

Contribution to the Flora of Egypt: A Critical Inventory of Newly Recorded Vascular Taxa of Egypt

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Abstract

The current study is the first attempt to provide a comprehensive inventory of all newly recorded vascular plant taxa which were collected from Egypt after Boulos' Checklist 2009. The study was compiled by gathering several information sources such as relevant taxonomic publications, accessible online database, herbaria collections and field observations. The present study records 441 species and infraspecific taxa (309 species, 72 subspecies and 60 varieties) belonging to 83 families and 275 genera, representing 66 Monocots and 375 Eudicots. The study revealed the addition of five species viz. *Ficus religiosa*, *F. elastica*, *Vigna vexillata*, *Sagittaria sagittifolia* and carpobrous *edulis*; as well as nine families not previously recorded in the flora of Egypt. Amongst the taxa recorded, 22 endemics in ten families and 23 near endemics in 15 families. The inventory of newly recorded taxa made in the present study confirms that the Egyptian flora requires significant updating, and this study might be regarded as a supplementary to Boulos' Flora of Egypt Checklist (2009), the authors also believe that the present checklist has filled the gaps existing in the data at the sub-regional administrative scale.

Keywords: Endemics and Near endemics, Flora of Egypt, New additions, updated checklist

Introduction

Egypt has an area of about one million km²; lies in the interesting zone between the temperate and the tropical floras of Europe, South-west Asia and Africa (Zahran & Willis,

2009). The cultivated lands occupy only four percent of its area, and the rest is desert. It has wealth of biogeographic belts and diverse habitats. The Egyptian flora has been explored by numerous authors who have identified numerous taxa as being native to the flora of Egypt (e.g., Forsskål 1775; Delile 1813; Ascherson & Schweinfurth 1887/89; Muschler, 1912; Täckholm *et al.* 1941; Täckholm &

Drar, 1950- 1969; Täckholm 1956 and Montasir & Hassib 1956). Since then, a large number of publications have appeared which provide an accurate and up-to-date compendium of the flora of Egypt. Major significant contributions that deal with the updated flora of Egypt are those of Täckholm (1974); El Hadidi & Fayed (1994/95) and Boulos, (1999-2005). Recently, Boulos (2009) compiled 2145 species and 220 infraspecific taxa of native and naturalized vascular plants, belonging to 755 genera and 129 families; of which 22 Pteridophytes, six gymnosperms and 2117 angiosperms, only 48 cultivated taxa were included in his checklist. The nomenclature adopted in Boulos (l.c.) was updated by Hosni & Shams (2022); this work includes 288 taxa (comprising 34 subspecies, and 22 varieties) belonging to 169 genera and 49 families. In addition, changing the names of 22 families according to APG system (APG III, 2009) was provided.

Many weed species have recently been introduced into Egypt and are now completely naturalized. Numerous taxa that are new to the Egyptian flora have been recorded since Boulos (2009). This change is attributed to climate change and habitat destruction, resulting in the disappearance of some species and the addition of newly recorded ones. Various publications by different authors, relying on extensive fieldworks, taxonomic revisions and herbarium specimens confirm the existence of these new taxa. Some of these taxa are identified as new species, and some of these species are invasive (Shaltout *et al.* 2016, El-Beheiry *et al.* 2020), while others have been reported as new or even revived records. At present, it is evident that a new update is required.

The current study is the first attempt to compile data from all prior works done throughout various regions of Egypt in a single comprehensive work and to create an exhaustive inventory of all newly recorded vascular plant taxa after Boulos' checklist (2009).

Materials and Methods

Data resources and criteria for the compilation of the inventory:

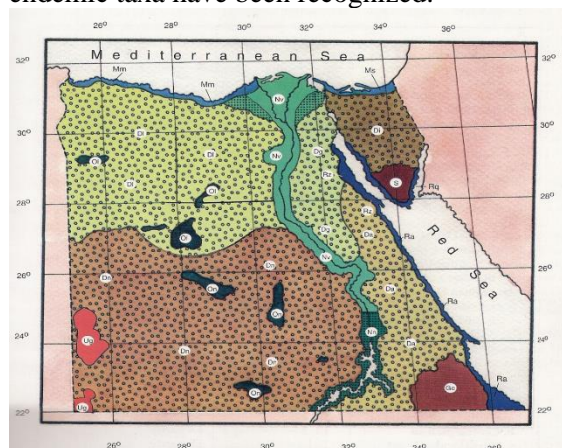
The current investigation is a compilation and

revision of a plant checklist, based on a comprehensive database of specimen records from floristic studies and all relevant taxonomic publications, which were regarded as the most significant surveys carried out in Egypt. Also, compiled the information contained in Global Biodiversity Information Facility (GBIF) the Plants of the World Online (POWO); World Checklist of Selected Plant Families (WCSP), Euro+Med PlantBase; African Plant Database (APD) and other relevant sites. In addition, field observations, taxonomic revisions of some groups and Herbarium collections preserved at the Herbaria of Cairo University (CAI), Flora and Phytotaxonomy Researches Department (CAIM), Ain Shams University (CAIA), Tanta University (TANE) (herbaria acronyms according to Thiers 2023, continuously updated) were reviewed.

Taxonomic validation and Data handling

Collected data are reviewed and updated to update approved nomenclature at infraspecific, specific, generic and family levels, and global distribution has been verified according to the latest checklists from POWO, IBNI, and WFO Plant List (If the authors did not consider the nomenclatural treatment of POWO, they relied on APD and Euro+Med PlantBase data, the definitions and nomenclature of which are still quite controversial in POWO) In the current checklist, the authors reported only specific and infraspecific taxa not previously reported in Boulos (1999–2009). The plants are arranged in the major groups, namely: Pteridophytes and Angiosperms (Monocots and Eudicots). The plant families (their circumscription follows APG III, 2009 and APG IV, 2016) are listed alphabetically within each major group, followed by genera and species within each family (also alphabetically). For each taxon, the following information is provided: currently accepted name, possible synonym (s), habitat, duration, origin (naturalized, introduced...etc.), bibliographic references (these references are either published before or after “Flora of Egypt and checklist, 1999-2005 & 2009”), distribution in Egypt (according to phytogeographical regions of El Hadidi, 2000;

Map 1). In addition, endemic and near-endemic taxa have been recognized.



Map (1): Phyto-geographical territories of Egypt (after El Hadidi, 2000).

Da: Arabian Desert, **Dg:** Galala Desert, **Di:** Isthmic Desert, **DL:** Libyan Desert, **Dn:** Nubian Desert, **Ge:** Gebel Elba, **Mm:** Mareotis sector of the Mediterranean coastal land, **Ms:** Sinaitic sector of the Mediterranean coastal land **Nn:** Nubian sector of Nile land, **Nv:** Nile Valley sector of Nile land, including Faiyum area, the Nile Delta, Tahrir Province and Salhyiya District to the east, **Ol:** Oases of the Libyan Desert, **On:** Oases of the Nubian Desert, **Ra:** Arabian sector of the Red Sea coastal, **Rq:** Aqaba Gulf sector of the Red Sea, **Rz:** Suez Gulf sector of the Red Sea, **S:** mountainous southern Sinai, **Ug:** Gebel Uweinat massive on Egypt's border with Libya and Sudan

Results

With extensive data collected from multiple information sources (field observations, accessible online databases and herbarium specimens, the updated checklist of the Egyptian vascular plants compiled 441 taxa (309 species, 72 subspecies, 60 varieties), belonging to 275 genera and 83 families.

List of taxa: (new family and new species not previously recorded)*

Angiospermae

Monocots

Alismataceae

1. *Damasonium bourgaei* Coss., Notes Pl. Crit.: 47 (1849)

Syn.: *Damasonium alisma* Mill. subsp. *bourgaei* (Coss.) K. Richt.

Damasonium alisma sensu Boulos 2009

Annual or short-lived perennial- Nv, Mm, Di- Earlier basin land, stagnant water

bodies.

Ref.: (Post, 1933; Täckholm 1974; Rich & Nicholls-Vuille, 2001; POWO; Euro+Med PlantBase)

2. **Sagittaria sagittifolia* L., Sp. Pl.: 993 (1753)

Helophyte- Dg, Rice field- introduced
Specimen seen: Cairo- Ismailia region, El Abbosa, El Bakry, 3164 (CAI).

Amaryllidaceae

3. *Allium coppoleri* Tineo, Cat. Pl. Hort. Panorm. 275 (18) (1827).

Syn.: *Allium pallens* L. sensu Boulos 2009
Perennial- Mm, Di, S- Barley fields, uncultivated sandy and stony ground
Ref.: (Täckholm 1974; POWO)

4. *Allium longanum* Pamp., Bull. Soc. Bot. Ital. 116 (1912).

Annual- Mm- Sandy soil (Near Endemic: NW Egypt, NE Libya, Crete)

Ref.: (Saaed *et al.*, 2021; POWO; Euro+Med PlantBase)

5. *Allium spathaceum* Steud. ex A.Rich., Tent. Fl. Abyss. 2: 330 (1850).

Perennial- Ge- Rocky ground
Ref.: (Täckholm, 1974; El Hadidi & Fayed 1994/1995; Boulos, 1995)

6. *Allium subhirsutum* L., Sp. Pl.: 295 (1753)
Syn.: *Allium hirsutum* Zucc. nom. Illeg.

Perennial- Mm (Amria)- Rocky ground
Ref.: (Täckholm 1974; POWO; Euro+Med PlantBase; APD)

7. *Pancratium trianthum* Herb., Ann. Nat. Hist., ser. 1,4: 28 (1840)

Perennial- Ge- Rocky ground
Ref.: (El-Hadidy *et al.*, 2011)

Araceae

8. *Colocasia esculenta* (L.) Schott, Melet. Bot. 18 (1832).

Syn.: *Colocasia antiquorum* Schott
Perennial- Nv- Cultivated and Naturalized
Ref.: (Täckholm & Drar 1950)

9. *Eminium spiculatum* (Blume) Schott subsp. *negevensis* Koach & Feinbrun, Fl.

