

CHECK LIST OF IRAQI BRYOFLORA

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INTRODUCTION

The pioneer contributions included a sign for Iraqi Bryoflora were those of (Juratzka & Milde) and Schiffner published at the end of the 19th century i.e. (1870 & 1897) respectively. However, throughout the whole next century, the 20th, only few papers, by different authors, have been published separately. They are Schiffner (1913); Handel-Mazzetti (1914); Froelich (1959); Vondracek (1962 & 1965); Agnew & Townsend (1970); Agnew (1973); Agnew & Vondracek (1975); Long (1979); Al-Ni'ma (1994). The most comprehensive work among them was the "Moss Flora of Iraq" by Agnew & Vondracek (1975). It included a description of 54 genera and 145 species with an identification key in addition to notes on the climate, topography and soil of the country. This flora is of a great scientific value. It forms a major basic source of information not only about Iraq flora but for adjacent regions also.

Some of these researchers deposited their specimen as follows: Agnew in Baghdad University Herbarium and British Museum, Vondracek in Baghdad University Herbarium, Handel-Mazzetti at Natural History Museum in Vienna and Al-Ni'ma in the Herbarium of the College of Science, Mosul University.

In the end of the 20th century, the idea has come to unify the previously recorded taxa in a single issue to be available for the next generation in the beginning of the new century.

Arrangement of the list:

- The present list includes 12 orders with 23 families, 70 genera and a total of 218 species, out of which only 12 species belong to 4 orders of liverworts.
- Mosses were arranged following that of Agnew & Vondracek (1975), while the liverworts arranged according to Watson (1968).

Each taxon followed by an abbreviated citation including collectors' names and distribution's district.

Important note:

The districts of, only, Handel-Mazzetti species will not be given since this author referred to the ecological habitat of his taxa without denotation of location's names. To remind the reader with this important note a star (*) was added after (Han) throughout the list.

A/ Collectors' names and their abbreviation

1. Schiffner (1897).....(S18)
2. Schiffner (1913).....(S19)
3. Handel – Mazzitti (1914)(Han)
4. Froelic (1959)(Fro)
5. Vondracek (1962)(V62)
6. Vondracek (1965)(V65)

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7. Agnew (1973)(Agn)
8. Agnew& Vondracek (1975).....(A & V)
9. Long (1979)(Lon)
10. Al- Ni'ma (1994)(Aln)

B/Physiographic districts and their abbreviations

- Amadiya district:.....(MAM)
Rowanduz district:.....(MRO)
Sulaimainya district:.....(MSU)
Jabal Singar district:.....(MJS)
Upper Jazira district:.....(FUJ)
Nineveh district:.....(FNI)
Arbil district:.....(FAR)
Kirkuk district:.....(FKI)
Prsian Foothills district.....(FPF)
Lower Jazira district:.....(DLJ)
Ghurfa-Adhaim district:.....(DGA)
Western Desert district:.....(DWD)
Southern Desert district:.....(DSD)
Eastern Alluvial plain district:.....(LEA)
Central Alluvial plain district:.....(LCA)
Southern March district:.....(LSM)
Basra Estuarine district:.....(LBA)

- These physiographic districts of Iraq were used throughout the Flora of Iraq by Guest (1966). We prefer to use it here also rather than the distribution in "Moss flora of Iraq", since it depends upon administrative units. (i.e.) liwa or province. Names and borders of these units are probably subject for changes with times as it was already took place.

