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New records of bryophytes from Cyprus

Abstract

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The results of a recent bryophyte collection from Cyprus in 1997 are presented and discussed. 24 bryophytes are reported new to the island, including *Petalophyllum ralfsii*, *Aschisma carniolicum*, *Syntrichia minor*, *Gigaspermum mouretii*, *Orthotrichum acuminatum* and *O. tortidontium*.

Introduction

The bryophytes of Cyprus are very poorly documented. Koppe (1976) published a list of the species then known, and a check-list with only a few additional taxa is included in Frey & Kürschner (1991). There have also been some occasional records published in taxonomic revisions and other papers (Blom 1996; García-Zamora & al. 1998; Greven 1994; Whitehouse & Crundwell 1992). During a visit to Cyprus in 1997 I was able to make a small collection of bryophytes in the central, southern and western parts of the island. These collections confirm that the island supports some rich bryophyte communities but also that much more work on the flora remains to be done.

Localities

The localities at which bryophytes were collected in 1997 and the respective dates are listed below.

- 1 - East-facing hillside above the dam, Yermosoyeia, NE of Limassol, 24 March 1997
- 2 - A few km south-west of Dierona, on the road from Yermosoyeia, 24 March 1997
- 3 - Between Pano Platres and Troodos village, 25 March 1997
- 4 - Site of ancient Curium, near Episkopi, 26 March 1997
- 5 - Coastal cliffs west of Episkopi, 26 March 1997
- 6 - Eastern Troodos, northern slopes of Mt Kionia, 28 March 1997

- 7 - Eastern Troodos, lower slopes on north-east side of Mt Kionia, south-west of Kapedes, 28 March 1997
 8 - Eastern Troodos, foothills several km south-west of Kapedes, 28 March 1997
 9 - Limassol, Lemesos castle, 29 March 1997
 10 - Troodos mountains, upper slopes of Mt Olympus (Olymbos), 30 March 1997
 11 - Near Petra tou Romiou, south-east of Kouklia, 31 March 1997
 12 - Eastern slopes of Mt Olympus (Olymbos) between Trooditissa and Xerokolymbos, 1 April 1997
 13 - Near Ayios Yeoryios Alamanou, ca 20 km east of Limassol, 3 April 1997
 14 - Paphos forest, a few km east of Pano Panayia, 4 April 1997
 15 - Paphos forest, along the Stavros road, a few km north-east of Kannaviou, 4 April 1997
 16 - Deep valley west of Kato Arkhimandrita, ca 4 km north of Alektora, 5 April 1997

Results

Because of the poorly documented state of the flora, the following list includes all records from the collections made in 1997, with the exception of some critical specimens. Numbers in bold type refer to the collecting localities listed above, and numbers in parentheses refer to the author's collection numbers. An asterisk indicates a species believed to be newly reported for Cyprus. All specimens are in the author's private herbarium.

- Targionia hypophylla* L.: **6**, under shrubs on bank of gully (26/110 p.p.).
Reboulia hemisphaerica (L.) Raddi: **6**, under shrubs on bank of gully (26/110); **7**, steep bank by stream in deep valley (26/144 p.p.).
 Mannia androgyna* (L.) A. Evans: **7, steep bank by stream in deep valley (26/144).
Lunularia cruciata (L.) Dumort.: **6**, on damp bank in gully on scrubby slope (26/117).
 Corsinia coriandrina* (Spreng.) Lindb.: **8, moist soil in bed of small seasonal stream (26/150); **15**, on steep bare bank by stream in open woodland (26/216 p.p.).
 Oxymitra incrassata* (Brot.) Sérgio & Sim-Sim: **8, on dry bank in open pine forest (26/157); **15**, on bare ground on bank in open scrub (26/212).
Riccia crozalsii Levier: **5**, on calcareous soil on coastal cliff (26/099); **15**, on earthy bank in open woodland (26/208).
 Riccia lamellosa* Raddi: **4, on bare ground on archaeological site (26/091).
Riccia sorocarpa Bisch.: **15**, on bank by path on scrubby slope (26/209).
Metzgeria furcata (L.) Dumort.: **3**, on igneous boulders in wooded valley (26/080).
Fossombronina caespitiformis De Not.: **16**, on calcareous soil at base of soft limestone cliff (26/219).
Fossombronina pusilla (L.) Nees: **14**, in crevice on earthy bank by track in open pine wood (26/204).
 Petalophyllum ralfsii* (Wils.) Nees & Gottsche: **8, damp soil in bed of small seasonal stream (26/151).
Leiocolea turbinata (Raddi) H. Buch: **16**, on soft calcareous soil by small stream (26/219H, 26/219I).
Southbya tophacea (Spruce) Spruce: **6**, in damp recess behind small waterfall in gully (26/116); **16**, on soft calcareous soil by small stream (26/219I p.p.).