Palaestina 4: 397 (1986)
Perennial- Di- Sandy soil
Ref.: (Feinbrun 1986; Kamel *et al.* 2008; Moustafa, 2015)

Note: Cited as synonym of *Eminium spiculatum* in Boulos (2009)

10. *Lemna trisulca* L., Sp. Pl., ed. 2: 970. (1753)

Syn.: *Lenticula trisulca* Scop, in Fl. Cain. 2nd

ed. 2: 213. (1772)

Submerged aquatic-Nv (Shore of Lake Idku)

Ref.: (Azer, 2013).

11. *Spirodela oligorrhiza* **Hegelm.**, Lemnac. 147 (1868).

Perennial- Nv (Giza)- Water bodies

Ref.: (El Hadidi & Fayed 1994/95; POWO)

Note: Erroneously recorded by Boulos (2009) as a synonym of *Spirodela punctata* (G. Mey.) C. H. Thoms.

Asparagaceae

12. *Asparagus aphyllus* **L.** subsp. *orientalis* (**Baker**) **P.H. Davis**, Fl. Turkey 8: 77 (1984)

Perennial-Mm- Rocky soil

Ref.: (POWO)

Note: The species is represented in Egypt: subsp. *aphyllus* and subsp. *orientalis*

13. *Drimia aphylla* (**Forssk.**) **J. C. Manning & Goldblatt** in Edinburgh J. Bot. 60: 556 (2004)

Perennial- Mm- Maritime rocks and sand

Ref.: (POWO)

Note: According to Manning and Goldblatt (2004) *Drimia maritima* complex was split to several species, so the plants of our region belong to *Drimia aphylla*

14. *Muscari maritimum* **Desf.**, Fl. Atlant. 1: 308 (1798)

Syn.: *Leopoldia maritima* (Desf.) Parl.

Perennial- Ms, Di- Maritime sand

Ref.: (Täckholm, 1974; Euro+Med Plant Database)

Asphodelaceae

15. *Aloe vera* (**L.**) **Burm.f.**, Fl. Indica 83 (1768).

Perennial- Mm, Ms, Nv, Ol, S- Naturalized

Ref.: (Post 1933; Täckholm & Drar 1954; Euro+Med Plant Database)

16. *Asphodelus ramosus* **L.**, Sp. Pl. ed. 1: 30 (1753), subsp. *ramosus*

Syn.: *Asphodelus microcarpus* Viv.

Perennial- Mm- Ms-S- Rocky ground

Ref.: (Täckholm & Drar 1950; Täckholm, 1974; El Hadidi & Fayed 1994/95; POWO)

*Cannaceae

17. *Canna indica* **L.**, Sp. Pl. ed. 1: 1 (1753)

Annual- Nv, Mm- Cultivated and escaped

Ref.: (Muschler, 1912; Täckholm & Drar 1969; Shaltout 2020; Beheiry *et al.* 2020)

Colchicaceae

18. *Colchicum gramineum* (**Cav.**) **J.C.**

Manning & Vinn., Taxon 56(3): 880 (2007).

Syn.: *Androcymbium gramineum* (Cav.) J.F. Macbr.,

Perennial- Mm-Di- Gravely soil

Ref.: (Täckholm & Drar 1954; Täckholm, 1974; El Hadidi & Fayed 1994/95; POWO)

Note: Erroneously reported by Boulos 2005 as a synonym of *Colchicum palaestinum* (Baker) C. Archer

Commelinaceae

19. *Commelina boissieriana* **C.B. Clarke**, in A. DC. & C.DC., Monogr. Phan. 3: 161 (1881)

Perennial- Mm-Ms-Dg-Nv- Sandy and gravel desert (Near Endemic: Egypt-Eretria-Ethiopia)

Ref.: (Täckholm & Drar 1950; Täckholm 1974; POWO; Euro+Med Plant Database)

20. *Commelina africana* **L.** var. *lancispatha*

C.B. Clarke, Fl. Cap. (Harvey) 7: 10 (1897).

Syn. *Commelina involucrosa* A. Rich.

Perennial- Ge- Moist hillside

Ref.: (Täckholm & Drar 1950; Täckholm 1974; APD).

Note: *Commelina africana* L represented in Egypt by subsp. *africana* and var. *lanciocarpa*

Cyperaceae

21. *Bolboschoenus maritimus* (**L.**) **Palla**, Syn. Deut. Schweiz. Fl., ed. 3 (16): 2531 (1905) subsp. *maritimus*

Syn.: *Scirpus maritimus* L.

Perennial -S, Mm, Nv, Ol- Along canals

Ref.: (Muschler 1912; Täckholm 1974; Boulos 1995; APD; Euro+Med Plant Database)

22. *Carex distans* **L.** var. *sinaica* (**Nees ex Steud.**) **Boeckeler**, Linnaea 41: 269 (1877)

Syn. *Carex sinaica* Nees ex Steud.

Perennial-Nv, S- Moist places

Ref.: (Täckholm & Drar, 1950; Täckholm, 1974; Gehrke, 2011)

Note: *Carex distans* presented in Egypt by 2 varieties: var. *distans* and var. *sinaica*

23. *Cyperus dives* **Delile**, Descr. Egypte, Hist. Nat. 149 (1813).

Syn.: *Cyperus alopecuroides* Rottb. var. *dives* Boeckeler,

Perennial- Mm-Nv-Dg- Marshy ground

Ref.: (Täckholm & Drar, 1950; Täckholm 1974, POWO; Euro+Med Plant Database; APD)

Note: Erroneously reported by Boulos as a synonym to *C. alopecuroides*

24. *Cyperus glaber* **L.**, Mant. Pl. Altera 179

(1771).

Annual- Ms, Di- moist soils

Ref.: (Kamel *et al.* 2008; Moustafa, *et al.*, 2015).

25. *Cyperus longus* L., Sp.Pl. ed.1 :45 (1753) subsp. *longus*

Syn.: *Cyperus fenzelianus* Steud.

Cyperus rotundus L. var. *fenzelianus* (Steud.) Habashy (sensu Boulos 2005)

Annual- Nv- Rice fields

Ref.: (Täckholm & Drar, 1950; Täckholm, 1974; POWO; Euro+Med Plant Database)

26. *Cyperus longus* L. subsp. *badius* (Desf.) **Bonnier & Layens**, Tabl. Syn. Pl. Vasc. France: 324 (1894)

Annual- Nv- Rice fields, introduced.

Ref.: (Täckholm & Drar, 1950; Täckholm 1974; APD)

27. *Cyperus polystachyos* **Rottb.** var. *holosericeus* (Link) **C.B. Clarke**, J.Linn. Soc. Bot. 21: 55 (1884).

Syn.: *Cyperus polystachyos* var. *laxiflorus* Benth.

Annual or perennial- Nv, Dg- Ditches and moist places, introduced

Ref.: (Täckholm & Drar, 1950; Täckholm 1974)

28. *Fimbristylis dichotoma* (L.) **Vahl**, Enum. Pl. 2: 287 (1805).

Annual- Mm-Nv-S- Marshy places

Ref.: (Muschler 1912; Post 1933; APD; Euro+Med Plant Database)

29. *Schoenoplectiella articulata* (L.) **Lye**, Lidia 6(1): 20 (2003)

Syn.: *Scirpus fistulosus* Forssk.

Scirpus articulatus L.

Annual- Mm-Nv-O- Alluvial soil

Ref.: (Muschler, 1912; Täckholm & Drar, 1950; Täckholm 1974; Boulos 1995; POWO; APD).

30. *Schoenoplectiella senegalensis* (Steud.) **Lye**, Lidia 6(1): 27 (2003).

Syn.: *Isolepis senegalensis* Steud.

Annual or short-lived perennial-Ol (Bahariya), ditches and moist soils.

Ref.: (POWO)

*Dioscoreaceae

31. *Dioscorea communis* (L.) **Caddick & Wilkin**, Taxon 51(1): 112 (2002)

Syn.: *Tamus communis* L.

Perennial- Nv-climbing vines; introduced

Ref.: (Täckholm & Drar 1954)

Hydrocharitaceae

32. *Egeria densa* **Planch.**, Ann. Sci. Nat. ser.3, 11:80 (1849).

Syn.: *Anacharis densa* (Planch.) Vict.

Submerged freshwater herbs-Nv (Delta)- Shallow water.

Ref.: (Shamso & Hosni, 2020).

Juncaceae

33. *Juncus effusus* L., Sp. Pl. ed. 1: 326 (1753).

Perennial- S- Moist habitats

Ref.: (Täckholm & Drar 1950; Täckholm 1974; El Hadidi & Fayed 1994/95)

Poaceae (Gramineae)

34. *Achnatherum parviflorum* (Desf.) **M.Nobis** subsp. *sinaicum* (Chrtek & Martinovský) **Shamso & Hosni** comb. nov.

Syn.: *Stipa parviflora* Desf. subsp. *sinaica* Chrtek & Martinovský

Perennial- Ms, Di, S- Sandy and stony soil

Ref.: (Chrtek & Martinovský, 1969; Täckholm 1974)

35. *Aegilops neglecta* **Req. ex Bertol.**, Fl. Ital. 1: 787 (1834).

Syn.: *Aegilops ovata* L. (nom. rej. to be proposed again.)

Annual- Mm, S- Sandy soils

Ref. (Muschler, 1912; Täckholm 1974)

36. *Aegilops triuncialis* L., Sp. Pl. ed.1: 1051 (1753).

Annual- Mm- S- Sandy soils

Ref.: (Muschler, 1912; Post, 1933)

37. *Aristida adscensionis* L. var. *aethiopica* (**Trin. & Rupr.**) **T. Durand & Schinz**,

Consp. Fl. Afric. 5: 799 (1894)

Annual- Da, Ge- In sand

Ref.: (Täckholm & Drar 1941; Täckholm 1974)

38. *Aristida adscensionis* L. var. *pumila* (**Decne.**) **Coss. & Durieu**, Expl. Sci. Algérie 84 (1855)

Annual- Nv, Dg, Ra, Ge, S- In sand

Ref.: (Täckholm & Drar 1941; Täckholm 1974)

39. *Bromus sinaicus* (**Hack.**) **Täckh.**, Bull. Fac. Sci. Fouad I Univ. 17: 153 (1941)

Annual- S-Sandy ground (Endemic)

Ref.: (Täckholm & Drar; 1941; Hassib 1951; Täckholm, 1974)

40. *Calamagrostis arenaria* (L.) **Roth** subsp. *australis* (**Mabille**) **Asch. & Graebn.**,

Syn. Mitteleur. Fl. 2(1): 221 (1899).