A-CLASS MUSCI

Subclass Bryales

I. Order Fissidentales

I. a. Family Fissidentaceae

- 1.1- *Fissidens arnoldi* Ruthe [For:MAM; A&V:FAR, MSU, MAM]
- 1.2- *F. bryoides* Hedw. [A&V:MSU]
- 1.3- *F. crassipes* Wils. [A&V:MAM]
- 1.4- *F. crassipes* var. *submarginatus* Fleisch et Warnst. [S19:MJS; Han:*; A&V:MJS]
- 1.5- *F. mnevidis* Amann [A&V:MRO, FAR]
- 1.6- *F. persicus* Ruthe et Milde [A&V:MJS, MSU]
- 1.7- *F. viridulus* (Web. Et Mohr) [A&V:MRO, MSU]

II. Order Dicrinales

II. a. Family Ditrichaceae

- 2.1- *Distichium capillaceum* (Hedw.) B. S. G. [A&V; MRO]
- 2.2- *D. capillaceum* var. *compactum* [Huben.](FRO; Rementioned in A&V)[FAR,ARO]
- 3.1- *Cheilothela chloropus* (Brid.) Lind. [A&V;MRO]

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II, b. Family Dicranaceae

4.1- *Anisothecium varium* (Hedw.) Mitt. [A&V;MRO]

III. Order Pottiales

III. a. Family Encalyptaceae

5.1- *Encalypta intermedia* Jur. [S19; FUJ; Han:*; Fro: MSU; A&V; MSU, MRO, FUJ, MAM]

5.2- *E. rhadocarpa* Swchwaegr. [A&V; MJS]

5.3- *E. vulgaris* Hedw. [A&V: MRO, FAR, MAM, FNI, MSU]

III. b. Family Pottiaceae

III. b./i Subfamily Trichostomea

6.1- *Barbula acuta* (Brid.) Brid. [Han:*; A&V: Diyala province (Jebel Hamrin & Diyala weir), MRO, FKI, MAM, FNI]

6.2- *B. fallax* Hedw. [Fro: MSU; A&V: MSU]

6.3- *B. Hornschuchiana* Schultz [Han:*; A&V: FAR, MRO, MAM, FNI]

6.4- *B. Hornschuchiana* var. *pseudorevoluta* Reim. [A&V: FPF (Jebel Hamrin)]

6.5- *B. icmadophila* Schimp [A&V: MRO]

6.6- *Barbula revoluta* Brid. [Han:*; A&V: MRO, MSU]

6.7- *B. rigidula* (Hedw.) Mitt. [S19: MAM; Han:*] According to Smith (1978) they mentioned the synonyme *Didymodon rigidulus* Hedw.

6.8- *B. tophaceae* (Brid.) Mitt. [Fro: FKI; A&V: LEA, FAR, MRO, MSU] The 1st author mentioned the synonym *Didymodon tophaceae*.

6.9- *B. tophaceae* f. *lingulata* Moenk. [A&V: LEA, MRO]

6.10- *B. trifaria* (Hedw.) Mitt. [V62: MRO]

6.11- *B. trifaria* var. *desertorum* (Froehlich) S. Agnew Comb. Nov. [Fro: LEA, FPF, LSM, Tib river FPF/LEA/LSM; A&V: Tib river DGA, LEA, FPF, DWD, MRO, FKI, FUJ, FNI, MAM]. The 1st author mentioned the synonym *Barbula rigidula* var. *desertorum*.

6.12- *B. unguiculata* Hedw. [Fro: MSU, A&V: LEA, MRO, MSU, FNI]

6.13- *B. vianalis* Brid. [S19: MAM, MJS, FUJ; Han:*; A&V: FPF Jebel Hamrin, LEA, MRO, DWD, FAR, MSU, MAM, FUJ, DLJ, MJS]

6.14- *B. vianalis* var. *cylindrica* Boul. [A&V: MRO, FNI, MAM, MSU]

7.1- *Hydrogonium ehrenbergii* (Lorentz) Jager et Sauerb. [Han:*; A&V: MRO, MAM,] the 1st author mentioned the synonym *Didymodon ehrenbergii*.

