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Bryophytes collected during the fifth “Iter Mediterraneum” in Morocco, 8-27 June, 1992

Abstract

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Part of the bryophytes collected during *Iter Mediterraneum V* are listed. *Politrichum piliferum*, new to Morocco and 6 others taxa no longer reported since 1962 for this country are recorded.

Key words: Flora of Morocco, Bryophytes, Itinera Mediterranea, OPTIMA.

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Introduction

During the V OPTIMA Expedition, held in Morocco from June 8th to June 27th, 1992, 314 bryophyte specimens have been gathered by Stephen Jury and Rupert Wilson (Jury, 2013). A set of them (257) are kept in the *Herbarium Mediterraneum Panornitanum* (PAL).

In this contribution a list of the bryophytes until now identified is reported. It includes 55 taxa (5 liverworts and 50 mosses) belonging to 44 genera. Nomenclature and presence in Morocco was taken from Ros & al. (2013) for the mosses, and Ros & al. (2007) for the liverworts. Some interesting reports were found: *Politrichum piliferum*, new to Morocco and *Entosthodon duriaei*, *Hypnum cupressiforme* var. *cupressiforme*, *Hypnum cupressiforme* var. *lacunosum*, *Homalothecium lutescens*, *Plagiomnium undulatum* and *Tortula lindbergii* no longer reported since 1962 for this country. They are respectively indicated with two and one asterisk (*) in the following list.

Bryophytes identified

Marchantiophyta

Frullania dilatata (L.) Dumort. – c. 23 km from Ouazzane, on road to Chefchaouen. Locality 52. 105m 34°57'N, 5°32'W. French lambert, North Morocco Grid 488484. On ground in shade. 23 june 1992, 10749.

– 3 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 56. 1480 m 35°2' N, 4°58' W. French lambert, North Morocco Grid 540492. 24 june 1992, 10798.

Lunularia cruciata (L.) Lindb. – 34 km from Chefchaouen, 10 km above Bab Taza on track to Jbel Talasemtane. Locality 63. 1420m 35°6'N, 5°11'W. French lambert, North Morocco Grid 520499. 26 june 1992, 10947.

Porella cordeana – c. 13 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 46. 1850 m 34°52'N, 4°31' W. French lambert, North Morocco Grid 580474. 20 june 1992, 10678.

Reboulia hemisphaerica (L.) Raddi – 3 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 56. 1480 m 35°2' N, 4°58' W. French lambert, North Morocco Grid 540492. 24 june 1992, 10806.

Targionia hypophylla L. – c. 23 km from Ouazzane, on road to Chefchaouen. Locality 52. 105m 34°57'N, 5°32'W. French lambert, North Morocco Grid 488484. On ground in shade. 23 june 1992, 10766.

Bryophyta

Antitrichia californica Sull. – 44 km from Chefchaouen on route to Jbel Tassaout, 14 km above Talambote. Locality 60. 1600m 35°15'N, 5°5'W. French lambert, North Morocco Grid 528517. 25 june 1992, 10880.

Antitrichia curtipendula (Hedw.) Brid. – c. 23 km from Ouazzane, on road to Chefchaouen. Locality 52. 105m 34°57'N, 5°32'W. French lambert, North Morocco Grid 488484. on *Quercus suber*. 23 june 1992, 10745a.

– 5 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 57. 1700 m 35°2' N, 4°56' W. French lambert, North Morocco Grid 543491. On N-facing soil bank. 24 june 1992, 10857.

Aulacomnium palustre (Hedw.) Schwägr. – 71 km from Chefchaouen on road to Ketama, 13 km W from Bab Berred. Locality 58. 1450 m 35°1' N, 4°59'W. French lambert, North Morocco Grid 539490. 24 june 1992, 10864.

Bartramia pomiformis Hedw. – 5 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 57. 1700 m 35°2' N, 4°56' W. French lambert, North Morocco Grid 543491. On N-facing soil bank. 24 june 1992, 10855.

– 5 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 57. 1700 m 35°2' N, 4°56' W. French lambert, North Morocco Grid 543491. On N-facing soil bank. 24 june 1992, 10856.