Syn.: *Ammophila arenaria* var. *australis* (Mabille) E.A. Durand & Barratte

Ammophila arenaria subsp. *arundinacea*
(Husn.) H. Lindb
Perennial- Mm, Ms- Maritime sand
Ref.: (Täckholm, 1974; POWO; Euro+Med
Plant Database; APD).

41. *Cenchrus spinifex* Cav., Icon. 5: 38, t.
461 (1799)

Annual- Nv- introduced
Ref.: (Shaltout *et al.*, 2010)

42. *Corynephorus articulatus* P.Beauv., Ess.
Agrostogr. 90. (1812).

Annual- Mm-Ms- Coastal sand
Ref.: (Täckholm & Drar, 1941; POWO;
Euro+Med Plant Database)

43. *Dactylis glomerata* L. subsp. *hispanica*
(Roth) Nyman, Consp. Fl. Eur.: 819 (1882)

Syn.: *Dactylis hispanica* Roth

Perennial- Mm- Rocky and stony ground
Ref.: (Täckholm 1974; POWO; Euro+Med
Plant Database; APD).

Note: The species is represented by 2
subspecies: subsp. *glomerata* (Mm, Nv) and
subsp. *hispanica* (Mm)

44. *Elymus farctus* (Viv.) Runemark ex
Melderis subsp. *rechingeri* (Runemark)

Melderis, Bot. J. Linn. Soc. 76(4): 383
(1978).

Perennial- Mm (Ras el Hekma)- Maritim
dunes

Ref.: (Täckholm 1974; POWO)

45. *Eragrostis elliotii* S. Watson, Proc.
Amer. Acad. Arts 25: 140 (1890)

Syn.: *Poa nitida* Elliott illeg.

Eragrostis nitida (Elliott) Chapm.nom.
illeg.

Perennial- S - introduced

Ref.: (Rabei, *et al.*, 2021a).

46. *Eragrostis nitida* Link, Hort. Berol. 1:
193 (1827).

Perennial -Nv- Weed (Endemic)

Ref.: (POWO- WCSP)

47. *Eragrostis purpurascens* (Spreng.)
Schult., Mant. 2: 317 (1824).

Perennial- S- (Probably introduced)

Ref.: (Rabei, *et al.* 2021a).

48. *Eragrostis tenella* (L.) P.Beauv. ex
Roem. & Schult., Syst. Veg., ed. 15, 2: 576
(1817).

Annual- Ge- Dry stony ground

Ref.: (Täckholm 1974; POWO)

Note: Erroneously cited as synonym of
Eragrostis amabilis (L.) Nees in Boulos (2005,
2009)

49. *Festuca pinifolia* (Boiss.) Bornm., Verh.

K. K. Zool.-Bot. Ges. Wien 48: 649 (1898)

Perennial- S- Sandy soil

Ref.: (Post, 1933; Euro+Med Plant Database)

Note: Boulos 2009 recorded the species
without certainty

50. *Holcus annuus* Salzm. ex C.A. Mey.
subsp. *setiglumis* (Boiss. & Reut) M. Seq. &
Castrov., Acta Bot. Malac. 31: 236 (2006)

Syn.: *Holcus setiglumis* Boiss. & Reut.

Annual- Nv- Mm-Sandy soils

Ref.: (POWO)

Note: The species represented by 2
subspecies: subsp. *annuus* (Nv-Mm) and subsp.
setiglumis (Nv)

51. *Paspalum vaginatum* Sw., Prodr. Veg.
Ind. Occ. 21 (1788).

Syn.: *Paspalum distichum* subsp. *vaginatum*
(Sw.) P. Fourn.

Perennial-Mm, Nv, Ge- Desert habitats,
Naturalized.

Ref.: (Faried, 2018; POWO; APD).

52. *Phalaris paradoxa* L. var. *praemorsa*
(Lam.) Coss. & Durieu, Expl. Sci. Algérie 2:
25 (1854)

Annual- Nv, On, Dg- Cultivated fields and
waste ground

Ref.: (Täckholm & Drar 1941)

Note: The species represented in Egypt by 2
subspecies: subsp. *paradoxa* (Nv, Mm, Di)
and subsp. *praemorsa* (Nv, On, Dg)

53. *Poa diaphora* Trin. var. *songarica*
(Schrenk) Soreng, Cabi & L.J. Gillespie,
PhytoKeys 111: 85 (2018).

Syn.: *Eremopoa persica* var. *songarica*
(Schrenk) Bor.

Annual- S- Weed

Ref.: (Täckholm 1974)

Note: this species is represented in Egypt by
two varieties: var. *diaphora* (S) and
var. *songarica* (Nv, S)

54. *Poa sinaica* Stud. var. *vivipara* Täckh.,
Publ. Cairo Univ. Herb 5: 51 (1974).

Perennial- S- Granite rocks and gravel

Ref.: (Täckholm 1974)

55. *Rostraria pumila* (Lam.) Tzvelev
var. *glabrescens* (Täckh.) Hosni, Tackholmia
11: 61 (1988)

Syn.: *Koeleria pumila* (Desf.) Domin var.
glabrescens Täckh.

Annual- Ms (El Arish)- Weed of cultivation

Ref.: (Täckholm 1941; Täckholm 1974;
Täckholm & Boulos, 1974)

Note: The species is represented in Egypt by
two varieties: var. *pumila* (known from
Mm-Nv, Ge) and var. *glabrescens* (Endemic

Annual- Ms (El Arish)- Weed of cultivation
Ref.: (Täckholm 1941; Täckholm 1974;
Täckholm & Boulos, 1974)
Note: The species is represented in Egypt by
two varieties: var. *pumila* (known from
Mm-Nv, Ge) and var. *glabrescens* (Endemic

to Sinai)

56. *Sphenopus ehrenbergii* Hausskn., Mitth. Thüring. Bot. Vereins n.f., 13: 57 (1899)

Syn.: *Sphenopus divaricatus* (Gouan) Rchb. var. *ehrenbergii* (Hausskn.) E.A. Durand & Barratte

Annual- Mm- Calcareous soil

Ref.: (Muschler 1912; Täckholm & Drar 1941; Täckholm 1974; Euro+Med Plant Database)

Note: Near Endemic: known from Tunisia-Libya and Egypt

57. *Stipa barbata* Desf., Fl. Atlant. 1: 97, t. 27 (1798).

Perennial- S- Stony ground.

Ref.: (Täckholm 1974)

58. *Stipa letourneuxii* Trab., Bull. Soc. Bot. France 36: 405 (1890).

Syn.: *Stipa lagascae* Roem. & Schult. subsp. *letourneuxii* (Trab.) Trab.

Perennial- Mm-Di- Sandy soil

Ref.: (Muschler 1912; POWO; Euro+Med Plant Database)

Note: Recorded in Boulos (2009) as a synonym of *Stipa lagascae* Roem. & Schult.

59. *Stipagrostis affinis* H. Scholz in Willdenowia 30: 274 (2000)

Perennial- S- Stony soil

Ref.: (Scholz 2000; Euro+Med Plant Database; APD)

60. *Stipagrostis plumosa* (L.) Munro ex T. Anderson subsp. *seminuda* (Trin. & Rupr.) H. Scholz, Willdenowia 6(2): 295 (1971).

Perennial- Nv, O, Mm, Ms, Dl, De, R, S, Ge- Sandy and Stony soils.

Ref.: (Täckholm 1974; Euro+Med Plant Database; APD; Faried *et al.* 2023)

61. *Stipagrostis plumosa* (L.) Munro ex T. Anderson var. *brachypoda* (Tausch) Bor,

Taxon 16: 467 (1967)

Syn.: *Stipagrostis brachypoda* (Tausch) De Winter

Aristida plumosa L. var. *brachypoda* Tausch
Perennial- Nv, Mm, Ms, S- Sandy and Stony soils

Ref.: (Täckholm & Drar 1941; Täckholm 1974; Scholz 2000; Euro+Med Plant Database; Faried *et al.* 2023)

62. *Stipagrostis pungens* (Desf.) De Winter, Kirkia 3: 135 (1963).

Syn.: *Aristida pungens* Desf., Fl. Atlant. 1: 109 (1798)

Perennial - Ol-Dl- Nv- Sand dunes

Ref.: (Muschler 1912; Täckholm & Drar 1941; Täckholm 1974; Euro+Med Plant

Database)

63. *Triticum aestivum* L. subsp. *compactum* (Host) Mackey, Svensk Bot. Tidskr. 48: 586 (1954)

Annual- S- introduced

Ref.: (POWO; Euro+Med Plant Database)

Note: The species is represented in Egypt by two subspecies: subsp. *aestivum* (Nv) and subsp. *compactum* (Host) Mackey (known from S)

64. *Triticum turgidum* L. subsp. *polonicum* (L.) Thell., Naturwiss. Wochenschr., ser. 2, 17: 470 (1918)

Annual- Nv- Alluvial soil

Ref.: (POWO)

Note: The species is represented in Egypt by two native subspecies: subsp. *durum* (Desf.) Husn. and subsp. *polonicum* (L.) Thell. As well as two introduced subspecies: *turgidum* and subsp. *dicoccum* Shrank ex Schübl

65. *Urochloa trichopus* (Hochst.) Stapf in D. Oliver & *et al.* (eds.), Fl. Trop. Afr. 9: 589 (1920)

Perennial- Ge- Sandy wadis

Ref.: (Hassib 1951)

66. *Vulpia membranacea* (L.) Dumort., Observ. Gramin. Belg.: 100 (1824)

Syn.: *Festuca membranacea* Druce

Annual- Mm, Ms- Sandy fields

Ref.: (Post, 1933; Täckholm 1974; Euro+Med Plant Database)

Eudicots

Acanthaceae

1. *Dicliptera aegyptiaca* E. Shamsou, Egypt. J. Bot. 59(2): 477 (2019)

Annual- Ra- Sandy and silty moist soils.