- **Southbya nigrella* (De Not.) Henriq.: **1**, on calcareous soil in gully on east-facing hillside (26/066 p.p.); **15**, on bank in small gully in open woodland (26/213 p.p.); **16**, on soft calcareous bank by stream (26/219F).
- **Gongylanthus ericetorum* (Raddi) Nees: **15**, on steep bank by track in open woodland (26/210).
- **Porella cordaeana* (Huebener) Moore: **3**, on boulders on steep shaded bank in wooded valley (26/087); **10**, crevice of large boulder among pine trees (26/170).
- Porella platyphylla* (L.) Pfeiff.: **6**, on tree root in scrub on bank of gully (26/109).
- Frullania dilatata* (L.) Dumort.: **6**, at base of tree on scrubby slope (26/123); **14**, on *Quercus* (26/192).
- **Phaeoceros bulbiculosus* (Brot.) Prosk.: **15**, on steep bare bank by stream in open woodland (26/216).
- Cheilothea chloropus* (Brid.) Lindb.: **5**, on calcareous soil on coastal cliff (26/100); **8**, on bank in shallow gully in open pine forest (26/155); **16**, on calcareous earth in scrubby ground (26/219B).
- Dicranella howei* Ren. & Card.: **7**, on soil on rock ledge (26/143 p.p.); **16**, on calcareous soil on bank by track (26/219G).
- Dicranoweisia cirrata* (Hedw.) Lindb. **14**, on *Quercus* in gully (26/198).
- Fissidens limbatu*s Sull.: **12**, on earth under shrubs (26/180).
- Fissidens taxifolius* Hedw.: **12**, on earth on vertical bank by stream (26/183).
- **Fissidens dubius* P. Beauv.: **14**, on steep bank in gully in pine forest (26/194).
- Encalypta vulgaris* Hedw.: **6**, on rock ledges on scrubby slope (26/112, 26/126).
- Timmiella barbuloidea*s (Brid.) Mönk.: **1**, on calcareous soil in gully on east-facing hillside (26/060); **8**, on bank in shallow gully in open pine forest (26/154); **14**, on moist soil at edge of small seasonal stream (26/203).
- Eucladium verticillatum* (Brid.) Bruch, Schimp. & W. Gümbel: **2**, on rock at edge of small stream in gully (26/070); **14**, on hard earth by side of seasonal stream (26/197).
- **Aschisma carniolicum* (F. Weber & D. Mohr) Lindb.: **5**, on calcareous soil on coastal cliff (26/097).
- Weissia controversa* Hedw.: **7**, on moist soil on bank of stream (26/147).
- Weissia condensa* (Voit) Lindb.: **12**, earthy bank by track in open woodland (26/178).
- Tortella tortuosa* (Hedw.) Limpr.: **10**, crevices of north-facing rocks among pines (26/160).
- Tortella flavovirens* (Bruch) Broth.: **11**, on calcareous soil on scrubby slope (26/171), and on coastal rocks (26/172).
- Tortella inflexa* (Bruch) Broth.: **4**, on soft calcareous rock (26/096); **13**, on limestone pebbles on sheltered bank (26/186).
- Trichostomum brachydontium* Bruch: **5**, on calcareous soil on coastal cliff (26/101); **13**, on calcareous bank by track (26/184); **15**, on bank in open woodland (26/214).
- Trichostomum crispulum* Bruch: **1**, on calcareous soil in gully on east-facing hillside (26/061 p.p., 26/064); **14**, on bank in gully in pine woodland (26/199).
- Pleurochaete squarrosa* (Brid.) Lindb.: **6**, on boulder in gully (26/139).
- Gymnostomum viridulum* Brid.: **1**, on calcareous soil in gully on east-facing hillside (26/065 p.p.); **7**, on soil on rock ledge (26/143 p.p.). This species was previously reported for Cyprus by Whitehouse & Crundwell (1992).

