenz

Artvin: Ardanuç, Hisarlı, on chalky soil with beech, 19.08.1995. D. 429, Cevizli, on soil in broad-leaved trees, 11.08.1996. D. 750.

25. *Suillus granulatus* (L.: Fr.) O. Kuntze.

Artvin: Ardanuç, Hisarlı, on soil with conifers, 01.08.1995. D. 386., Cevizli, on soil with conifers, 11.08.1995. D. 415.

26. *S. luteus* (Fr.) S.F. Gray.

Artvin: Ardanuç, Çakıllar, on soil with conifers, especially pines, 02.08.1995. D. 410.

27. *Leccinum scabrum* (Fr.) S.F. Gray.

Artvin: Ardanuç, Cevizli, on soil in broad-leaved trees, 10.08.1995. D. 432, Hisarlı, on soil with birch, 11.08.1996. D. 732.

#### Gomphidiaceae

28. *Gomphidius maculatus* Fr.

Artvin: Ardanuç, Çakıllar, on soil with conifers, 31.07.1995. D. 374.

29. *G. roseus* L: Fr.

Artvin: Ardanuç, Cevizli, on soil with pine cones, 11.08.1995. D. 424, Hisarlı, on soil with leaves, 10.08.1996, D. 742.

#### Paxillaceae

30. *Paxillus atrotomentosus* (Batsch: Fr.) Fr.

Artvin: Ardanuç, Çakıllar, on wood, on stumps of coniferous trees, 31.07.1995. D. 373, Hisarlı, on stumps of coniferous trees, 19.08.1995. D. 431.

#### Tricholomataceae

31. *Tricholoma populinum* Lge.

Artvin: Ardanuç, Hisarlı, on soil with poplars, 19.08.1995. D. 442.

32. *Clitocybe gibba* (Pers.: Fr.) Kumm.

Artvin: Ardanuç, Çakıllar, on soil or among grass in fields or woodland clearings, 02.08.1995. D. 411.

33. *Oudemansiella mucida* (Schrad.: Fr.) Kühn.

Artvin: Ardanuç, Çakıllar, on trunks and branches of beech, 02.08.1995. D. 393, Hisarlı, 11.08.1996. D. 752.

34. *O. radicata* (Relh.: Fr.) Sing.

Artvin: Ardanuç, Cevizli, on soil with broad-leaved trees, 11.08.1995. D. 414.,

35. *Melanoleuca cinerascens* Reid.

Artvin: Ardanuç, Hisarlı, on soil, among grass in pastures, 08.08.1996. D. 724.

#### Pluteaceae

36. *Volvariella speciosa* (Fr.: Fr.) Sing.

Artvin: Ardanuç, A. Irmaklar, on rich soil, manure, field, gardens, 25.08.1996. D. 759.

#### Amanitaceae

37. *Amanita pantherina* (D.C.: Fr.) Secr.

Artvin: Ardanuç, Hisarlı, on soil in coniferous or mixed wood, 05.08.1994. D. 343, 11.08.1996. D. 734.

38. *A. vaginata* (Bull.: Fr.) Vitt.

Artvin: Ardanuç, Hisarlı, on soil, in broad-leaved or mixed woods, 16.07.1994. D. 318, Cevizli, in mixed woods, 10.08.1995. D. 427.

#### Lepiotaceae

##### 39. *Lepiota aspera* (Pers.: Fr.) Quel.

Artvin: Ardanuç, Cevizli, roadside, 10.08.1994. D. 350.

##### 40. *L. cristata* (Bolt.: Fr.) Kumm.

Artvin: Ardanuç, Cevizli, on soil among plant debris in woods, gardens, 11.08.1995. D. 421.

#### Agaricaceae

##### 41. *Agaricus campestris* (L.) Fr.

Artvin: Ardanuç, the Mountain of Kurdevan, on soil among grass in field, 30.07.1994. D. 328.

##### 42. *A. xanthodermus* Genevier.

Artvin: Ardanuç, Hisarlı, on soil among grass, woods, pastures, fields, 30.07.1994. D. 327.

#### Coprinaceae

##### 43. *Psathyrella candolleana* (Fr.: Fr.)

Maire.

Artvin: Ardanuç, Hisarlı, on wood, stumps and other rotting parts of broad-leaved trees, 27.07.1994. D. 325.

#### Cortinariaceae

##### 44. *Inocybe fastigiata* (Schaeff.: Fr.)

Quel.

Artvin: Ardanuç, Hisarlı, on soil in broad-leaved woods, 05.08.1994. D. 347.