Ref.: (Shamsou & Fouad, 2019).

Note: Endemic

2. *Monechma debile* (Forssk.) Nees in DC., Prodr. 11:411(1847).

Syn.: *Dianthera debilis* Forssk.

Annual to perennial – Ge- rocky ground.

Ref.: (Shamsou, 2010).

Aizoaceae

3. *Carpobrotus acinaciformis* L. Bolus, Fl. Pl. South Africa 7., t. 247 (1927).

Frut. - Mm, Sandy soil- introduced

Ref.: (Abd El-Raouf, 2021)

4. **Carpobrotus edulis* (L.) N. E. Br. in Phillips, Gen. S. Afr. Fl. Pl.: 249. 1926

Syn.: *Mesembryanthemum edule* L.

Succulent subshrubs- Mm- introduced

Specimen seen: Port Said Desert, Kantara,

16.7.1952; A. Amin s.n. (CAI)- Maruit, Burg El Arab, 20.3.1930. W. Oliver s.n. (CAI)- W of Alexandria, 15.1.1972; M Zahran s.n. (CAI)
5. ***Tetragonia tetragonoides* (Pall.) Kuntze**,
Revis. Gen. Pl. 1: 264 (1891).

Syn. *Tetragonia expansa* Murray

Perennial- Nv-introduced

Ref.: (Muschler 1912)

6. ***Trianthema crystallinum* (Forssk.)**

Vahl, Symb. Bot. 1: 32 (1790).

Syn.: *Papularia crystallina* Forssk.

Trianthema salsoloides Fenzl ex Oliv.
(Sensu Täckholm, 1974)

Succulent subshrub- Da, R, Ge- Rocky and sandy desert

Ref.: (Täckholm, 1956; Täckholm, 1974; Hosny, 2000; Hassan *et al.* 2005)

Amaranthaceae

7. ***Alternanthera bettzickiana* (Regel) G. Nicholson**, Ill. Dict. Gard. 1: 59 (1884).

Syn.: *Telanthera bettzickiana* Regel

Annual- Nv- Naturalized

Ref.: (El Hadidi, & Fayed, 1994/95; APD).

8. ***Amaranthus hypochondriacus* L.**, Sp. Pl. ed. 1:991 (1753)

Annual- Nv, S -Naturalized

Ref.: (Muschler 1912; Täckholm 1974; Euro+Med PlantBase)

9. ***Amaranthus polygonoides* L.** subsp. **oleraceus (L.) Costea**, Sida 19: 984 (2001)

Annual- Nv- Weed of cultivation, Naturalized

Ref.: (Greuter, 1984; Täckholm 1974; Euro+Med PlantBase- POWO)

Note: Erroneously recorded by Boulos 2002,2009 as a synonym of *Amaranthus lividus* L.

10. ***Amaranthus scleropoides* Uline & W.L. Bray**, Bot. Gaz. 19: 316 (1894).

Syn.: *Amaranthus blitoides* S. Watson var. *scleropoides* (Uline & W.L. Bray) Thell.

Annual-Mm, S- weed in waste places

Ref.: (El Hadidi & El Hadidy, 1980).

11. ***Atriplex davisii* Aellen**, Notes Roy. Bot. Gard. Edinburgh 28: 30 (1967).

Syn.: *Obione davisii* (Aellen) G.L.Chu

Annual or Biennial- Nv- Edge of ditch (lake Manzala)

Ref.: (Sukhorukov, 2010; Euro+Med PlantBase).

12. ***Atriplex ehrenbergii* F. Muell. ex Asch. & Schweinf.**, Suppl. L' Illustr. Fl. Egypt. 2(1): 771 (1889).

Syn.: *Obione ehrenbergii* (F.Muell. ex Asch. & Schweinf.) G.L.Chu

Perennial- Mm- sandy soil (Endemic)

Ref.: (Muschler 1912; POWO)

13. ***Atriplex glauca* L.** subsp. ***palaestina* (Boiss.) Dobignard**, Index Syn. Fl. Afrique N. 2: 24 (2011)

Syn.: *Atriplex alexandrina* Boiss.

Frut. S- Chalky hills

Ref.: (Ascherson & Schweinfurth 1887; POWO)

Note: This species is represented in Egypt by two subspecies: subsp. *glauca* (M, De, S) and subsp. *palaestina* (S)

14. ***Atriplex infrequens* Paul G. Wilson**, Fl. Australia 4: 323 (1984).

Syn.: *Atriplex microcarpa* Benth.

Perennial- Ms- Roadside & irrigated ground, Naturalized

Ref.: (Danin *et al.*, 1985; POWO; Euro+Med PlantBase)

15. ***Atriplex mollis* Desf.**, Fl. Atlant. 2: 391 (1799).

Perennial- Mm- introduced

Ref.: (El Hadidi & Fayed, 1994/95)

16. ***Atriplex nilotica* Sukhor.**, Feddes Repert. 121: 33 (2010).

Annual-M, Nv- Moist places (Endemic)

Ref.: (Sukhorukov, 2010; POWO; Euro+Med PlantBase).

17. ***Atriplex spongiosa* F. Muell.** in Trans. & Proc. Philos. Inst. Victoria 2: 74 (1858)

Syn.: *Senniella spongiosa* (F. Muell.) Aellen

Perennial- M- Saline soil, Naturalized

Ref.: (Täckholm 1974; El Hadidi & Fayed, 1994/95; Euro+Med PlantBase).

18. ***Atriplex turcomanica* (Moq.) Boiss.**, Fl. Orient. 4: 913 (1879)

Syn.: *Atriplex inamoena* Aellen

Atriplex leucoclada Boiss.var. *inamoena* (Aellen) Zohary

Perennial- Nv, Dg, Di, O, S- Roadsides and fields

Ref.: (Täckholm 1974; El Hadidi & Fayed, 1994/95; POWO; Euro+Med PlantBase).

Note: Recorded by Boulos 2002, 2009 as a synonym of *Atriplex leucoclada* Boiss. var. *inamoena* (Aellen) Zohary

19. ***Bassia aegyptiaca* Turki, El Shayeb & F. Shehata**, Fl. Medit. 16: 279 (2006).

Perennial- M- sandy soils (Endemic)

Ref.: (Turki *et al.*, 2006; Turki *et al.*, 2008a; POWO; Euro+Med PlantBase)

20. ***Bassia muricata* (L.) Asch.** var. ***hadidi* Turki, El Shayeb & F. Shehata**, Acta Botanica Hungarica 50(1-2):203-213 (2008).

Annual- Dg- gravely ground (Endemic)

Ref.: (Turki *et al.*, 2008b).

21. ***Bassia muricata* (L.) Asch.** var. *sinaica*
Turki, El Shayeb & F. Shehata, Acta
Botanica Hungarica 50 (1–2):203–213(2008).
Annual- Rz (Ras Sudr)- gravely ground
(Endemic)

Ref.: (Turki *et al.*, 2008b).

Note: The species is represented in Egypt by
var. *muricata*, var. *hadidi* and var. *sinaica*

22. ***Bassia scoparia* (L.) A.J.Scott**, Feddes
Repert. 89(2-3): 108 (1978).

Syn.: *Kochia scoparia* Shrad.

Annual- Nd- introduced

Ref.: (Muschler 1912)

23. ***Caroxylon incanescens* (C. A. Mey.)**

Akhani & Roalson, Int. J. Pl. Sci. 168(6):
947 (2007).

Syn.: *Salsola incanescens* C.A. Mey., in
Eichw. Pl. Casp. -Cauc. 35. t. 26. (1835)

Annual- Di, S- Coastal and desert plains

Ref.: (El Hadidi & Fayed, 1994/95)

24. ***Caroxylon orientale* (S. G. Gmel.)**

Tzvelev, Ukrayins'k. Bot. Zhurn. 50(1): 80
(1993).

Syn.: *Salsola orientalis* SG. Gmelin

Frut. -Di, S- Rocky slopes and wadis

Ref.: (Danin *et al.*, 1985; Danin 1993; El
Hadidi & Fayed, 1994/95; POWO; Euro+Med
PlantBase)

25. ***Chenopodium moquinianum* Aellen**, Ber.
Schweiz. Bot. Ges. 38: 15, 19 (1929).

Annual- Mm, Nv- Saline soil. (Endemic)

Ref.: (Täckholm 1974; POWO)

26. ***Cornulaca aucheri* Moq.**, Chenop.
Monogr. Enum.: 163 (1840).

Annual- Da- Sandy plains

Ref.: (Täckholm 1974; Euro+Med PlantBase)
Note: Erroneously recorded by Boulos (2009)
as a synonym of *Cornulaca*
monacantha Delile

27. ***Gomphrena celosioides* Mart.**, Nova Acta
Phys.-Med. Acad. Caes. Leop. -Carol. Nat.
Cur. 13: 301 (1826).

Perennial-Nv- introduced and naturalized,

Ref.: (El Hadidi & Fayed, 1994/95;
Euro+Med PlantBase).

28. ***Oxybasis rubra* (L.) S. Fuentes, Uotila &
Borsch**, Willdenowia 42(1): 15 (2012).

Syn.: *Chenopodium rubrum* L.

Annual-Dg- Gravely ground

Ref.: (El Hadidi & Fayed, 1994/95).

29. ***Saltia papposa* (Forssk.) Moq.** in
Candolle, Prodr. 13(2): 325 (1849)

Syn.: *Achyranthes papposa* Forssk.

Frut. - S- Wadi beds and rocky slops. (Near

endemic: Sinai, Saudi Arabia, Yemen)

Ref.: (Greuter, *et al.* 1984; Täckholm 1974;
Euro+Med PlantBase)

30. ***Suaeda fruticosa* Forssk. ex J. F. Gmel.**,
Syst. Nat., ed. 13. 2(1): 503 (1791).

Frut. - R- Salt marshes

Ref. (Muschler 1912; POWO)

Note: Erroneously recorded by Boulos (2009)
as a synonym of *Suaeda vermiculata* Forssk.
ex J.F. Gmelin

31. ***Suaeda salsa* (L.) Pall.**, Ill. Pl. 46, t. 39
(1803).