- Pseudocrossidium hornschuchianum* (Schultz) R. H. Zander: 5, on calcareous soil on coastal cliff (26/097 p.p.).
- **Didymodon australasiae* (Hook. & Grev.) R. H. Zander: 7, on earth on rock ledges (26/148A).
- Didymodon luridus* Hornsch.: 1, on calcareous soil in gully on east-facing hillside (26/062 p.p.); 11, on calcareous ground among low shrubs (26/173 p.p.).
- Didymodon vinealis* (Brid.) R. H. Zander: 6, on rock ledges on scrubby slope (26/107; 26/126 p.p.).
- Didymodon tophaceus* (Brid.) Lisa: 14, on moist soil by small stream in pine forest (26/196).
- Didymodon fallax* (Hedw.) R. H. Zander: 1, on calcareous soil in gully on east-facing hillside (26/062 p.p.; 26/065 p.p.); 6, on rock ledge on scrubby slope (26/126 p.p.); 11, on calcareous ground among low shrubs (26/173 p.p.).
- Crossidium crassinerve* (De Not.) Jur. (incl. *C. laxefilamentosum* Frey & Kürschner): 4, on bare soil at base of wall (26/093); 11, on calcareous ground among low shrubs (26/173 p.p.); 13, on calcareous ground by coastal path (26/185); 16, on calcareous soil on scrubby slope (26/223). These specimens are very variable in the ornamentation of the terminal cells of the leaf filaments. They range from those in which the terminal cells are conspicuously papillose (no. 26/173), to those in which nearly all are smooth and elongate (no. 26/185). The latter corresponds to *C. laxefilamentosum*. However other specimens are intermediate (no. 26/093, 26/223), having smooth cells intermixed with papillose cells. Even in the extreme '*laxefilamentosum*' forms, it is usually possible to find a few filaments at the leaf apex in which the terminal cell has distinct papillae. Pending clarification of the status of *C. laxefilamentosum*, the specimens from Cyprus are regarded as expressions of a very variable *C. crassinerve*.
- Crossidium squamiferum* (Viv.) Jur.: 1, on calcareous soil in gully on east-facing hillside (26/063); 7, on shale rock on steep bank (26/146); 15, on dry friable stony bank (26/211).
- Aloina aloides* (Schultz) Lindb.: 1, on calcareous soil in gully on east-facing hillside (26/063 p.p., 26/066); 7, on soil on rock ledge (26/143 p.p., 26/148 p.p.); 15, on bare soil on steep roadside bank (26/217).
- **Leptobarbula berica* (De Not.) Schimp.: 4, on stone at ground level (26/092), and on soft calcareous rock (26/096 p.p.).
- Tortula inermis* (Brid.) Mont.: 6, on soil on rock ledge in steep gully (26/113); 8, on dry soil on bank in open pine forest (26/156); 10, earthy crevice under boulder (26/159); 14, on bank by track (26/202). These specimens are very variable, especially in the recurvature of the leaf margin, but are referred to *T. inermis* because the marginal cells at mid-leaf are quadrate and the leaf apex is at most mucronate. However occasional shoots show some intergradation with *T. subulata* Hedw.
- Tortula cuneifolia* (Dicks.) Turner: 7, on earth on rock ledges on steep bank by stream (26/143 p.p.); 14, on soil on bank by track (26/200).
- Tortula muralis* Hedw.: 2, on inclined rock face in gully (26/067); 9, on surface of old wall (26/158).
- Tortula israelis* Bizot & F. Bilewsky: 16, on stone in light shade (26/219D).
- Tortula marginata* (Bruch & Schimp.) Spruce: 4, at base of old wall (26/094 p.p.).