- Bartramia stricta* Brid. – c. 15 km SW of Ketama along road to Taounate and Fès. Locality 43. 1000m 34°53'N, 4°38'W French lambert, North Morocco Grid 570476. 19 june 1992, 10632a.
- Cratoneuron filicinum* (Hedw.) Spruce – c. 13 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 46. 1850 m 34°52'N, 4°31' W. French lambert, North Morocco Grid 580474. 20 june 1992, 10689.
- Crossidium squamiferum* (Viv.) Jur. var. *pottioideum* (De Not.) Mönk. – 9 km from Taineste, c. 42 km due NNW from Taza. Locality 40. 1000m 34°36'N, 4°5'W. French lambert, North Morocco Grid 621445. Under limestone overhang. 18 june 1992, 10621.
- Cryphaea heteromalla* (Hedw.) D. Mohr – c. 23 km from Ouazzane, on road to Chefchaouen. Locality 52. 105m 34°57'N, 5°32'W. French lambert, North Morocco Grid 488484. on *Salix*. 23 june 1992, 10747.
– c. 16 km from Ouazzane, on road to Chefchaouen. Locality 53. 110m 34°55'N, 5°32'W. French lambert, North Morocco Grid 488479. on *Salix*. 23 june 1992, 10773.
- Dicranella howei* Renaud & Cardot – c. 29 km from Chefchaouen, on road to Guazzane, Douar El Kob. Locality 51. 115 m 35°2' N, 5°26' W. French lambert, North Morocco Grid 498492. On ground. 23 june 1992, 10732.
- Dicranoweisia cirrata* (Hedw.) Lindb. – 3 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 56. 1480 m 35°2' N, 4°58' W. French lambert, North Morocco Grid 540492. 24 june 1992, 10803.
- Didymodon rigidulus* Hedw. – 18 km from Taza along minor road to Gouffe de Friouato and Jbel Tazzeka. Locality 26. 1200 m 34°8' N, 4°2' W. French lambert, North Morocco Grid 612383. On soil in *Quercus suber* and *Q. canariensis* mixed woodland on acid slatey schist. 15 june 1992, 10584.
- Didymodon vinealis* (Brid.) R.H.Zander – 34 km from Azrou along road to Midelt. Locality 17. 1880 m 33°12'N, 5°4'W. French lambert, North Morocco Grid 531290. On Limestone rock by river in small gorge below road. 12 june 1992, 10517.
- Encalypta vulgaris* Hedw. – 18 km from Taza along minor road to Gouffe de Friouato and Jbel Tazzeka. Locality 26. 1200 m 34°8' N, 4°2' W. French lambert, North Morocco Grid 626394. Limestone rocks and soil under *Quercus ilex*. 15 june 1992, 10567.
- **Entosthodon duriaei* Mont. – 4 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 44. 1500 m 34°43'N, 4°36' W. French lambert, North Morocco Grid 574477. On rocks in stream. 20 june 1992, 10657.
- Eucladium verticillatum* (With.) Bruch & Schimp. – 9 km from Taineste, c. 42 km due NNW from Taza. Locality 40. 1000m 34°36'N, 4°5'W. French lambert, North Morocco Grid 621445. Under limestone overhang. 18 june 1992, 10619.
- Fissidens crispus* Mont. – c. 21 km from Guazzane on road to Souk el Arba du Gharb. Locality 54. 140 m 34°47'N, 5°45'W. French lambert, North Morocco Grid 468465. On ground under olives. 23 june 1992, 10785.
- Fontinalis antipyretica* Hedw. – 4 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 44. 1500 m 34°43'N, 4°36' W. French lambert, North Morocco Grid 574477. On rocks in stream. 20 june 1992, 10670.
- Funaria hygrometrica* Hedw. – Eaux et Forêt, Ikaouen, c. 40 km N from Taounate on road to Ketama. Locality 42. 1000 m 34°48'N, 4°38' W. French lambert, North Morocco Grid 571466. On burnt area in wood. 19 june 1992, 10630.

