

1-1-1998

## Liverworts ( Marchantiopsida) of the Altindere Valley National Park

İsa GÖKLER

Follow this and additional works at: <https://journals.tubitak.gov.tr/botany>



Part of the [Botany Commons](#)

---

### Recommended Citation

GÖKLER, İsa (1998) "Liverworts ( Marchantiopsida) of the Altindere Valley National Park," *Turkish Journal of Botany*. Vol. 22: No. 6, Article 6. Available at: <https://journals.tubitak.gov.tr/botany/vol22/iss6/6>

This Article is brought to you for free and open access by TÜBİTAK Academic Journals. It has been accepted for inclusion in Turkish Journal of Botany by an authorized editor of TÜBİTAK Academic Journals. For more information, please contact [academic.publications@tubitak.gov.tr](mailto:academic.publications@tubitak.gov.tr).

## Liverworts (*Marchantiopsida*) of the Altındere Valley National Park

İsa GÖKLER

Dokuz Eylül University, Buca Education Faculty, Biology Department, 35150 Buca, İzmir-TURKEY

Received: 10.03.1998

Accepted: 10.07.1998

**Abstract:** This investigation covers studies undertaken on the liverworts of the Altındere Valley National Park, including the historical Sumela Meryemana Monastery located in the town of Maçka, province of Trabzon. As a result, 33 species belonging to 16 families of the class *Marchantiopsida* (Hepaticae) of the division *Bryophyta* have been identified. Of these, *Porella arboris-vitae* (With.) Grolle, *P. cordaeana* (Hüb.) Moore, *P. obtusata* (Tayl.) Trev. and *Lejeunea lamacerina* (Steph.) Schiffn. are reported for the first time from the A4 square of Turkey.

**Key Words:** Liverworts, *Marchantiopsida*, *Hepaticae*.

### Altındere Vadisi Milli Parkı Ciğerotları (*Marchantiopsida*)

**Özet:** Bu araştırma, Trabzon iline bağlı Maçka ilçesinde yer alan ve içinde tarihi Sumela Meryemana Manastırı'nın da bulunduğu Altındere Vadisi Milli Parkı ciğerotları üzerinde yapılan çalışmaları kapsamaktadır. Çalışma sonunda *Bryophyta* divisiosuna ait *Marchantiopsida* (*Hepaticae*) sınıfında yer alan 16 familyaya bağlı 33 tür tayin edilmiştir. Bunlardan *Porella arboris-vitae* (With.) Grolle, *P. cordaeana* (Hüb.) Moore, *P. obtusata* (Tayl.) Trev. ve *Lejeunea lamacerina* (Steph.) Schiffn. türleri A4 karesinden ilk defa rapor edilmektedir.

**Anahtar Sözcükler:** Ciğerotları, *Marchantiopsida*, *Hepaticae*.

### Introduction

The Black Sea region of Turkey has a mild and rainy climate which results in a dense green vegetal cover. The area (Fig. 1) investigated in these study is very interesting in terms of its natural structure and climate. These conditions led me to conduct a study on the liverworts. As such, the present investigation was planned to fill in the gap existing in the hepatic flora of Altındere Valley National Park and prepare a local herbarium of these specimens.

### Material and Methods

The specimens of hepatics were collected during excursions carried out between 1994 and 1997. They were thoroughly cleaned with water so as to remove the mud and see the colour clearly, which is an important

feature in their identification. The material was brought to the laboratory in small polyethylene bags and separated into two groups. These were then put into special herbarium envelopes without pressing. One group was left in the light, in a room with no air current while the other was these specimens were left fresh, for a study of their morphological and anatomical features. Determination of distributional areas and identification characteristics was carried out with the help of Arnell (1), Watson (2), Smith (3), and some other relevant literature (4-6) and our own investigations (7-10) conducted in the Black Sea region of Turkey. The plant list is shown accordance with the system described by Grolle (11). All the specimens were deposited in the herbarium of the Department of Biology, Buca Faculty of Education, Dokuz Eylül University. The species new for the grid square A4 are shown with the sign (\*).