#### Russulaceae

##### 45. *Russula delica* Fr.

Artvin: Ardanuç, Cevizli, on soil with broad-leaved or coniferous trees, 30.07.1994. D. 362, Çakıllar, in coniferous woods, 20.08.1995. D. 444, Hisarlı, in mixed woods, 11.08.1996. D. 748, Konaklı, on soil in broad-leaved woods, 22.08.1996. D. 758.

##### 46. *R. albonigra* (Krombh.) Fr.

Artvin: Ardanuç, Çakıllar, on soil with broad-leaved or coniferous trees, 02.08.1994. D. 365.

##### 47. *R. foetens* Pers.

Artvin: Ardanuç, Hisarlı, on soil with broad-leaved or coniferous trees, 01.08.1995. D. 391, Yaylacık, on soil with broad-leaved trees, 22.08.1996. D. 754.

##### 48. *R. integra* L.: Fr.

Artvin: Ardanuç, Çakıllar, on soil with broad-leaved trees, 02.08.1995. D. 399, Hisarlı, on soil with broad-leaved trees, 11.08.1995. D. 429.

##### 49. *R. luteotacta* Rea.

Artvin: Ardanuç, Çakıllar, in pine forest,

31.07.1995. D. 369, Hisarlı, in mixed wood, 01.08.1995. D. 380.

##### 50. *Lactarius deliciosus* (L.: Fr.) S.F. Gray.

Artvin: Ardanuç, Çakıllar, in coniferous forest, 11.08.1995. D. 416.

##### 51. *L. deterrimus* Gröger.

Artvin: Ardanuç, Çakıllar, in coniferous forest, 02.08.1995. D. 403, Çakıllar, in coniferous forest, 20.08.1995. D. 447.

##### 52. *L. piperatus* (Scop.: Fr.) S.F. Gray.

Artvin: Ardanuç, Hisarlı, in coniferous and deciduous woods, 10.08.1995. D. 440.

##### 53. *L. vellereus* (Fr.) Fr.

Artvin: Ardanuç, Hisarlı, in mixed wood, 10.08.1995. D. 436.

##### 54. *L. pubescens* Fr.

Artvin: Ardanuç, Yaylacık, in deciduous woods, 22.08.1996. D. 753.

##### 55. *L. mitissimus* Fr.

Artvin: Ardanuç, Hisarlı, in coniferous forest, 26.08.1995. D. 456.

##### 56. *L. fuscus* Roll.

Artvin: Ardanuç, Hisarlı, in coniferous and deciduous woods, 11.08.1996. D. 729.

## Discussion

A total of 56 macrofungi taxa belonging to Basidiomycetes, were determined from Ardanuç district of the Artvin province. The distribution of these taxa into the families are as follows: *Sclerodermataceae*, *Melanogastraceae*, *Schizophyllaceae*, *Paxillaceae*, *Pluteaceae*, *Coprinaceae* and *Cortinariaceae* 1, *Ramariaceae*, *Gomphidiaceae*, *Amanitaceae*, *Lepiotaceae* and *Agaricaceae* 2, *Thelephoraceae* and *Ganodermataceae* 3, *Lycoperdaceae* 4, *Tricholomataceae* 5, *Polyporaceae* and *Boletaceae* 6, *Russulaceae* 12.

Some other taxonomic studies were also been carried out in Ardanuç. In a study carried out by Demirel and Işıloğlu (1993), 45 macrofungi taxa belonging to 17 families and 2 classes were established. Later on, in

another study carried out by Demirel (1994) in the area, 20 taxa belonging to 15 families and 2 classes were reported.

When the results of this study are compared with the results of previous studies, it is shown that there is a 26% similarity with the study entitled Ardanuç I, and a 3.5% similarity with the study entitled Ardanuç II. This means that 39 out of 56 taxa collected in this study were identified for the first time. Differences between the number of species in this study and those in previous studies arise from the collection of samples during rainy seasons from different localities of the study area. Therefore, with this study, the floristic composition of the region was investigated in a detailed manner, and contributions were made to the macrofungi flora of Turkey.

## References

1. Demirel, K., Işilođlu, M., Ardanu (Artvin) Yöresi Makrofungusları (I), Y. Yıl Üniv. Fen Bilimleri Derg. 4 (4), 49-57, (1993).
2. Demirel, K. Ardanu (Artvin) Yöresi Makrofungusları (II), XII. Ulusal Biyoloji Kongresi, Bot. Seksiyonu, Cilt. 2. 161-167, Edirne (1994).
3. Moser, M., Keys to Agarics and Boleti, Gustav Fischer Verlag, London (1983).
4. Ellis, M.B., Ellis, J.P., Fungi Without Gills (Hymenomycetes and Gasteromycetes) Chapman and Hall, London (1990).
5. Breitenbach, J., Kranzlin, F., Fungi of Switzerland, Vol. 3, Verlag Mycologia, Lucerne (1986).