- Tortula atrovirens* (Sm.) Lindb.: **12**, on earth between stones of old retaining wall (26/175); **14**, on earthy bank at side of forest road (26/205).
- Microbryum starckeanum* (Hedw.) R. H. Zander: **11**, on calcareous ground among low shrubs (26/173 p.p.); **14**, on soil on bank by track in open woodland (26/187).
- Syntrichia handelii* Schiffn.: **3**, on igneous boulders in wooded valley (26/078).
- Syntrichia echinata* (Schiffn.) Herrnst. & Ben-Sasson: **3**, on igneous boulder in wooded valley (26/075); **6**, on rock surface in steep open gully (26/106).
- Syntrichia papillosissima* (Copp.) Loeske: **6**, on rock ledge in steep gully (26/105).
- **Syntrichia minor* (Bizot) M. T. Gallego, J. Guerra, M. J. Cano, Ros & Sánchez-Moya: **10**, on old juniper tree (26/166).
- **Syntrichia laevipila* Brid.: **14**, on *Quercus* (26/189).
- Schistidium singarense* (Schiffn.) Laz.: **7**, on boulder in shallow gully (26/141).
- Grimmia pulvinata* (Hedw.) Sm.: **3**, on igneous boulders in wooded valley (26/073, 26/077).
- Grimmia nutans* Bruch: **6**, on rocks in gully (26/103, 26/120, 26/140). This is the locality reported by Greven (1994).
- Grimmia ovalis* (Hedw.) Lindb.: **3**, on igneous boulders in wooded valley (26/072, 26/076, 26/079, 26/081); **6**, on sloping rocks in gully (26/127, 26/128); **10**, on boulders on open rocky slope (26/164, 26/165, 26/167).
- Grimmia laevigata* (Brid.) Brid.: **6**, on inclined rock face (26/124); **12**, in crevice on top of large boulder (26/181).
- Grimmia tergestina* Tomm.: **7**, on crag by stream (26/145).
- Grimmia pitardii* Corb.: **5**, on calcareous soil on coastal cliff (26/102).
- **Gigaspermum mouretii* Corb.: **5**, on calcareous soil on coastal cliff (26/098).
- Funaria convexa* Spruce: **6**, on soil on rock ledge on side of gully (26/133); **16**, on bare calcareous soil (26/219A p.p.).
- Funaria pulchella* H. Philib.: **1**, on calcareous soil in gully on east-facing hillside (26/066 p.p.).
- Entosthodon attenuatus* (Dicks.) Bryhn: **7**, on earth on rock ledges on steep bank by stream (26/143 p.p.).
- Bryum donianum* Grev.: **6**, moist rock crevice on scrubby slope (26/134).
- Bryum torquescens* Bruch & Schimp.: **16**, in crevice in bark of ancient *Ceratonia* tree (26/222).
- Bryum capillare* Hedw.: **6**, rock crevice on scrubby slope (26/132).
- Bryum radiculosum* Brid.: **16**, on disturbed calcareous ground (26/219E).
- Anacolia menziesii* (Turn.) Par.: **6**, on rock in steep gully and on rock ledge on scrubby slope (26/104, 26/125); **7**, on earthy ledge on steep bank by stream (26/142). This species is reported for Cyprus by García-Zamora & al. (1998).
- Bartramia stricta* Brid.: **2**, crevices of rocks in gully (26/068); **14**, on stony bank in gully (26/193).
- **Zygodon rupestris* Schimp.: **14**, on *Quercus* (26/190); **16**, at base of old tree (26/221).
- Orthotrichum rupestre* Schleich.: **3**, on igneous boulder in wooded valley (26/074).
- Orthotrichum lyellii* Hook. & Taylor: **6**, on *Quercus alnifolia* on scrubby slope (26/130).
- **Orthotrichum acuminatum* H. Philib. **6**, on *Quercus alnifolia* on scrubby slope (26/129);