8.1- *Streblotrichum convolutum* (Hedw.) P. Beauv. [A&V: MAM]

9.1- *Hymenostylium recurvirostrum* (Hedw.) Dix. [A&V: MRO]

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- 10.1- *Anoetangium aestivum* (Hedw.) B. S. G. [A&V: MSU]
10.2- *A. handelii* Schiffn [Han:*; A&V: MAM,MSU]
11.1- *Eucladium verticillatum* (Brid.) B. S. G. [Fro: MSU, MRO, V62:MRO;A&V:MRO,FPF,FNI,MAM,MSU]
11.2- *E. verticillatum* var. *angustifolium* Jur. [A&V: MRO]
12.1- *Hymenostomum tortile* (Schwaegr.) B. S. G. [S19: MJS;Han:*;A&V: MRO,MSU,FNI,MJS,FUJ]
13.1- *Weissia controversa* var. *amblydon* (Brid.) C. Jens. [V62: MRO; rementioned in A&V]. It seems that both authors referred to the same specimen since they were collected it from Helgurd mountain, but the variety was mentioned only in (A&V).
14.1- *W. crispata* (Nees & Hornsch.) C. Mull. [Han:*]
14.2- *Weissia fallax* Sehm. [A&V: MRO, MSU, MAM]
15.1- *Gymnostomum aeruginosum* Smith [A&V: MRO, DLJ, MSU]
15.2- *G. calcareum* Nees & Hornsch [V62: MRO; A&V: MRO, FKI, MSU]
15.3- *G. mosis* (Lor.) Jur. at Milde [A&V: FPE (JebelJamrin),MRO,FKI,MSU,DLJ,FNI,MAM,DSD]
15.4- *G. rupestra* Schleich [Han:*;V62:MRO]
16.1- *Gyroweisia tenuis* (Hedw.) Schimp. [S19: MAM; Han:*;A&V:LEA,FP (Diyala weir),LBA,DWD,MSU,MAM]
17.1- *Timmiella barbuloidea* (Brid.) Moenk. [S19: FUJ,MJS;Han:*;A&V:MRO,FKI,MSU,MAM,FNI,FUJ,MJS]
18.1- *Trichostomum crispulum* var. *elatum* Schimp. [A&V: MRO, MSU, MAM]
19.1- *Tortella tortuosa* (Hedw.) Limpr. [V62: MRO;A&V:MRO,MAM,MSU]
20.1- *Pleurochaete squarrosa* (Brid.) Lindb. [A&V: MSU, MAM]

III. b/ii Subfamily Pottiae

- 21.1- *Acaulon triquetrum* (Spruce) C. Mull [A&V: LEA]
22.1- *Pteryoneurum ovatum* (Hedw.) Dix.[Han:*; A&V: FUJ, DGA, LEA, DWD, LCA, MSU] The 1st author mentioned the synonyme *P. cavifolium*.
23.1- *Pottia commutata* Limp [Han: *; A&V: FUJ, LCA, (Baghdad) LEA, MSU, FNI]
23.2- *P. davalliana* (Smith) Broth.[A&V: LCA, LEA (Baghdad). MSU, FUJ]
23.3- *Pottia lanceolata* (Hedw.) C. Mull. [Han: *; A&V: MRO, MAM]
23.4- *P. mutica* ven [S19: FUJ; Han: *; A&V: FKI, MSU, DLJ, FUJ]
*; A&V: FKI, MSU, DLJ, FUJ]
23.5- *P. recta* (Sm.) Mitt.[A&V: LCA/LEA (Baghdad)]
23.6- *P. strakeana* (Hedw.) C. Mull. [A&V: DLJ]