Annual- Nv-Mm-Di- Salt marshes

Ref.: (Muschler 1912; Täckholm 1974;
Euro+Med PlantBase)

Note: Erroneously recorded by Boulos (2009)
as a synonym of *Suaeda maritima* (L.)
Dumort.

Anacardiaceae

32. ***Mangifera indica* L.**, Sp. Pl. 1: 200
(1753).

Frut. - Mm, Nv- Causal

Ref.: (Muschler 1912; Shaltout 2020; El
Beheiry *et al.*, 2020)

33. ***Schinus terebinthifolia* Raddi.**, Mem.
Mat. Fis. Soc. Ital. Sci. Modena, Pt. Mem.

Fis. 18: 399 (1820), var. *terebinthifolia*

Frut. - Nv- Naturalized

Ref.: (Shaltout 2020; El Beheiry *et al.*, 2020)

Apiaceae (Umbelliferae)

34. ***Anethum graveolens* L.**, Sp. Pl. 1: 263
(1753).

Annual- Mm, Ms, Nv, Ol, On, Dg, S-
Cultivated and escaped

Ref.: (Ascherson & Schweinfurth, 1887;
Sickenberger 1901; Muschler 1912, Hosni
1984)

35. ***Anthriscus cerefolium* Hoffm.**, Gen. Pl.
Umbell. 41, 47, t. 1 (1814).

Syn.: *Chaerefolium cerefolium* (L.) Schinz

Annual- Nv- Cultivated and naturalized

Ref.: (Muschler 1912; Govaerts, 1995;
POWO; APD)

36. ***Anthriscus lamprocarpa* Boiss.**, Ann. Sci.
Nat., Bot. sér. 3, 2: 59 (1844).

Annual- Nv- introduced

Ref.: (Muschler 1912)

37. ***Apium graveolens* L.** var. *bashmensis* **H.
Hosni**, Taekholmia 11: 65 (1988)

Annual- Ol (Bahariya)- Moist ground-
Endemic

Ref.: (Hosni 1988a)

Note: The species represented by 2 varieties:

var. *graveolens* and var. *bashmensis*

38. ***Bupleurum muschleri* H. Wolff**, Repert. Spec. Nov. Regni Veg. 9: 565 (1911).

Annual- Nv- Sandy soil (Endemic)

Ref.: (Muschler 1912; Govaerts 1996; POWO)

39. ***Cuminum cyminum* L.**, Sp. Pl.: 254. 1753
Annual or biennial- Ms, Nv, O- Cultivated and escaped

Ref.: (Ascherson & Schweinfurth, 1887; Sickenberger 1901; Muschler 1912; Post 1932; Hosni 1984, Euro+Med PlantBase)

40. ***Daucus broteri* Ten.**, Syll. Pl. Fl. Neapol. 591. (1831).

Annual- Nv, Ms – Sandy soil

Ref.: (Muschler 1912; Post 1932; Täckholm, 1974; Euro+Med PlantBase)

41. ***Pimpinella cretica* Poir.** var. *petraea* (Nábělek) Zohary, Fl. Palaestina 2: 427 (1972).

Annual - S- Stony wadis – (Near Endemic: Sinai, Palestine and Jordan)

Ref.: (Zohary, 1972; POWO)

Note: The species is restricted to Sinai and represented by three varieties: var. *cretica*, var. *arabica* (Boiss.) Boiss. and var. *petraea* (Nábělek) Zohary.

42. ***Sanicula europaea* L.**, Sp. Pl. 1: 235 (1753).

Annual- Mm, Nv- introduced

Ref.: (Muschler 1912)

Apocynaceae

43. ***Apteranthes europaea* (Guss.) Murb.** var. *judaica* (Zohary) Plowes, *Haseltonia* 3: 61 (1995).

Syn.: *Caralluma europaea* (Guss.) N.E.Br. var. *judaica* Zohary

Caralluma aaronis (Hart) N.E.Br.

Perennial- Di- Rocky ground – (Near endemic: Sinai and Palestine)

Ref.: (Täckholm, 1974; El Hadidi & Fayed 1994/1995; POWO)

Note: The species is represented in Egypt by subsp. *europaea* and var. *judaica*

44. ***Cynanchum acutum* L.** subsp. *sibiricum* (Willd.) Rech.f., Fl. Iranica 73: 9 (1970)

Syn.: *Cynanchum sibiricum* Willd.

Perennial-Nv, Ol- Waste places

Ref.: (Boulos, 1995; El Imouni, 2019).

Note: The species is represented in Egypt by two subspecies: subsp. *acutum* and subsp.

sibiricum

45. ***Gomphocarpus fruticosus* (L.) W. T. Aiton** in Aiton, Hortus Kew., ed.2, 2: 80

(1811), subsp. *fruticosus*

Syn.: *Asclepias fruticosa* L., Sp. Pl., ed. 1: 216. 1753

Frut. - M, Nv- Naturalized

Ref.: (Mushler 1912; Täckholm, 1974; El Hadidi & Fayed 1994/1995; Euro+Med Plant Database)

46. ***Gomphocarpus fruticosus* (L.) W. T. Aiton** subsp. *flavidus* (N.E.Br.) Goyder, Kew Bull. 51(4): 798 (1996).

Syn.: *Asclepias flavida* N.E.Br.

Perennial- Ge, sandy or stony soil

Ref.: (El-Gazzar & Hammouda, 2006).

47. ***Periploca graeca* L.**, Sp. Pl. 1: 211 (1753).

Annual-Nv -Naturalized

Ref.: (Muschler 1912)

48. ***Rhazya greissii* Täckh. & Boulos**, Publ. Cairo Univ. Herb. 5: 7 (1972 publ. 1974)

Perennial- On- Rocky habitat (Endemic)

Ref.: (Täckholm, 1974; El Hadidi & Fayed 1994/95; POWO; Euro+Med Plant Database)

Note: Erroneously recorded by Boulos (2009) as a synonym of *Rhazya stricta* Decne.

Asteraceae (Compositae)

49. ***Achillea wilhelmsii* C. Koch**, Linnaea 24(3): 328 (1851).

Syn.: *Achillea santolinoides* Lag. subsp. *wilhelmsii* (K. Koch) Greuter

Perennial- Mm, Ms- Sandy soil

Ref.: (POWO; Euro+Med Plant Database)

50. ***Anthemis eliezrae* Eig**, Palestine J. Bot., Jerusalem Ser. 1: 179, et errata (1938).

Annual- S- Desert wadis. (Near endemic: Sinai and Palestine)

Ref.: (Täckholm 1974; El Hadidi & Fayed 1994/1995; Zareh 2005; POWO)

Note: Erroneously recorded by Boulos (2002,2009) as a synonym to *A. indurata* Delile

51. ***Anthemis leucanthemifolia* Boiss. & C.I. Blanche**, Diagn. Pl. Orient. ser. 2, 3: 20 (1856)

Syn.: *Anthemis leucanthemifolia* Boiss. & C.I. Blanche subsp. *rafaensis* Eig

Annual- Ms- Coastal sandy soil – (Near Endemic Lebanon-Syria, Palestine and Sinai)

Ref.: (Täckholm 1974; POWO)

Note: Erroneously recorded by Boulos (2009) as synonym to *A. indurata* Delile

52. ***Anthemis pseudocotula* Boiss.** subsp.

rotata (Boiss.) Eig, Palestine J. Bot., Jerusalem ser. 1: 197 (1938).

Syn.: *Anthemis rotata* Boiss., Fl. Orient. 3: 318 (1875).

Annual- Mm, Ms, Nv, Di, S- Sandy and

alluvial soils

Ref.: (Muschler 1912; El Hadidi & Fayed, 1994/95; Zareh 2005; POWO)

Note: Near Endemic known from Iraq, Palestine and Sinai

53. *Anthemis scrobicularis* Yavin subsp. *fungosa* Yavin, Israel J. Bot. 21(3): 174 (1972).

Annual- S- Sandy desert wadis - Endemic

Ref.: (Yavin 1972; POWO; Euro+Med Plant Database)

54. *Anvillea garcinii* (Burm.f.) DC. subsp. *radiata* (Coss. & Durieu) Anderb., Nordic J. Bot. 2(4): 303 (1982).

Syn.: *Anvillea radiata* Coss. & Durieu

Perennial- D1- Sandy plain

Ref.: (El Hadidi & Fayed, 1994/95).

Note: In Egypt, *A. garcinia* represented by two subspecies: subsp. *garcinii* restricted to Sinai, and subsp. *radiata* to Libyan desert.

55. *Artemisia arborescens* (Vail.) L., Sp. Pl., ed. 2: 1188. 1763

Frut. - Mm, Ms, Nv-Naturalized

Ref.: (Muschler 1912)

56. *Artemisia inculta* Delile, Descr. Egypte, Hist. Nat. 2:264(1813)

Frut. - (Without precise locality) – (Near Endemic: Egypt, Sinai and Crete)

Ref.: (Roskov et al., 2018; Bánki, 2022; POWO)

Note: *A. inculta* Delile was erroneously recorded by Boulos as a synonym to *Seriphidium herba-alba* (Asso) Soják

57. *Artemisia judaica* L. var. *sinaïtica* Täckh., Publ. Cairo Univ. Herb. 5: 29 (1974).

Frut. – S - Wadi beds- (Endemic)

Ref.: (Täckholm & Boulos 1974; Täckholm, 1974; Roskov et al., 2018; POWO)

Note: The species is represented in Egypt by two varieties: var. *judaica* and var. *sinaïtica*

58. *Artemisia sieberi* Besser, Bull. Soc. Imp. Naturalistes Moscou 9: 80 (1836).

Syn: *Artemisia inculta* var. *laxiflora* (Boiss.) Täckh.

Frut. - S, Dg- Wadis

Ref.: (Ghazanfar et al., 2019; POWO; Euro+Med Plant Database)

59. *Artemisia verlotiorum* Lamotte in Compt.-Rend. Assoc. Franç. Avancem. Sci. 1876: 513 (1877)

Perennial- Nv- weed

Ref.: (Euro+Med Plant Database)

Note: Its occurrence was recorded as uncertain by Bolous 2009

60. *Artemisia vulgaris* L., Sp. Pl.: 848 (1753)

Perennial- Nv- weed

Ref.: (Euro+Med Plant Database)

Note: Its occurrence was recorded as uncertain by Bolous 2009

61. *Atractylis humilis* L., Sp. Pl., ed.1: 829 (1753)

Annual- Mm- Sandy soil

Ref.: (El Hadidi & Fayed 1994/95; Zareh 1992; Zareh 2005)

62. *Atractylis phaeolepis* Pomel, Nouv. Mat. Fl. Atl. 273 (1875).