- on bark of small tree on scrubby slope (26/137 p.p.); **12**, on *Quercus alnifolia* (26/174); **14**, on *Quercus* (26/188 p.p.); on *Alnus* (26/206 p.p.).
- **Orthotrichum tortidontium* Lara, Garilleti & Mazimpaka: **3**, on deciduous trees in wooded valley (26/083, 26/084).
- Orthotrichum philibertii* Vent.: **6**, on bark of small tree on scrubby slope (26/137).
- **Orthotrichum tenellum* Bruch: **14**, on *Quercus* (26/188 p.p.); **14**, on *Alnus* (26/206 p.p.); **16**, on *Platanus* (26/218 p.p.).
- **Orthotrichum diaphanum* Brid.: **6**, on bark of small tree on scrubby slope (26/137 p.p.); **12**, at base of deciduous tree near stream in gully (26/182); **16**, on *Platanus* (26/218 p.p.).
- **Hedwigia stellata* Hedenäs: **12**, on rock slab in thin woodland (26/179).
- Leucodon sciuroides* (Hedw.) Schwaegr.: **6**, on *Quercus* on scrubby slope (26/131).
- Antitrichia californica* Sull.: **6**, on rock ledge in open gully (26/122).
- Pterogonium gracile* (Hedw.) Sm.: **3**, on igneous boulder in wooded valley (26/085); **6**, on tree root in scrub on bank of gully (26/108).
- Pterygynandrum filiforme* Hedw.: **3**, on bole of *Pinus nigra* (26/088); **10**, on bole of old juniper (26/169).
- **Habrodon perpusillus* (De Not.) Lindb.: **14**, on *Quercus* (26/191).
- **Homalothecium philippeanum* (Spruce.) Bruch, Schimp. & W. Gümbel: **10**, sheltered rock surface (26/162, 26/163).
- Homalothecium aureum* (Spruce.) H. Rob.: **6**, about stones in light shade (26/118, 26/136).
- Homalothecium sericeum* (Hedw.) Bruch, Schimp. & W. Gümbel: **6**, on boulder on scrubby slope (26/135).
- Scorpiurium circinatum* (Brid.) M. Fleisch. & Loeske: **15**, at base of *Platanus* on bank of stream (26/207); **16**, on shaded stone and at base of ancient *Ceratonia* tree (26/219J, 26/220).
- Brachythecium olympicum* Jur.: **3**, about tree base (26/071), and on base of *Platanus* (26/089).
- Scleropodium touretii* (Brid.) L. F. Koch: **15**, on bank of small seasonal stream in open woodland (26/215); **16**, on calcareous earth in light shade (26/219C).
- Rhynchostegium riparioides* (Hedw.) Cardot: **6**, in small waterfall in gully (26/119).
- Hypnum cupressiforme* Hedw.: **6**, on rock face (26/138).

Discussion

24 species are reported new to Cyprus, on the basis primarily of the list in Frey & Kürschner (1991). Some of these species are widespread taxa whose discovery is a reflection of the poorly recorded state of the Cypriot flora. Other species, however, are taxa with rare or localised distributions in the Mediterranean region, and these merit further comment.

Petalophyllum ralfsii. This species is regarded as vulnerable in the European Red Data Book (ECCB, 1995), and it has a very scattered and fragmented distribution in the Mediterranean region. Its current status in the Iberian peninsula is assessed by Sim-Sim,

Jones & Sérgio (2000), and its occurrence in Italy is summarised by Aleffi & Puntillo (1998). Düll & Düll-Hermanns (1973) and Bischler & Jovet-Ast (1979) indicate numerous localities in Crete, and Crundwell & Nyholm (1979) refer to six localities in Turkey. A recent record from the Greek mainland is cited by Blockeel (1991), and a further one from Crete by Papp & al. (1999). The number of new recent records and the relative frequency of the species in the Balearic islands and on Crete indicate that this species may be more common than currently supposed in some Mediterranean regions.