## Results and Conclusion

### BRYOPHYTA

#### MARCHANTIOPSIDA (HEPATICAE)

#### MARCHANTIALES

##### Aytoniaceae

###### 1. *Reboulia hemisphaerica* (L.) Raddi

A4. Trabzon: Maçka, around Altındere Village, 920 m., 25.04.1994, Gökler 651.

Turkey (A4, B6, B7, B8, C11, C12, C13). More or less cosmopolitan species except for arctic and subarctic climatic regions.

##### Conocephalaceae

###### 2. *Conocephalum conicum* (L.) Underw.

A4. Trabzon: Maçka, around Sumela Monastery, 1110 m., 26.04.1994, Gökler 652.

Turkey (A1, A2, A3, A4, A5, B6, B8, C11, C12), C. Europe, N. Russia, China, Japan, Algeria, Tunisia, N. America.

##### Lunulariaceae

###### 3. *Lunularia cruciata* (L.) Lindb.

A4. Trabzon: Maçka, west of Altındere Valley, 900 m., 26.04.1994, Gökler 653.

Turkey (A1, A2, A3, A4, B6, B9, C11, C12), Europe, Caucasus, Cyprus, Iran, N. Africa, America, Australia, Fennoscandia, Russia.

##### Marchantiaceae

###### 4. *Marchantia paleacea* Bertol.

A4. Trabzon: Maçka, alongside Çamburun picnic spot, 850 m., 26.04.1994, Gökler 654.

Turkey (A4, C12), Mediterranean region, Himalayas, China, America.

###### 5. *Marchantia polymorpha* L.

A4. Trabzon: Maçka, around Altındere Village, on the stream banks, 900 m., 27.04.1994, Gökler 655.

Turkey (A1, A2, A4, A5, B6, B8, B9, C11, C12, C13, C15). cosmopolitan.

#### METZGERIALES

###### 6. *Metzgeria conjugata* Lindb.

A4. Trabzon: Maçka, around Sumela Monastery, 1100 m., 27.04.1994, Gökler 656.

Turkey (A3, A4, B6, C13), Europe, Himalayas, Korea, Japan, S. Africa, N. America, Brazil, New Zealand.

###### 7. *Metzgeria furcata* (L.) Dum.

A4. Trabzon: Maçka, Sumela Monastery,

1200 m., 27.04.1994, Gökler 657.

Turkey (A1, A2, A3, A4, B6, C11, C12, C13), C. Europe, Caucasus, Himalayas, Japan, Korea, Tunisia, Cameroun, S. Africa, N. America, Chile.

##### Pelliaceae

###### 8. *Pellia endiviifolia* (Dicks.) Dum.

A4. Trabzon: Maçka, Taşköprü high plateau, on stream banks, 1225 m., 20.05.1996, Gökler 658.

Turkey (A1, A2, A3, A4, B6, B7, B9, C11, C12), C. Europe, Iceland, Caucasus, Japan, Korea, China, Mediterranean countries, N. America.

###### 9. *Pellia epiphylla* (L.) Corda

A4. Trabzon: Maçka, Taşköprü high plateau, near the stream, 1200 m., 20.05.1996, Gökler 659.

Turkey (A2, A4, C11), C. Europe, Algiers, Himalayas, N. America.

##### Codoniaceae

###### 10. *Fossombronia pusilla* (L.) Nees

A4. Trabzon: Maçka, west of Altındere Valley, 920 m., 26.04.1994, Gökler 660.

Turkey (A4, B6, C11, 12), Ireland, Denmark, Italy, Algeria, C. Europe, N. America, Chile, France.

#### JUNGERMANNIALES

##### Plagiochilaceae

11. *Plagiochila asplenioides* (L. emend Tayl.) Dum.

A4. Trabzon: Maçka, around Altındere Village, on the banks of stream, 910m., 27.04.1994, Gökler 661.

Turkey (A2, A4, A5), C. Europe, Fennoscandia, N. America.

12. *Plagiochila porelloides* (Torrey ex Nees) Lindenb.

A4. Trabzon: Maçka, around Altındere Village, on soil covered boulders and walls, 920 m., 27.04.1994, Gökler 662.

Turkey (A2, A3, A4, B6, C11), C. Europe, Fennoscandia, Russia, Caucasus, N. America, Greenland.