Perennial- Di, S, steppes on stony slopes and wadis in gravel plains

Ref.: (Danin, 1973; Täckholm & Boulos, 1977; Danin et al., 1985; El Hadidi & Fayed, 1994/95; Zareh, 2005; POWO; Euro+Med Plant Database).

63. *Atractylis serrata* Pomel, Nouv. Mat. Fl. Atl. 20 (1874).

Perennial-M, Sandy moist soil

Ref.: (El Hadidi & Fayed, 1994/95; Zareh, 2005; Euro+Med Plant Database).

64. *Bidens ternata* (Chiov.) Sherff, Bot. Gaz. 90: 391 (1930).

Syn.: *Coreopsis chrysantha* Vatke

Perennial- Nn- Islands of the Nile-introduced

Ref.: (Muschler 1912)

65. *Calendula palaestina* Boiss., Diagn. Pl. Orient. 10: 83. 1849

Annual- Mm, S- Sandy soil

Ref.: (Muschler 1912; Euro+Med Plant Database)

66. *Carduus acanthoides* L., Sp. Pl. 2: 821 (1753).

Biennial- Mm- Moist habitats.

Ref.: (El-Karemy & Zareh, 1991; El Hadidi & Fayed, 1994/95; Zareh, 2005; Euro+Med Plant Database).

67. *Carduus arabicus* Jacq. ex Murray, Syst. Veg. 724. May-June (1784), subsp. *arabicus*

Syn.: *Carduus australis* L.fil.

C. pycnocephalus L. subsp. *marmoratus* (Boiss. & Heldr.) P.H. Davis

Annual- M, Di, S- Stony wadis

Ref.: (Täckholm 1974; El Hadidi & Fayed, 1994/95; Euro+Med Plant Database).

68. *Carduus arabicus* Jacq. ex Murray subsp. *cinereus* (M. Bieb.) Kazmi, Mitt. Bot. Staatssamml. München 5: 451 (1964)

Syn.: *Carduus pycnocephalus* L. subsp. *cinereus* (M. Bieb.) P.H. Davis

Carduus pycnocephalus L. subsp. *arabicus* (sensu Boulos 2002)

Annual- M, Di, S- Stony habitats

Ref.: (POWO, Euro+Med Plant Database)

69. *Carduus pycnocephalus* L., subsp. *albidus* (M. Bieb.) Kazmi, Mitt. Bot. Staatssmml. Munchen 5: 446 (1964)

Syn.: *Carduus albidus* M. Bieb.

Carduus pycnocephalus L. var. *albidus* (M. Bieb.) Boiss.

Annual- M- rocky habitats

Ref.: (El Hadidi & Fayed, 1994/95; El-Karemy & Zareh, (1991); Zareh, 2005; Euro+Med Plant Database)

70. *Carduus pycnocephalus* L subsp. *breviphyllarius* P. H. Davis, Notes Roy. Bot.

Gard. Edinburgh 33(3): 412 (1975).

Annual- M, Dg, S- Roadsides, waste ground.

Ref.: (Davis 1975; POWO)

71. *Carduus tenuiflorus* Curtis, Fl. Londin. (Curtis) fasc. 6: t.55(1789)

Syn.: *Carduus pycnocephalus* subsp. *tenuiflorus* (Curtis) Batt.

Annual- Nv- Moist places

Ref.: (El Hadidi & Fayed, 1994/95, Zareh, 2005).

72. *Carlina curetum* Helder in Boiss., Fl. Orient. 3:449 (1875), subsp. *orientalis*

Meusel & A. Kastner, Feddes Repert. 88(7-8): 406 (1977).

Perennial- Without precise locality- Near endemic (Egypt- Lebanon-Syria, Palestine)

Ref.: (POWO; Euro+Med Plant Database)

73. *Carlina libanotica* Boiss., Diagn. Pl. Orient. ser. 1, 10: 95 (1849).

Biennial- S- Rocky habitats

Ref.: (POWO; Euro+Med Plant Database)

74. *Carlina sicula* Ten., Cat. Hort. Neapol. 1813 App. (ed. alt.) (1819), subsp. *mareotica*

(Asch. & Schweinf.) Greuter, Willdenowia 33: 52 (2003)

Syn.: *Carlina involucrata* var. *mareotica* Asch. & Schweinf.

Perennial- Mm – Stony ground – (Near Endemic: NW Egypt, NE Libya and Sicilia)

Ref.: (Muschler 1912; Tackhom 1974; POWO; Euro+Med Plant Database; African Plant Database)

75. *Carthamus tinctorius* L., Sp. Pl.: 830. 1753

Annual- Nv- introduced

Ref.: (Boisseir 1875; Ascherson & schweinfurth 1887; Muschler 1912; POWO; Euro+Med Plant Database)

76. *Centaurea hyalolepis* Boiss., Diagn. Pl. Orient. ser. 1, 6: 133 (1846).

Syn.: *Centaurea pallescens* subsp. *hyalolepis* (Boiss.) Holmboe

Biennial- Mm, Dl, Dg- Sandy soils.

Ref.: (El Hadidi & Fayed, 1994/95).

77. *Centaurea lanulata* Eig, Repert. Spec. Nov. Regni Veg. Beih. 63(1): 47 (1931).

Biennial- Di, S- gravely soil – (Near Endemic: Palestine and Sinai)

Ref.: (Danin *et al.*, 1985; POWO; Euro+Med Plant Database)

78. *Centaurea pullata* L., Sp. Pl.: 911. (1753), subsp. *pullata*

Syn.: *Melanoloma pullata* Cass.

Annual or short-lived perennial- Mm-introduced

Ref.: (Täckhom 1974; El Hadidi & Fayed, 1994/95; POWO; Euro+Med Plant Database).

Note: Cited in Boulos 2009 as imperfectly known.

79. *Cirsium arvense* (L.) Scop., Fl. Carniol., ed. 2. 2: 126 (1771).

Syn. *Cnicus arvensis* (L.) Roth

Perennial- S- Sandy soils

Ref.: (Muscler, 1912; POWO)

80. *Cichorium intybus* L., Sp. Pl. 2: 813 (1753), subsp. *intybus*

Annual- Mm, Nv- introduced and naturalized

Ref.: (Muschler, 1912; POWO)

81. *Cichorium endivia* L., Sp. Pl.: 813. 1753

Annual- Mm, Ms, Nv, O- introduced

Ref.: (Ascherson & schweinfurth 1887; Muschler 1912; POWO)

82. *Chiliadenus sericeus* (Batt. & Trab.) Brullo, Webbia 34(1): 303 (1979).

Syn.: *Jasonia sericea* Batt. & Trab.

Varthemia sericea (Batt. & Trab.) Diels

Frut. – Mm- Maritime dunes

Ref.: (El Hadidi & Fayed, 1994/95; Zareh 2005; POWO).



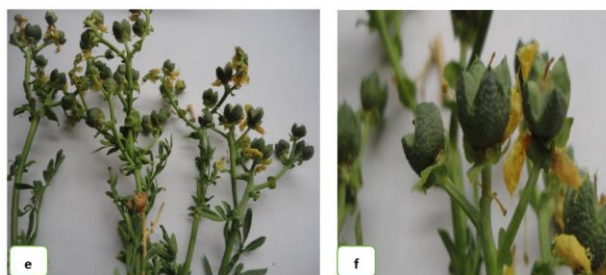


Figure 1: (a): *Crepis leontodontoides* All. (Type specimen). (b): *Vigna vexillata* (L.) A. Rich. (Herbarium sheet, CAI). (c): *Ficus elastica* Roxb. ex Hornem. (in field). (d): *Ficus religiosa* L. (in field). (e & f): *Ruta chalepensis* L. (Herbarium sheet, CAI).

83. *Crepis leontodontoides* All., Auct. Fl. Pedem. 13. (1789).

Syn.: *Crepis pauciflora* Desf.

Ref.: (JSTR {Type specimens}; Euro+Med Plant Database). (Fig. 1a)

84. *Echinops polyceras* Boiss., Diagn. Pl. Orient. 10: 85 (1849)

Perennial- Ms, Di, S- Stony and rocky wadis

Ref.: (Danin *et al.*, 1985; Euro+Med Plant Database)

85. *Erigeron sumatrensis* Retz., Observ. Bot. (Retzius) 5: 28 (1788).

Syn.: *Conyza sumatrensis* (Retz.) E. Walker

Annual- Nv, S- Naturalized

Ref.: (Shaltout 2020; El Beheiry *et al.* 2020; POWO; Euro+Med Plant Database)

86. *Eschenbachia stricta* (Willd.) Raizada, Indian forest 1985: 679 (1959), var. *stricta*

Annual- S- rocky habitats

Ref.: (POWO)

87. *Eschenbachia stricta* (Willd.) Raizada var. *pinnatifida* Abid & Qaiser, Fl. Pakistan 224: 32 (2021).

Syn.: *Conyza stricta* var. *pinnatifida* Kitam.

Annual- Ge- rocky habitats

Ref.: (El Hadidi & Fayed 1994/1995; POWO)

88. *Filago griffithii* (A. Gray) Andrés-Sánchez & Galbany, Taxon 59: 1689 (2010)

Syn.: *Cymbolaena griffithii* (A. Gray) Wagenitz

Annual- Di, S- Rocky soil

Ref.: (Danin *et al.*, 1985; Euro+Med Plant Database)

89. *Filago pyramidata* L., Sp. Pl.: 1199 (1753)

Syn.: *Filago spathulata* var. *prostrata* Boiss.

Annual- Mm, Ms, Di, Dg- Sandy and stony ground

Ref.: (Muschler 1912; Dobignard & Chatelain 2011a; APD; Euro+Med Plant Database)

90. *Helenium amarum* (Raf.) H. Rock, *Rhodora* 59: 131 (1957), var. *amarum*

Syn.: *Gaillardia amara* Raf.