- Grimmia laevigata*** (Brid.) Brid. – c. 15 km from El Hajeb on road to Ifrane, Forest de Jaaba. Locality 4. 1400m 34°36'N, 5°17'W. French lambert, North Morocco Grid 511333. On rock in *Quercus canariensis* woodland. 09 june 1992, 10458.
 – 22 km towards Ain Leuh from Azrou to Midelt main road. Locality 10. 1450m, 33°25'N, 5°12'W. French lambert, North Morocco Grid 518312. On rock in *Quercus rotundifolia* forest. 11 june 1992, 10484.
 – c. 15 km SW of Ketama along road to Taounate and Fès. Locality 43. 1000m 34°53'N, 4°38'W. French lambert, North Morocco Grid 570476. 19 june 1992, 10632b.
- Hedwigia stellata*** Hedenäs – 3 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 56. 1480 m 35°2' N, 4°58' W. French lambert, North Morocco Grid 540492. 24 june 1992, 10795.
- **Hypnum cupressiforme*** var. *cupressiforme* Hedw. – c. 23 km from Ouazzane, on road to Chefchaouen. Locality 52. 105m 34°57'N, 5°32'W. French lambert, North Morocco Grid 488484. 23 june 1992, 10759.
- **Hypnum cupressiforme*** Hedw. var. *lacunosum* Brid. – 22 km towards Ain Leuh from Azrou to Midelt main road. Locality 10. 1450m, 33°25'N, 5°12'W. French lambert, North Morocco Grid 518312. On rock in *Quercus rotundifolia* forest. 11 june 1992, 10492.
- **Homalothecium lutescens*** (Hedw.) H. Rob. – c. 9 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 47. 1750 m 34°53'N, 4°34' W. French lambert, North Morocco Grid 576475. 20 june 1992, 10705.
- Imbricium alpinum*** (Huds. ex With.) N. Pedersen – 71 km from Chefchaouen on road to Ketama, 13 km W from Bab Berred. Locality 58. 1450 m 35°1' N, 4°59'W. French lambert, North Morocco Grid 539490. 24 june 1992, 10869.
- Kindbergia praelonga*** (Hedw.) Ochyra – c. 9 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 47. 1750 m 34°53'N, 4°34' W. French lambert, North Morocco Grid 576475. 20 june 1992, 10710.
 – 3 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 56. 1480 m 35°2' N, 4°58' W. French lambert, North Morocco Grid 540492. *S.L. Jury & F.M. Raimondo*, 24 june 1992, 10804.
- Leptodon smithii*** (Hedw.) F. Weber & D. Mohr – 22 km towards Ain Leuh from Azrou to Midelt main road. Locality 10. 1450m, 33°25'N, 5°12'W. French lambert, North Morocco Grid 518312. On rock in *Quercus rotundifolia* forest. 11 june 1992, 10488.
 – c. 16 km from Ouazzane, on road to Chefchaouen. Locality 53. 110m 34°55'N, 5°32'W. French lambert, North Morocco Grid 488479. On *Quercus suber*. 23 june 1992, 10778.
 – 34 km from Chefchaouen, 10 km above Bab Taza on track to Jbel Talassemthane. Locality 63. 1420m 35°6'N, 5°11'W. French lambert, North Morocco Grid 520499. on rock. 26 june 1992, 10936.
- Leucodon sciuroides*** (Hedw.) Schwägr. – c. 23 km from Ouazzane, on road to Chefchaouen. Locality 52. 105m 34°57'N, 5°32'W. French lambert, North Morocco Grid 488484. on *Quercus suber*. 23 june 1992, 10748.
 – 40 km from Chefchaouen on route to Jbel Tassaout, 10 km above Talambote. Locality 61. 1565m 35°16'N, 5°8'W. French lambert, North Morocco Grid 524518. 25 june 1992, 10923.

- Neckera menziesii* Drumm. – 34 km from Chefchaouen, 10 km above Bab Taza on track to Jbel Talassemthane. Locality 63. 1420m 35°6'N, 5°11'W. French lambert, North Morocco Grid 520499. 26 june 1992, 10942.
- Neckera pumila* Hedw. – 84 km from Chefchaouen on road to Ketama, Bab Berred. Locality 54A. 1130m 35°0'N, 4°53'W. French lambert, North Morocco Grid 547488. 24 june 1992, 10790d.
- Nogopterium gracile* (Hedw.) Crosby & W.R. Buck – c. 9 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 47. 1750 m 34°53'N, 4°34' W. French lambert, North Morocco Grid 576475. 20 june 1992, 10708.
- Orthotrichum lyellii* Hook. & Taylor – 18 km from Taza along minor road to Gouffe de Friouato and Jbel Tazzeke. Locality 26. 1200 m 34°8' N, 4°2' W. French lambert, North Morocco Grid 626394. Limestone rocks and soil under *Quercus ilex*. 15 june 1992, 10561a.
– 40 km from Chefchaouen on route to Jbel Tassaout, 10 km above Talambote. Locality 61. 1565m 35°16'N, 5°8'W. French lambert, North Morocco Grid 524518. 25 june 1992, 10928.
- Palustriella commutata* (Hedw.) Ochyra – c. 15 km SW of Ketama along road to Taounate and Fès. Locality 43. 1000m 34°53'N, 4°38'W French lambert, North Morocco Grid 570476. On rock in stream. 19 june 1992, 10636.
- Philonotis fontana* (Hedw.) Brid. – c. 13 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 46. 1850 m 34°52'N, 4°31' W. French lambert, North Morocco Grid 580474. Wet flush in *Cedrus atlantica* forest. 20 june 1992, 10696.
- Philonotis tomentella* Molendo – 71 km from Chefchaouen on road to Ketama, 13 km W from Bab Berred. Locality 58. 1450 m 35°1' N, 4°59'W. French lambert, North Morocco Grid 539490. *S.L. Jury & F.M. Raimondo* 24 june 1992, 10874.
- Polytrichum juniperinum* Hedw. – 5 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 57. 1700 m 35°2' N, 4°56' W. French lambert, North Morocco Grid 543491. 24 june 1992, 10840.
- ***Polytrichum piliferum* Hedw. – 5 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 57. 1700 m 35°2' N, 4°56' W. French lambert, North Morocco Grid 543491. 24 june 1992, 10846.
- **Plagiomnium undulatum* (Hedw.) T.J.Kop. – c. 13 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 46. 1850 m 34°52'N, 4°31' W. French lambert, North Morocco Grid 580474. Wet flush in *Cedrus atlantica* forest. 20 june 1992, 10686.
- Pogonatum aloides* (Hedw.) P. Beauv. – 71 km from Chefchaouen on road to Ketama, 13 km W from Bab Berred. Locality 58. 1450 m 35°1' N, 4°59'W. French lambert, North Morocco Grid 539490. 24 june 1992, 10867.
- Pterigynandrum filiforme* Hedw. var. *majus* (De Not.) De Not. – 5 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 57. 1700 m 35°2' N, 4°56' W. French lambert, North Morocco Grid 543491. 24 june 1992, 10854.
- Rhizomnium punctatum* (Hedw.) T.J.Kop. – c. 13 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 46. 1850 m 34°52'N,