Gigaspermum mouretii. This small but distinctive species has been reported only from isolated localities within the Mediterranean region. Its distribution is documented by Carratello & Aleffi (1998). Most previous reports of the species have been from the Canary Islands, where it is locally frequent (Dirkse & Bouman 1990; Dirkse & al. 1993), the western Mediterranean region (southern Spain, the Balearic Islands and Morocco) and Israel. There are isolated localities in Sicily and Crete (Carratello & Aleffi 1998). The new report for Cyprus lies within this distributional range.

Tortula israelis. Bilewsky (1961) reported this species for the first time from Cyprus, on the roots of *Pistacia* at Vouni, ca 20 km north-east of the new locality. It is a little known species distinguished from *T. muralis* by its high, columnar leaf papillae. It is known to be widespread in southern Spain, but has been reported elsewhere only from Israel and Turkey (Cano, Guerra & Ros 1996) and recently from Italy and Sicily (Oliva 1999; Gueli, Dia & Lo Giudice 2001).

Syntrichia minor. The status of *Tortula papillosissima* (Copp.) Broth. var. *minor* Bizot has recently been evaluated by Gallego & al. (2000). It is regarded as a separate species on the basis of the distinctive morphology of its leaf papillae, which has parallels with *Tortula israelis* and certain other taxa of *Syntrichia*. It is apparently a rare species, known only from Spain and Lebanon. However *S. minor* may be overlooked as *S. virescens* (De Not.) Ochyra and may be expected to occur in other parts of the Mediterranean region.

Orthotrichum tortidontium. This recently described species is known from widely scattered localities in Spain and Morocco (Lara & al. 1996), and it has also been reported from Turkey (Mazimpaka, Lara & Garilleti 2000). In spite of a preference for coniferous trees in these regions, *O. tortidontium* was collected from deciduous trees in Cyprus. The apparent disjunction between the eastern and western Mediterranean is unlikely to be real.

Orthotrichum acuminatum. For many years a neglected and poorly known species, *O. acuminatum* is now known to be widespread in southern Europe. Its status was clarified after its discovery in the Iberian peninsula, where it occurs in many localities (Mateo, Zafra & Varo 1990). Although primarily recorded from the western Mediterranean, the new reports from Cyprus indicate that it will prove to be frequent also in the eastern Mediterranean.