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- 24.1- *Phascum cuspidatum* Hedw. [Lon: FPF]
24.2- *Phascum piliferum* [Han: *]
25.1- *Aloina ambigua* (B.S.G) Limpr [A&V: DSD, FPF, MRO, FKI, MSU, DLJ, FNI, MAM]
25.2- *A. rigida* (Hedw.) Kindb. [Fro: FPF, A&V: LEA, DWD, DLJ, FUJ]
25.3- *A. rigida* var. *pilifera* B.S.G. [A&V: LCA, LEA (Baghdad), DGA, FPF, DWD, DLJ, LCA, FKI, FUJ]
25.4- *A. stellata* [Han: *]
26.1- *Crossidium chloronotus* (Brid.) Limpr. [Han: *; A&V: LEA]
26.2- *C. griseum* Jur. [S19: MJS; Han: *]
26.3- *C. squamigerum* (Viv.) Jur. [Han: *; A&V: Tip river FPF/LEA/LSM, DWD, FKI]
26.4- *C. squamigerum* var. *pottioideum* (De Not.) Moenkm. [A&V: DSD, FPF, Diyala weir, DWD, MRO, LCA, MJS, FNI, MAM, MSU]
27.1- *Trichostomopsis aaronis* (Lor.) S. Agnew & Townsend [A&V: DGA, LEA, FPF, DWD, MRO, LCA, DLJ, MAM, FUJ, DWD]
27.2- *T. Haussknechtii* (Jur. Et Milde) S. Agnew & Townsend [A&V: LEA (Diyala weir), FKI]
28.1- *Tortula alpina* (B.S.G.) Bruch [S19: FUJ; Han: *]
28.2- *T. atrovirens* (Smith) Lindb.
[A&V: DSD, LEA, MSU, FNI]
28.3- *T. brevissima* (Schiffn.) [S19: Fuj; Han: *; A&V: A&V: DSD, LCA/LEA (Baghdad), LEA, FPF, LCA, DWD, FKI, FUJ, DLJ, Mosul]
28.4- *T. desertorum* Broth.= *T. Bronnmulleri* Schiffn. [S19: FUJ, MJS; Han: *]
28.5- *T. Fioroo* (Vent.) Roth. [S19: FUJ, DLJ, Han: *; Fro: Tib river FPF/LEA/LSM, FPF; A&V: Tib river, DGA, LEA, FPF, DWD, DLJ, LCA, FKI, FUJ]
28.6- *T. handelii* Schiffn. [Han: *]
28.7- *T. inermis* (Brid.) Mont. [S19: FUJ, MJS, Kurdistan 250-1100m; Han: *; Fro: MSU]
28.8- *T. marginata* (B.S.G.) Spruce [A&V: MRO, FNI, Msu]
28.9- *T. montana* (Nees) Lndbg. [Han: *; Fro: MAM]
28.10- *T. muralis* Hedw. [Han: *; A&V: MRO, MSU, MAM]
28.11- *T. muralis* var. *aestiva* (P. Beauv) Brid. [Han: *; A&V: MRO, MAM] The 1st author mentioned the synonyme *Tortula aestivia*
28.12- *T. muralis* f. *brevifolia* (Schiffn.) Podp. [S19: MJS; A&V: MJS, FNI] The 1st author mentioned the synonyme *T. aestive* var. *brevifolia*
28.13- *T. princeps* De Not. [Frp: MAM]
28.14- *T. ruralis* (Hedw.) Gaertn [Han: *]
28.15- *T. subulata* Hedw. [Han: *]