Helenium tenuifolium Nutt.

Annual- S- Calcareous or sandy loamy soil

Ref.: (El-Gazzar, *et al.*, 2020).

91. *Helichrysum indicum* (L.) Grierson, Notes Roy. Bot. Gard. Edinburgh 31(1): 138 (1971).

Syn.: *Gnaphalium indicum* L.

Annual- Nv- Sandy and waste places

Ref.: (Muschler 1912; Täckholm 1974)

92. *Hyoseris lucida* L. Mant. 1: 103 (1767), subsp. *lucida*

Syn.: *Hysseris radiata* var. *lucida* (L.) E.D. Durand & Barrate

H. radiata L. subsp. *graeca* sensu Boulos 2002

Perennial- Mm- Maritim sand

Ref.: (Muschler 1912; Täckholm 1974; Zareh 2005; POWO; Euro+Med Plant Database)

93. *Lactuca sativa* L., Sp. Pl.: 795. 1753

Annual- Nv- introduced

Ref.: (POWO; Euro+Med Plant Database)

94. *Launaea acanthodes* (Boiss.) Kuntze, Revis. Gen. Pl. 1: 351 (1891).

Syn.: *Zollikoferia acanthodes* Boiss.

Frut. - S- Gravelly tracts

Ref.: (Zareh, *et al.* 2016).

95. *Launaea fragilis* (Asso) Pau subsp. *tenuiloba* (Boiss.) Zareh & M.H. Mohamed, Feddes Repert. 127(1-2): 18 (2016).

Syn.: *Zollikoferia tenuiloba* Boiss.

Launaea tenuiloba (Boiss.) Kuntze

Annual or biennial- Mm, Ms, Nv, Di; Ra- Sandy soils

Ref.: (Muschler 1912; Täckholm 1974; El Hadidi & Fayed 1994/95; Zareh, *et al.*, 2016; POWO).

Note: The species is represented in Egypt by two subspecies: subsp. *fragilis* and subsp. *tenuiloba*

96. *Launaea intybacea* (Jacq.) Beauverd, Bull. Soc. Bot. Genève ser. 2, 2: 114 (1910)

Syn.: *Launaea goraeensis* (Lam.) Hoffm.

Annual- R, Ge- desert Plains

Ref.: (Täckholm 1974; El Hadidi & Fayed 1994/95; Roskov *et al.*, 2018; POWO)

97. *Mantisalca duriaei* Briq. & Cavill., Archiv. Sc. Phys. & Nat., Geneve 5(12): 112 (1930).

Syn.: *Microlonchus duriaei* Spach

Mantisalca salmantica sensu Boulos 2009

Annual- Mm- Sandy soil

Ref.: (Muschler 1912; Täckholm 1974)

98. *Onopordum arenarium* (Desf.) Pomel, *Nouv. Mat. Fl. Atl.* 20 (1874).

Biennial or short-lived perennial- Mm (El-Salloum Plateau), Calcareous ground
Ref.: (El Kordy *et al.* 2022).

99. *Pallenis spinosa* (L.) Cass. subsp. *asteroidea* (Viv.) Greuter, *Fl. Medit.* 7: 47 (1997).

Annual or short-lived perennial- Mm- Waste ground
Ref.: (Täckholm 1974; POWO; Euro+Med Plant Database)

100. *Picris strigosa* M. Bieb., *Fl. Taur. - Caucas.* 2: 250 (1808)

Biennial or short-lived perennial- Nv- Stony ground
Ref.: (Muschler 1912; Täckholm 1974; Zareh 2005; POWO; Euro+Med Plant Database)

101. *Pulicaria odora* (L.) Rchb., *Fl. Germ. Excurs.*: 239 (1831–1832)

Syn.: *Inula odora* L.

Annual or short-lived perennial- Nv- Moist places

Ref.: (El Hadidi & Fayed 1994/1995; Zareh 2005; POWO; Euro+Med Plant Database; APD)

102. *Pulicaria dysenterica* (L.) Bernh., *Syst. Verz.* 153 (1800).

Annual or short-lived perennial- Nv- Moist ground

Ref.: (El-Gazzar *et al.* 2020).

103. *Senecio vernalis* Waldst. & Kit., *Descr. Icon. Pl. Hung.* 1: 23, t. 24(1800)

Annual- Dg- Syony ground

Ref.: (Täckholm 1974; POWO, Euro+Med Plant Database)

104. *Sonchus arvensis* L., *Sp. Pl.*: 793 (1753)
Perennial-Nv- introduced

Ref.: (Muschler 1912)

105. *Sphaeranthus angustifolius* DC., *Prodr.* 5: 370 (1836).

Syn.: *Sphaeranthus nubicus* Sch.Bip. ex Schnizl.

Annual- Nn- Canal banks

Ref.: (Muschler 1912; POWO)

106. *Symphyotrichum novi-belgii* (L.) G.L. Nesom, *Phytologia* 77(3): 287 (1995), var. *novi-belgii*

Syn.: *Aster novi-belgii* L.

Annual- Nn- introduced

Ref.: (Muschler 1912)

107. *Symphyotrichum subulatum* (Michx.) G.L. Nesom, *Phytologia* 77(3): 293 (1995), var. *subulatum*

Annual- S- introduced

Ref.: (POWO)

108. *Tanacetum parthenium* Sch. Bip., *Tanacetum* 55 (1844).

Syn.: *Chrysanthemum parthenium* (L.) Bernh.
Perennial- Mm, Ms, Nv, O- introduced
Ref.: (Muschler 1912)

109. *Tragopogon coelesyriacus* Boiss., *Diagn. Pl. Orient. ser. 1*, 11: 47 (1849).

Syn.: *Tragopogon longirostris* Bischoff ex Sch.Bip.

Tragopogon sinuatus sensu Boulos 2009
Biennial- S- Stony desert

Ref.: (Täckholm 1974, El Hadidi & Fayed 1994/1995; Zareh 2005)

110. *Xanthium orientale* L., *Sp. Pl.*, ed. 2: 1400 (1763).

Syn.: *Xanthium strumarium* L. subsp. *italicum* (Moretti) D. Löve,

Xanthium italicum Moretti

Annual- Ms, Nv, S- Irrigated places, Naturalized

Ref.: (Danin *et al.* 1985; El Hadidi & Fayed, 1994/95; Zareh 2005; Euro+Med Plant Database; POWO)

111. *Xanthium pungens* Wallr., *Beitr. Bot.*: 231 (1844)

Annual- Nv, O, Mm- introduced and Naturalized

Ref.: (Täckholm 1974; Euro+Med Plant Database).

Boraginaceae

112. *Anchusa azurea* Mill., *Gard. Dict.*, ed. 8. n. 9 (1768).

Perennial- S- Wadi beds

Ref.: (Täckholm 1974; POWO; Euro+Med Plant Database)

113. *Borago officinalis* L., *Sp. Pl.* ed.1: 137(1753).

Annual- Mm; Nv (Delta), weed of Cultivation

Ref.: (Muschler 1912; El-Khanagry, 2005).

114. *Buglossoides arvensis* (L.) I.M.Johnst., *J. Arnold Arbor.* 35(1): 42 (1954).

Syn.: *Lithospermum arvense* L.

Annual – Mm, Di- Hillsides and cultivated areas

Ref.: (Muschler 1912; Täckholm 1974; POWO; APD)

115. *Cordia crenata* Delile, *Descr. Egypte, Hist. Nat.* 195, t. 20 (1813), subsp. *crenata*

Frut. - Ge – Naturalized

Ref.: (Ascherson & Schweinfurth 1887; Muschler 1912)

116. *Cordia myxa* L., *Sp. Pl.* ed.1: 190 (1753)
Frut. - Nv- Nn-On-Naturalized

Ref. (Ascherson & Schweinfurth 1887; Muschler 1912; Amer *et al.* 2016; POWO)

117. *Echium italicum* L., Sp. Pl.: 139. (1753)
Biennial- Mm- Sandy soil
Ref.: (Muschler 1912; Täckholm 1974; Euro+Med Plant Database)

118. *Heliotropium europaeum* L., Sp. Pl. ed. 1: 130 (1753).

Syn.: *Heliotropium europaeum* var. *tenuiflorum* Guss.

Annual- Mm, Ms, Nv, On, Di- Sandy soil
Ref.: (Ascherson & Schweinfurth 1887; Muschler 1912; Täckholm 1974; POWO; Euro+Med Plant Database; APD)

Note: Boulos (2009) wrote it as a synonym of *Heliotropium lasiocarpum* Fisch. & C.A. Mey.

119. *Hormuzakia aggregata* (Lehm.) Guşul., Publ. Soc. Nat. România 6: 83 (1923)

Syn.: *Anchusa aggregata* Lehm.

Annual- Mm, Ms, Nd, On, S- Sandy plains
Ref.: (Muschler 1912; Täckholm 1974; POWO; Euro+Med Plant Database; APD)

Note: Boulos (2002, 2009) wrote it as a synonym of *Anchusa humilis* (Desf.) I.M. Johnst.

120. *Myosotis discolor* Pers., Syst. Veg.: 190 (1797)

Annual- S- gravelly soils

Ref.: (Täckholm 1974; Euro+Med Plant Database).

Brassicaceae

121. *Brassica aucheri* Boiss. in Ann. Sci. Nat., Bot., ser. 2, 17: 88 (1842)

Syn.: *Sinapis aucheri* (Boiss.) O.E. Schulz

Annual- S- Rocky ground

Ref.: (Täckholm 1974)

122. *Brassica napus* L., Sp. Pl., ed. 1: 666 (1753)

Annual- Nv, O- Cultivated and escaped

Ref.: (Simpson, 1930)

123. *Brassica oleracea* L., Sp. Pl. ed. 1: 667 (1753).

Syn.: *Brassica oleracea* L. var. *capitata* L.

Annual- Nv- Cultivated and escaped

Ref.: (Shaltout 2020; El Beheiry *et al.*, 2020)

124. *Calepina irregularis* (Asso) Thell. in Schinz & Keller, Fl. Schweiz, ed. 2, 1: 218 (1905)

Syn.: *Calepina corvini* (All.) Desv.