##### Geocalycaceae

###### 13. *Lophocolea bidentata* (L.) Dum.

A4. Trabzon: Maçka, Karaağaç high plateau, on stream banks, 1700 m., 25.06.1996, Gökler 663.

Turkey (A1, A2, A3, A4, B6), Europe, Mediterranean countries, Africa, China,

Japan, N. America, Cuba, New Zealand.

14. *Lophocolea heterophylla* (Schard.) Dum.

A4. Trabzon: Maçka, Altındere Village, on moist banks and decaying logs, 900m., 27.04.1994, Gökler 664.

Turkey (A2, A3, A4, B6), Europe, Russia, Japan, Himalayas, Tunisia, N. America.

15. *Chiloscyphus pallescens* (Ehrh. ex Hoffm.) Dum.

A4. Trabzon: Maçka, Altındere Village, on moist banks and decaying logs, 900 m., 27.04.1994, Gökler 665.

Turkey (A4, B6), Europe, Iceland, Caucasus, Japan, N. America.

16. *Chiloscyphus polyanthos* (L.) Corda

A4. Trabzon: Maçka, Altındere Village, on rocks by stream, 900 m., 27.04.1994, Gökler 666.

Turkey (A1, A2, A4, A5, B6), Europe, Iceland, Himalayas, Siberia, Japan, Morocco, Tunisia, N. America.

##### Scapaniaceae

###### 17. *Diplophyllum albicans* (L.) Dum.

A4. Trabzon: Maçka, around Sumela Monastery, on wet rocks, 1100 m., 23.07.1997, Gökler 667.

Turkey (A4), Europe, Mediterranean countries, Iceland, Korea, Japan, Taiwan, Greenland, Hawaii, N. America.

###### 18. *Scapania nemorea* (L.) Grolle

A4. Trabzon: Maçka, Sumela Monastery, on the damp soil, 1200 m., 23.07.1997, Gökler 669.

Turkey (A1, A4, B6, C11), Europe, Iceland, Ukraine, Korea, Japan, Greenland, Tunisia, N. America.

###### 19. *Scapania undulata* (L.) Dum.

A4. Trabzon: Maçka, Değirmendere stream banks, 1100 m., 24.07.1997, Gökler 669.

Turkey (A1, A4, B6, C11), Europe, Iceland, Ukraine, Korea, Japan, Greenland, Tunisia, N. America.

##### Lepidoziaceae

20. *Bazzania tricrenata* (Wahlenb.) Lindb.

A4. Trabzon: Between Maçka-Altındere, alongside stream banks, 25.06.1996, Gökler 670.

Turkey (A2, A4), Europe except in the Mediterranean, Korea, Himalayas, Japan,

Taiwan, N. America.

21. *Bazannia trilobata* (L.) S. Gray

A4. Trabzon: Maçka, around Altındere Village, on soil-covered boulders, 920 m., 27.04.1994, Gökler 671.

Turkey (A4), Europe except in the Mediterranean, Russia, Siberia, N. Japan, Greenland, N. America.

**Calypogeia**

22. *Calypogeia arguta* Nees et Mont.

A4. Trabzon: Between Maçka - Altındere, alongside stream banks, 25.06.1996, Gökler 672.

Turkey (A4, B6), Europe, India, Japan, Taiwan, New Guinea, Africa.

23. *Calypogeia azurea* Stotler et Crotz

A4. Trabzon: Maçka, Değirmendere stream banks, 1100 m., 24.07.1997, Gökler 673.

Turkey (A4), Europe, Iceland, Siberia, Japan, N. America.

**Radulaceaea**

24. *Radula complanata* (L.) Dum.

A4. Trabzon: Maçka, Entrance of Sumela Monastery road, on the trunks of ash trees, 1100 m., 23.07.1997, Gökler 674.

Turkey (A1, A2, A4, B6, C11), Europe, Russia, Iceland, China, Japan, Algeria, Greenland, N. America.

25. *Radula lindenbergiana* Gott. et Hartm.

A4. Trabzon: Maçka, around Sumela

Monestary on the wet rocks, 1150 m., 23.07.1997, Gökler 675.

Turkey (A2, A3, A4), Europe, Russia, Caucasus, Iran, Korea, Japan, Taiwan, Himalayas, Tunisia, Morocco, Algeria, Greenland, S. Africa.