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- 28.16- *T. vahlianas* (Schultz) Mont. [Lon: FPF]
29.1- *Syntrichia alpina* (B. S. G.) Jur. [V62:MRO; Rementioned by A&V]
29.2- *S. desetorum* (Broth.) Amann [A&V: FPF, DWD, MRO, FKI, FUJ, MJS]
29.3- *S. hadacii* Vonderacek [V65: DLJ; A&V: DLJ]
29.4- *S. handelii* (Schiffn.) Podp. [A&V: MRO, MAM, MSU]
29.5- *S. inermis* (Mont.) Huben [A&V: MRO, MSU, FUJ, MAM]
29.6- *S. laevipila* Brid [A&V: MRO, MAM, MSU]
29.7- *S. montana* Nees et Esneb [V62: M
RO, MJS, MAM, MSU]
29.8- *S. montana* var. *calva* (Dur. Et Sag.) Amann [A&V: MSU]
29.9- *S. papillosissima* (Coppey) Loeske [A&V: MRO]
29.10- *S. princeps* (De Not.) Mitt. [A&V: MRO, MSU, MAM, FUJ, DWD]
29.11- *S. pseudodesertorum* Froehlich [A&V: FPF, DWD, FKI, DLJ, FNI]
29.12- *S. pseudohandelii* Froehlich [V65:MSU; A&V: MRO, FKI, FNI, FUJ, DLJ, MSU].
The 1st author mentioned the synonym *S. handelii* var. *pseudodesertorum*.
29.13- *S. pulvinata* (Jur.) Jur. [A&V: MSU]
29.14- *S. ruralis* Brid. [A&V: MRO, MAM, MSU]

III.b/iii Subfamily Cinclidoteae

- 30.1- *Cinclidotus fontinaloides* (Hedw.)P. Beauv. [A&V: MRO, MAM, MSU]
30.2- *C. nigricans* (Brid.) Loeske [A&V: MAM]
30.3- *C. riparius* (brid.) Arnott. [Han:*

IV. Order Grimmiaceae

IV. a. Family Grimmiaceae

- 31.1- *Coscindon cribrosus* (Hedw.) Spruce [Han:*)
32.1- *Schistidium apocarpum* var. *atrofusum* (Schimp.) Husnot [S19: MJS; Han:*;V62:
MRO.; A&V: MRO, MSU, MJS, MAM]. The 1st & 2nd authors mentioned the synonym
Grimmia singarensis.
33.1- *Grimmia anodon* B. S. G. [S19: MJS; Han:*; A&V: MRO, MJS, MSU]
33.2- *G. apiculata* Hornsch. [A&V: MRO]
33.3- *G. apocarpa* Hedw. [Han:*)
33.4- *G. campstris* Hook. [Han:*)
33.5- *G. commutata* Hub. [Han:*; Fro: MSU; V62: MRO; A&V: MRO, MSU]
33.6- *G. crinita* Brid. [Fro: Tib river FPF/LEA/LSM, DSD; A&V: FPF< FKI, MSU, DSD]

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- 33.7- *G. gibbosa* S. Agnew [Agn: FKI; Rementioned in A&V] (Tuz khurmatil bridge over lesser zab river and in Ain Dibbis). Note: Altone Kopri is located on lesser zab not Tuz khurmatil as the author mentioned.
- 33.8- *G. laevigata* (Brid.) Brid. [A&V: MRO]
- 33.9- *G. mesopotamica* Schiffn. [S19: DWD; Han:*; A&V: FPF, Diala weir, DWD, LCA, FPF]
- 33.10- *G. orbicularis* Bruch [S19 On calcareous rocks. It is the most abundant mosses in North mesopotamia and Kurdistan 400-1250 m; Fro: MAM; A&V: FPF, MRO; FKI, MAM, FNI, MJS, FUJ, DLJ, MAM, MSU]
- 33.11- *G. orbicularis* var. *persica* Schiffn. [S19:DWD, FUJ,MJS; and rementioned in (Han) & (A&V)]
- 33.12- *G. ovalis* var. *simplex* Vondracek
[V65: MRO; A&V: MRO]
- 33.13- *G. pulvinata* (Hedw.) Sm.
[Han: *; A&V: MRO, MSU, MAM]
- 33.14- *G. subcaespitica* Schiffn. [Han:*,A&V: MRO]
- 33.15- *G. lergestina* Tomm. [Han:*; A&V: MRO, MJS, FNI, MSU]
- 33.16- *G. trichophylla* Grev. [Fro: MSU; Rementioned in A&V]