- 4°31' W. French lambert, North Morocco Grid 580474. Wet flush in *Cedrus atlantica* forest. 20 june 1992, 10676.
- Rhynchosygium megalopolitanum*** (Blandow ex F. Weber & D. Mohr) Schimp. – c. 12 km from Rabat on road to Meknès, Forêt de la Maârmora. Locality 1. 80m 34°2'N, 6°42'W. French lambert, North Morocco Grid 379382. on base of *Chamaerops* in *Quercus suber* wood. 09 june 1992, 10452a.
- Rhynchosygium riparioides*** (Hedw.) Cardot – 4 km along track to Jbel Tidirhine, the track starting 1 km SW of Tleta-Ketama and 9 from Ketama. Locality 44. 1500 m 34°43'N, 4°36' W. French lambert, North Morocco Grid 574477. On rocks in stream. 20 june 1992, 10669.
- Scleropodium touretii*** (Brid.) L.F. Koch – c. 16 km from Ouazzane, on road to Chefchaouen. Locality 53. 110m 34°55'N, 5°32'W. French lambert, North Morocco Grid 488479. on *Salix*. 23 june 1992, 10770.
- Syntrichia laevipila*** Brid. – c. 23 km from Ouazzane, on road to Chefchaouen. Locality 52. 105m 34°57'N, 5°32'W. French lambert, North Morocco Grid 488484. 23 june 1992, 10757.
- Syntrichia papillosissima*** (Copp.) Loeske – 34 km from Azrou along road to Midelt. Locality 17. 1880m 33°12'N, 5°4'W. French lambert, North Morocco Grid 531290. On NE-facing limestone rock by river in small gorge below road. 12 june 1992, 10525.
- Syntrichia ruralis*** (Hedw.) F. Weber & D. Mohr var. ***ruralis*** – 5 km up track to Jbel Tizinare; start of track 72 km from Chefchaouen on road to Ketama, 12 km W from Bab Berred. Locality 57. 1700 m 35°2' N, 4°56' W. French lambert, North Morocco Grid 543491. 24 june 1992, 10849.
– 44 km from Chefchaouen on route to Jbel Tassaout, 14 km above Talambote. Locality 60. 1600m 35°15'N, 5°5'W. French lambert, North Morocco Grid 528517. 25 june 1992, 10896.
- Timmia barbuloidea*** (Brid.) Mönk. – c. 16 km from Ouazzane, on road to Chefchaouen. Locality 53. 110m 34°55'N, 5°32'W. French lambert, North Morocco Grid 488479. on *Salix*. 23 june 1992, 10777.
- Tortella nitida*** (Lindb.) Broth. – 36 km from Taquist, 1 km above Torres de Alcalá. Locality 49. 125m, 35°10'N, 4°19'W. French lambert, North Morocco Grid 599506. On soil. 21 june 1992, 10715.
- Tortella squarrosa*** (Brid.) Limpr. – c. 6 km SE of Sidi Abdallah (town on Fès-Taza road), along minor road to Bab-Boudir. Locality 28. 340m 34°9'N, 4°19'W. French lambert, North Morocco Grid 601395. Limestone gorge, W-facing slope in *Olea ceratonia*. 15 june 1992, 10587.
– Western outskirts of Taineste, c. 40 km due NNW of Taza. Locality 39. 1100m 34°34'N, 4°8'W. French lambert, North Morocco Grid 616441. 18 june 1992, 10617c.
- **Tortula lindbergii*** Broth. – 44 km from Chefchaouen on route to Jbel Tassaout, 14 km above Talambote. Locality 60. 1600m 35°15'N, 5°5'W. French lambert, North Morocco Grid 528517. 25 june 1992, 10888.

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