**Porellaceae**

\* 26. *Porellaceae arboris-vitae* (With.) Grolle

A4. Trabzon: Maçka, on tree roots, alongside the path of Sumela Monestary, 1200 m., 23.07.1997, Gökler 676.

Turkey (A2, B6, C11), Europe, Iceland, Caucasus, Morocco.

\* 27. *Porella cordaeana* (Hüb.) Moore

A4. Trabzon: Maçka, entrance of Sumela Monastery road, on stones by water, 1150 m., 23.07.1997, Gökler 677.

Turkey (A1, A2, B6, B7, C13), Europe, N. Russia, Iceland, Caucasus, Lebanon, Algeria, Morocco, N. America.

\* 28. *Porella obtusata* (Tayl.) Trev.

A4. Trabzon: Maçka, west of Altındere Valley, on the sheltered wet rocks, 920 m., 26.04.1994, Gökler 678.

Turkey (A3, B6), Mediterranean islands and coast of Europe, Norway, Tunisia, Algeria.

29. *Porella platyphylla* (L.) Pfeiff.

A4. Trabzon: Maçka, Karaağaç wold, on rock and tree roots, 1670 m., 25.06.1996, Gökler 679.

Turkey (A1, A2, A3, A4, A5, B6, B7, C11, C12, C13), Europe, N. and C. Asia, Greenland, N. America.

**Frullaniaceae**

30. *Frullania dilatata* (L.) Dum.

A4. Trabzon: Maçka, around Altındere Village, 920 m., 27.04.1994, Gökler 680.

Turkey (A1, A2, A3, A4, A5, B6, C11, C12) Europe, Russia, Cyprus, Iran, Siberia.

31. *Frullania tamarisci* (L.) Dum.

A4. Trabzon: Maçka, outside of Altındere Village, on the wet rocks, 920 m., 27.04.1994, Gökler 681.

Turkey (A1, A2, A3, A4, B6, C13), C. and N. Europe, Russia, Iceland, Siberia, China.

**Lejeuneaceae**

32. *Lejeunea cavifolia* (Ehrh.) Lindb.

A4. Trabzon: Maçka, around Sumela monastery, on the moist rocks, 1200 m., 23.07.1997, Gökler 682.

Turkey (A3, A4, B6, C11), Europe, Russia, Iceland, Siberia, Caucasus, Algeria, Tunisia.

\*33. *Lejeunea lamacerina* (Steph.) Schiffn.

A4. Trabzon: Maçka, around Sumela Monastery, on the stones, 1200 m., 23.07.1997, Gökler 683.

Turkey (A3, B6), Portugal, Spain, France, W. Britain.

33 species of hepatics belonging to 16 families of *Marchantiopsida* (*Hepaticae*) were collected during the present investigation. Out of these *Porella arboris-vitae*, *P. cordaeana*, *P. obtusata* and *Lejeunea lamacerina* have been newly recorded from the A4 grid square.

The first ten families on the basis of species richness in Altındere Valley National Park (Table 1) are *Geocalycaceae*, *Porellaceae*, *Scapaniaceae*, *Marchantiaceae*, *Metzgeriaceae*, *Pelliaceae*, *Plagiochilaceae*, *Lepidoziaceae*, *Calypogeiaceae* and *Radulaceae*.