V. Order Funariales

V. a. Family Funariaceae

- 34.1-*Physcomitrella patens* (Hedw.) B. S. G. [V65: LSM; A&V: LEA (Baghdad)]
- 34.2- *P. patens* var. *marginata* Vondracek [A&V: LSM]
- 35.1- *Entosthodon angustifolius* Jur. et Milde [A&V: FKI, MJS]
- 35.2- *E. handelii* Schiffn. [S19: mentioned the synonym *Funaria handelii* on calcareous rock in North East mesopotamia and middle Kurdistan 250-1800 m; Han: FUJ; A&V: MRO, FUJ, MAM, FNI, DSD]
- 35.3- *E. templetoni* (Smith) Schwaegr. [A&V: MRO, FUJ, MAM]
- 36.1- *Steppomitra hadacii* Vondracek [V65: FUJ; rementioned in (A&V)]
- 37.1- *Funaria hygrometrica* Hedw. [Han: *; A&V: LCA (Baghdad), MRO, MAM, FUJ, MSU]
- 37.2- *F. mediterranea* Lindb. [Han: *; A&V: MRO, FNI, FUJ]

V. b Family Splachnaceae

- 38.1- *Tayloria lingulata* var. *acutifolia* [Han: *]

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VI. Order Eubryales

VI. a Family Bryaceae

- 39.1- *Mniobrium albicans* (Wahib.) Limpr. [S19: MJS; Han: *; A&V: LCA (Baghdad), MRO, MSU]
- 39.2- *Mniobrium delicatrum* (Hedw.) Dix [A&V: LCA, MRO, MAM, MSU, FPF, MJS]
- 39.3- *M. latifolium* Schiffn. [Han: *; A&V: MRO]
- 40.1- *Pohlia cruda* (Hedw.) Lindb. [A&V: MRO]
- 41.1- *Bryum* sp. Sterile specimen [Han: *]
- 41.2- *Bryum* sp. [Fro: DSD]
- 41.3- *B. alpinum* Brid. [Fro: MSU; A&V: MRO, MAM, MSU]
- 41.4- *B. argentum* Hedw. [A&V: MRO, MSU]
- 41.5- *B. argentum* var. *lanatum* (P. Beauv.) B.S.G. [Fro: MSU; A&V: FKI, MSU]
- 41.6- *B. bicolor* Dicks [Lon: FPF]
- 41.7- *B. badium* Bruch ex Ruthe [Han: *; A&V: FAR, MAM, MSU]
- 41.8- *B. caespiticum* Hedw. [Han: *; Fro: MAM; A&V: MAM, MSU]
- 41.9- *B. capillare* Hedw. [Han: *; A&V: MRO, MAM, FUJ, MSU]
- 41.10- *B. capillare* f. *flaccidum* B.S.G. [A&V: MSU]
- 41.11- *B. capillare* var. *torquescens* (B.S.G.) Husn. [S18: MRO; Fro: MSU; A&V: MRO, MAM, MSU] The 1st & 2nd author mentioned the synonyme *Bryum torquescens*
- 41.12- *B. cirratum* Hoppe et Hornsch. [A&V: MRO]
- 41.13- *B. donianum* Grev. [A&V: MSU]
- 41.14- *B. funkii* Schwaegr. [Han: *; V62: MRO; A&V: LBA, LCA (Baghdad), DWD, FNI, MSU, LEA]
- 41.15- *B. pallens* (Brid.) Rohl. [A&V: MRO]
- 41.16- *B. pallescens* Schleich. [V62: MRO; A&V: MSU, MRO, FPF, DWD, LCA]
- 41.17- *B. pseudotriquetum* (Hedw.) Schwaegr. [V62: MRO; A&V: MRO]
- 41.18- *B. schleicheri* Schwaegr. [A&V: MRO, MSU]
- 41.19- *B. syriacum* Lor. [Han: *; Fro: MRO; rementioned in A&V]
- 41.20- *B. ventricosum* [Han: *]