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References

- Aleffi, M. & Puntillo, D. 1998: Contributo alla conoscenza della flora briologica della Calabria. — *Webbia* **53**: 181-190.
- Bilewsky, F. 1961: A contribution to the bryophytic flora of Cyprus. — *Revue Bryologique et Lichénologique* **30**: 267-273.
- Bischler, H & Jovet-Ast, S. 1979: Nouvelles récoltes d'hépatiques en Crète. — *Revue Bryologique et Lichénologique* **45**: 45-60.
- Blockeel, T. L. 1991: The bryophytes of Greece: new records and observations. — *Journal of Bryology* **16**: 629-640.
- Blom, H. H. 1996: A revision of the *Schistidium apocarpum* complex in Norway and Sweden. — *Bryophytorum Bibliotheca* **49**.
- Cano, M. J., Guerra, J. & Ros R. M. 1996: Identity of *Tortula baetica* (Casas & Oliva) J. Guerra & Ros with *T. israelis* Bizot & F. Bilewsky. — *Journal of Bryology* **19**: 183-185.
- Carratello, A. & Aleffi, M. 1998: *Gigaspermum mouretii* Corb. (*Gigaspermaceae*, *Musci*). a new species from Italy. — *Acta Botanica Malacitana* **23**: 203-207.
- Crundwell, A. C. & Nyholm, E. 1979: Some additions to the bryophyte flora of Turkey, I. *Hepaticae*. — *Journal of Bryology* **10**: 479-489.
- Bischler, H. & Jovet-Ast, S. 1979: Nouvelle récoltes d'hépatiques en Crete. — *Revue Bryologique et Lichénologique* **45**: 45-60.
- Dirkse, G. & Bouman, A. C. 1990: Additions to the bryophyte flora of the Canary Islands. — *Lindbergia* **15**: 145-150.
- , — & Losada-Lima, A. 1993: Bryophytes of the Canary Islands, an annotated checklist. — *Cryptogamie, Bryologie Lichénologie* **14**: 1-47.
- Düll, R. & Düll-Hermanns, I. 1973: Ergänzungen und Nachträge zur Bryoflora und Bryogeographie der ostmediterranen Insel Kreta in der Aegaeis. — *Journal of Bryology* **7**: 421-437.
- ECCB. 1995: Red data book of European bryophytes. — Trondheim.
- Frey, W. & Kürschner, H. 1991: *Conspectus Bryophytorum Orientalum et Arabicorum*. — *Bryophytorum Bibliotheca* **39**.
- Gallego, M. T., Guerra, J., Cano, M. J., Ros, R. M. & Sánchez-Moya, M. C. 2000: The status and distribution of *Syntrichia virescens* var. *minor* (*Pottiaceae*, *Musci*). — *The Bryologist* **103**: 375-378.
- García-Zamora, P., Ros R. M., Cano, M. J. & Guerra, J. 1998: *Anacolia menziesii* (*Bartramiaceae*, *Musci*) a new species to the European Bryophyte Flora. — *The Bryologist* **101**: 588-593.
- Greven, H. C. 1994: The identities of *Grimmia nutans* Bruch, *Grimmia ungeri* Jur. and remarks about other *Grimmiaceae* on the island of Cyprus. — *Journal of Bryology* **18**: 303-309.
- Gueli, L., Dia, M. G. & Lo Giudice, R. 2001: New or interesting records for the Sicilian moss flora. — *Flora Mediterranea* **11**: 5-10.
- Koppe, F. 1976: Beobachtungen über die Moosvegetation und Moosflora von Zypern. — *Herzogia* **4**: 95-136.
- Lara, F., Garilleti, R. & Mazimpaka, V. 1996: *Orthotrichum tortidontium* sp. nov. (*Orthotrichaceae*, *Bryopsida*), an epiphytic moss from western Mediterranean mountains. — *Nova Hedwigia* **63**: 517-524.
- Mateo, F. D., Zafra, M. L. & Varo, J. 1990: Datos sobre el género *Orthotrichum* Hedw. en la Península ibérica. — *Cryptogamie, Bryologie Lichénologie* **11**: 377-383.

- Mazimpaka, V., Lara, F. & Garilleti, R. 2000: *Orthotrichum tortidontium* new for Turkey. — *Lindbergia* **25**: 15-16.
- Oliva, R. 1999: *Tortula israelis* Bizot & F. Bilewsky (*Bryophyta, Musci*) novedad para Italia. — *Boletín de la Sociedad Española de Briología* **15**: 23.
- Papp, B., Lőkös, L., Rajczy, M., Chatzinikolaki, E. & Damanakis, M. 1999, 1998: Bryophytes and lichens of some phrygana and maquis stands of Crete (Greece). — *Studia Botanica Hungarica* **29**: 69-78.
- Sim-Sim, M., Jones, M. P. & Sérgio, C. 2000: *Petalophyllum ralfsii* (Wils.) Nees & Gott., a threatened liverwort present in Portugal. Morphological and ecological data, directions for future conservation. — *Lindbergia* **25**: 101-105.
- Whitehouse, H. L. K. & Crundwell, A. C. 1992: *Gymnostomum calcareum* Nees & Hornsch. and *G. viridulum* Brid. in Europe, North Africa and the Middle East. — *Bulletin of the British Bryological Society* **59**: 35-50.

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