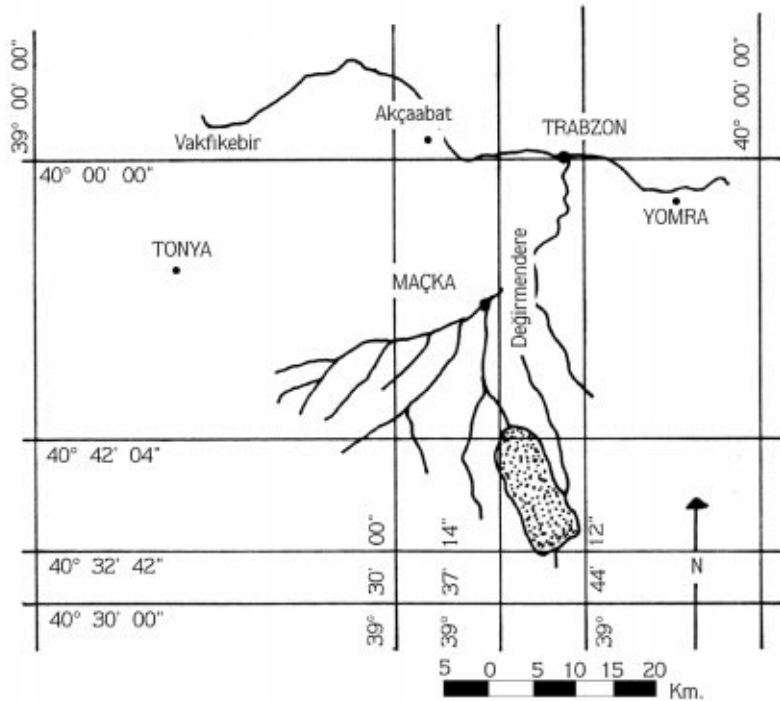
The North Anatolian part of Turkey is dominated by *Jungermanniales* taxa, whereas other parts are dominated by *Marchantiales* taxa (6-9). This can be attributed to the heavy rainfall and mild winters in this region relative to the East, West, South and Central Anatolian parts of Turkey. I believe that Turkish liverwort

Table 1. Distribution of Species According to Families

	Number of the species	%
Geocalycaceae	4	12.12
Porellaceae	4	12.12
Scapaniaceae	3	9.09
Marchantiaceae	2	6.06
Metzgeriaceae	2	6.06
Pelliaceae	2	6.06
Plagiochilaceae	2	6.06
Lepidoziaceae	2	6.06
Calypogeiaceae	2	6.06
Radulaceae	2	6.06
Frullaniaceae	2	6.06
Lejeuneaceae	2	6.06
Aytoniaceae	1	3.03
Conocephalaceae	1	3.03
Lunulariaceae	1	3.03
Codaniaceae	1	3.03



Figure 1. Map showing the geographical position of Altındere Valley National Park.



flora can be enriched only through detailed studies on the East Black Sea coast (the Euro-Siberian region) followed

by the Irano-Turanian and Mediterranean phytogeographical regions of the country (Table 1).

## References

1. Arnell, S., Illustrated Moss Flora of Fennoscandia I. Hepaticae, The Bot. Soc. of Lund (1981).
2. Watson, E.V., British Mosses and Liverworts, Cambridge Univ. Press (1981).
3. Smith, A.J.E., The Liverworts of Britain and Ireland, Cambridge Univ. Press (1991).
4. Frey, W., Kürschner, H., Conspectus Bryophytorum Orientalum et Arabicorum, J. Cramer Gebrüder Borntraeger (1991).
5. Konstantinova, N. A., Potemkin, A. D., Schljakov, R.N., Checklist of the Hepaticae and Anthocerotae of the Former USSR, Arctoa 1, 87-127 (1992).
6. Çetin, B., Checklist of the Liverworts and Hornworts of Turkey, Lindbergia 14, 12-14 (1988).
7. Gökler, I., Öztürk, M., An Investigation on the Liverworts (Hepaticae) of Black Sea Region, Doğa TU. J. Bot. 13, 2, 242-248 (1989).
8. Gökler, I., Öztürk, M., Liverworts of Turkey and Their Position in South-West Asia, Candollea 46, 2, 359-366 (1991).
9. Gökler, I., Öztürk, M., Artvin İli (A4, A5) Ciğerotları (Marchantiopsida), XI. Ulusal Biy. Kong., Elazığ 24-27 Haziran 1992, XI. Ulusal Biy. Kong. Bot. Sektöründe Bildiri Kitabı, 185-194, Elazığ (1992).
10. Gökler, I., Studies on the Liverwort Flora of North Anatolia and Caucasus Regions, IV th. Plant Life in Southwest Asia Symposium, İzmir 21-28 May 1995, Proc. of IV th. Plant Life in Southwest and Central Asia, 479-486, İzmir (1996).
11. Grolle, R., Hepatics of Europe Including the Azores: An Annotated List of Species, with Synonyms From Recent Literature, J. Bryol. 12, 403-459 (1983).