VI. b. Family Mniaceae

- 42.1- *Mnium longirostrum* Brid. [V62: MRO; A&V: MRO]

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VI. c. Family Bartamiaceae

- 43.1- *Anacolina webbii* (Mont.) Schimp. [A&V: MRO]
- 44.1- *Philonotis caespitosa* Wils. [A&V: MRO, MAM]
- 44.2- *P. calcaera* (B. S. G.) Schimp. [Han:*; V62:MRO; A&V: MRO, MAM]
- 44.3- *P. fontana* (Hedw.) Brid. [Fro: MRO; A&V: MRO, MSU]
- 44.4- *P. fontana* f. *laxifolia* Moenk. ap. Loeske [A&V: MRO]
- 44.5- *P. marchia* (Hedw.) Brid. [Han:*]
- 44.6- *P. seriata* (Mitt.) Lindb. [Fro: MAM; rementioned in A&V]
- 44.7- *P. tomentella* Mol. [Han:*; V62: MRO,; A&V: MRO]

VII. Order Isobryales

VII. a. Family Fontinalaceae

- 45.1- *Fontinalis mesopotamica* [Han:*]

VII. b. Family Orthotrichaceae

- 46.1- *Orthotrichum affine* Brid. [A&V: MRO, MAM, MSU]
- 46.2- *O. cupulatum* Brid. [Fro: MAM; A&V: MRO, MAM, MSU]
- 46.3- *O. cupulatum* var. *papillosum* Gronv. [A&V: MRO, MSU]
- 46.4- *O. cupulatum* var. *bistratosum* [Han:*]
- 46.5- *O. lyellii* Hook et Tayl. [A&V: MRO, MAM, MSU]
- 46.6- *O. octoblephare* [V62: MRO]
- 46.7- *O. rupestre* Schleich [Han:*; V62: MRO; A&V: MRO]
- 46.8- *O. schimperi* Hammar [A&V: MRO, MAM, MSU]
- 46.9- *O. soeciosum* Nees [A&V: MSU]
- 46.10- *O. strumii* [Han:*]

VII. c. Family Leucodontaceae

- 47.1- *Antitrichia breidleriana* Schiffn. [Han:*; A&V: MRO]

VIII. Order Hypnobryales

VIII. a. Family Fabroniaceae

- 48.1- *Fabronia pusilla* Radi [A&V: MRO, MAM]

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VIII. b. Family Hypnaceae

VIII. b/i. Subfamily Amblystegiaceae

- 49.1- *Cratoneuron commutatum* (Hedw.) Roth. [Han:*; A&V: MRO, MAM]
49.2- *C. commutatum* var. *falcatum* (Brid.) Moenk. [Fro: MRO; V62: MRO; A&V: MRO, MSU]
49.3- *C. commutatum* var. *sulcatum* (Lindb.) Monk. [V62: MRO]
49.4- *C. decipiens* (De not.) Loeske [Han:*; V62: MRO; A&V: MRO]
49.5- *C. decipiens* var. *napaeforme* [Han:*]
49.6- *C. filicinum* (Hedw.) Roth. [Fro: MSU; A&V: MRO, MAM, MSU]
50.1- *Amblystegium juratzkanum* Schimp. [A&V: MRO]. Smith (1978) treated this taxon as a synonym of *A. serpens* as it is quite impossible to separate the two taxa.
50.2- *A. kurdicum* [Han:*]
50.3- *A. serpens* (Hedw.) B. S. G. [A&V: MAM]
50.4- *A. tenax* (Hedw.) C. Jens=Hygroamblystegium irriguum [Han] this author mentioned the synonym *Hygroamblystegium irriguum* but Smith (1978) following Nyholm (1954-69) included *Hygroamblystegium* in *Amblystegium* and use the new name *A. tenax*.
50.5- *A. varium* (Hedw.) Lindb. [A&V: MRO, MSU]
51.1- *Amblystegiella jungermannioides* (Brid.) Giacomini [A&V: MRO]
51.2- *A. spruci* (Bruch) Loeske [V62: MRO]
52.1- *Leptodictyum riparium* (Hedw.) Warnst. [A&V: MSU]
53.1- *Drepanocladus aduncus* (Hedw.) Moenk. [A&V: MRO]
54.1- *Acrocladium cuspidatum* (Hedw.) Lindb. [A&V: MRO]
55.1- *Calliergon cuspidatum* = *Calliergonella cuspidata* [V62: MRO]. The 1st name is the new name, after Smith (1978).

VIII. b/ii Subfamily Brachytheciaceae

- 56.1- *Homalothecium philippeanum* (Spruce) B.S.G. [Han: *; A&V: MRO, MAM]
56.2- *H. seriaceum* (Hedw.) B.S.G. [Han: *; A&V: MRO, MSU]
57.1- *Scorpiurum circinnatum* (Brid.) Fleisch [Han: *]
58.1- *Camptothecium lutescens* (Hedw.) B.S.G. [Fro: MAM, MRO; rementioned in A&V]
59.1- *Brachythecium collinum* (Schleich.) B.S.G. [Han: *; A&V: MRO, MAM, MSU]
59.2- *B. olympicum* [Han: *]
59.3- *B. rivulare* (Bruch) B.S.G. [V62: MRO; A&V: MRO, MAM, MSU]
59.4- *B. rutabulum* (Hedw.) Br. Eur. [Han: *]

B.A. Al- Ni'ma & A. H. Al - Khay'yat

- 59.5- *B. salebrosum* Web. Et Mohr B.S.G. [A&V: MRO, MAM]
59.6- *B. trachypodium* [Han: *]
59.7- *B. velutinum* (Hedw.) B.S.G. [V62: MRO; A&V: MRO, MAM, MSU]
60.1- *Euryhynchium confertum* (Dicks.) Milde [A&V: MRO]
60.2- *E. riparioides* (Hedw.) P.W. Richards [A&V: MRO, MAM, MSU]
60.3- *E. speciosum* (Brid.) Milde [A&V: MAM]
61.1- *Rhynchostegiella curviseta* (Brid.) Limpr. [A&V: MAM]

B-CLASS HEPATICE

I. Order Sphaerocarpaceae

I.a. Family Sphaerocarpaceae

- 1.1- *Sphaerocarpous michelil* Bellardi [Aln: Mosul city FUJ/FNI]

II. Order Marchantiales

II. a. Family Targiolaceae

- 2.1- *Targionia hypophylla* L. [Fro: MSU, MRO]

II. b. Family Reboullaceae

- 3.1- *Reboullia hemisphaerica* (L.) Raddi [Fro: MAM]

II. c. Family Marcantiaceae

- 4.1- *Conocephalum conicum* (L.) Underw. [V62: MRO]
5.1- *Lunularia cruciata* (L.) Dum. [Han: *; A&V: Mosul city FUJ/FNI]
6.1- *Marcantia polymorpha* var. *alpestris* [Han: *]

II. d. Family Ricclaceae

- 7.1- *Riccia crystallina* L. [Aln: Mosul city FUJ/FNI]
7.2- *R. frostii* [S19: FNI, FUJ; Han: *]
7.3- *R. frostii* var. *major* [S19: DWD]
7.4- *R. sorcarpa* Bisch [S19: DWD]

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III. Order Metzgeriales

III. a. Family Pellaceae

8.1- *Pellia endiviifolia* Dicks. [Han: *; Fro: MSU; Aln: Mosul city FUJ/FNI] 1st & 2nd author mentioned the synonyme *P. fabbroniana*

IV. Order Jungermanniales

IV. a. Family Southbyaceae

9.1- *Southbya nigrella* (De Not.) Henriques [Lon: Jebel Hamrin FKI/FPF]

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