Annual or biennial- Mm- Sandy soil

Ref.: (Muschler, 1912)

125. *Diploaxis viminea* (L.) DC., in Candolle, Reg. Veg. Syst. Nat. 2: 635. 1821.

Syn.: *Sisymbrium vimineum* L.

Annual- Di- Moist places

Ref.: (Greuter, *et al.*, 1986; El Hadidi & Fayed, 1994/95; Euro+Med Plant Database).

126. *Erucaria rostrata* (Boiss.) A.W. Hill ex Greuter & Burdet, Willdenowia 15(2): 419 (1986).

Syn.: *Didesmus rostratus* Boiss.

Erucaria boveana Coss.

Annual-Di, S- Sand soil – (Near Endemic: Palestine, Lebanon-Syria and Sinai)

Ref.: (Danin, *et al.*, 1982; Greuter, *et al.*, 1986; POWO; Euro+Med Plant Database).

127. *Isatis microcarpa* J. Gay ex Boiss. var. *blephrocarpus* Asch. in Asch. & Schweinf., Ill. Fl. Égypt. Suppl.: 747 (1889).

Annual-Ms, Di- Sandy soil – (Near Endemic: Sinai, Palestine and Jordan)

Ref.: (Muschler 1912; Zohary 1966; Täckholm 1974)

128. *Lepidium chalepense* L., Cent. Pl. II. 23 (1756).

Syn: *Cardaria draba* (L.) Desv. subsp. *chalepensis* (L.) O.E. Schulz

Perennial- Di-S- Sandy soil

Ref.: (Hassib 1951; Täckholm 1974; El Hadidi & Fayed, 1994/95; Euro+Med Plant Database)

129. *Matthiola incana* (L.) W.T.Aiton, Hort. Kew., ed. 2, 4: 119 (1812), subsp. *incana*

Syn.: *Cheiranthus incanus* L.

Biennial or perennial- Mm, Nv- escaped from cultivation

Ref.: (Ascherson & Schweinfurth 1887; Sickenberger 1901; Muschler 1912)

130. *Raphanus raphanistrum* L. subsp. *sativus* (L.) Domin, Beih. Bot. Centalbl. Abt. 26(2): 255 (1910).

Syn.: *Raphanus sativus* L.

Annual- Nv- introduced

Ref.: (Muschler, 1912; El Hadidi & Fayed, 1994/95; Shaltout 2020; El Beheiry *et al.* 2020; POWO)

131. *Rorippa micrantha* (Roth) Jonsell, Svensk Bot. Tidskr. 68(4): 384 (1974).

Syn.: *Sisymbrium micranthum* Roth

Nasturtium nilolicum Boiss.

Annual- Nv- Muddy or dry soil

Ref.: (Muschler 1912).

Cactaceae

132. *Opuntia ficus-indica* (L.) Mill., Gard. Dict., ed. 8. Opuntia no. 2 (1768).

Perennial- Nv, Ol, On- Naturalized

Ref.: (Muschler 1912)

Cannabaceae

133. *Cannabis sativa* L., Sp. Pl. ed.2: 1027 (1753)

Annual- Nv, Dg- Cultivated and escaped
Ref.: (Muschler 1912; Abd El-Ghani et al. 2014)

Capparaceae

134. *Capparis zoharyi* Inocencio, D. Rivera, Obón & Alcaraz, Ann. Missouri Bot. Gard. 93: 145 (2006)

Frut. - S- Slopes
Ref.: (Inocencio et al. 2006; APD; Euro+Med Plant Database)

Caryophyllaceae

135. *Arenaria deflexa* Decne. var. *glabrata* Danin, Notes Roy. Bot. Gard. Edinburgh 32(2): 263 (1973).

Frut. - S- Gravely soil - Endemic
Ref.: (Danin, 1973; Täckholm, 1974; Hosny 1984; POWO)

Note: The species is represented in Egypt by susp. *deflexa* and var. *glabrata*

136. *Arenaria serpyllifolia* L. subsp. *leptoclados* (Rchb.) Nyman, Consp. Fl. Eur.: 115 (1878).

Syn.: *Arenaria serpyllifolia* L. var. *leptoclados* Rchb.

Arenaria leptoclados (Rchb.) Guss.

Annual- Ge- Wadi beds
Ref.: (Hosny & El Hadidi, 2000)

Note: The species is represented in Egypt by 2 subspecies: subsp. *serpyllifolia* and subsp. *leptoclados*

137. *Bolanthus hirsutus* (Labill.) Barkoudah, var. *alpinus* (Boiss.) Barkoudah, Wentia 9: 168 (1962).

Perennial- S- Calcareous rocky slopes - (Near Endemic: Sinai, Lebanon-Syria, Palestine)
Ref.: (Hosny & El Husseini, 1995).

138. *Gypsophila pilosa* Hudson, in Philos. Trans. Roy. Soc. Lond. (B) 56: 252 (1767).

Syn.: *Hagenia filiformis* Moench

Annual-Nv- Reclaimed soil

Ref.: (El Naggar, 2002).

139. *Paronychia arabica* (L.) DC. subsp. *brevisetata* (Ashers. & Schweinf.) Chaudhri, Meded. Bot. Mus. Herb. Rijks Univ. Utrecht 285: 204 (1968).

Syn.: *Paronychia longisetata* Webb & Berthel. var. *brevisetata* Asch. & Schweinf.

Annual or perennial- M, Di, Dg, Ge- Desert plains.

Ref.: (Hosny & El Hadidi, 2000).

Note: *Paronychia arabica* is represented by 3 subspecies: subsp. *Arabica*, subsp. *longisetata* and subsp. *brevisetata*

140. *Paronychia chlorothyrsa* Murb., in Acta Univ. Lund. 33: (12) 48, t. 2, f. 13-14 (1897), var. *chlorothyrsa*

Syn.: *Paronychia capitata* subsp. *chlorothyrsa* (Murb.) Maire & Weiller

Annual or perennial- M- Rocky ridges.
Ref.: (Greuter, et al., 1984; Hosny & El Hadidi, 2000; Euro+Med Plant Database).

141. *Silene apetala* Willd. var. *glabrata* A. Hosny & E. Shamso, Taeckholmia 14: 33 (1993).

Annual-Mm- Sandy plain - Endemic

Ref.: (Hosny et al. 1992).

142. *Silene apetala* Willd. var. *grandiflora* Boiss., Fl. Orient. 1: 597 (1867).

Annual- Nv, Dg- Sandy and loamy soils - Endemic

Ref.: (Hosny et al. 1992).

Note: *Silene apetala* represented in Egypt by 3 varieties: var. *apetala*, var. *grandiflora* and var. *glabrata*

143. *Silene conoidea* L. var. *obcordata* Boiss. Fl. Orient. 1:580(1867).

Annual-S- Wadi beds.

Ref.: (Hosny et al. 1992).

Note: The species is represented in Egypt by 2 varieties: var. *conoideae* and var. *obcordata*

144. *Silene fruticosa* L. subsp. *cyrenaica* Bég. et Vacc., Sp. Nuov. Rar. Fl. Lib. 2 (1912).

Perennial-Mm- desert and rocky ridges – (Near Endemic: NW Libya and NW Egypt)

Ref.: (Täckholm 1974; Hosny et al. 1992)

Note: The species is represented in Egypt by two subspecies: subsp. *fruticosa*, and subsp. *cyrenaica*

145. *Silene nocturna* L. var. *brachypetala* (Robill. & Castagne ex DC.) Benth., Consp. Fl. Eur. 96 (1878)

Annual- Nv; Dg, S- Cultivated lands

Ref.: (Hosny et al. 1992).

Note: The species is represented in Egypt by two varieties: *nocturna* and *brachypetala*

146. *Spergula arvensis* L., Sp. Pl.: 440 (1753)

Syn.: *Spergula vulgaris* Boenn.

Annual- without locality

Ref.: (Täckholm, 1974; Euro+Med Plant Database)

147. *Spergularia marina* (L.) Griseb. var. *densiflora* A. Hosny in Hosni, Taeckholmia 11: 55 (1988)

Annual- Ol - Edges of salt marshes- Endemic

Ref.: (Hosni 1988a)

Note: The species represented by 2 varieties:
var. *marina* and var. *densiflora*

148. ***Telephium sphaerospermum* Boiss.** var. *racemosa* **Boiss.** Diagn. Pl. Orient. 10: 12. (1849)

Annual or biennial-Dg, Nv, Rz- Sandy soil
Ref.: (Hosny, 1984).

Casuarinaceae

149. ***Casuarina equisetifolia* L.**, Amoen. Acad., Linnaeus ed. 4: 143 (1759).
Frut. - Nv- Cultivated and escaped
Ref.: (Täckholm & Drar 1969; Shaltout 2020; El Beheiry *et. al.* 2020).

Ceratophyllaceae

150. ***Ceratophyllum submersum* L.**, Sp. Pl., ed. 2: 1409 (1763)
Perennial- Nv- Shallow and deep water
Ref.: (Täckholm, 1974; APD; Euro+Med Plant Database)

Cistaceae

151. ***Helianthemum ellipticum* Pers.**, Syn. Pl. 2(1): 78 (1806).
Syn.: *Cistus ellipticus* Desf., Fl. Atlant. 1: 418. 1798
Frut. - Mm, Ms- Sandy plains
Ref.: (Muschler 1912; APD).

Cleomaceae

152. ***Cleome africana* Botsch.** in Novosti Sist. Vyssh. Rast. 1: 130 (1964)
Annual- Ms, S, Dl, Ra, Ge - Sandy places
Ref.: (Täckholm, 1974; Euro+Med Plant Database)
Note: Boulos (2009) wrote it as a synonym of *Cleome amblyocarpa* Barratte & Murb.

* Combretaceae

153. ***Conocarpus erectus* L.**, Sp. Pl., 1: 147 (1753).
Perennial- Di, Canal banks – introduced and Naturalized.
Ref.: (Ahmed *et al.*, 2015).

Convolvulaceae

154. ***Convolvulus althaeoides* L.** subsp. *tenuissimus* (Sm.) **Batt.** in Battandier & Trabut, Fl. Algérie, Dicot.: 592 (1890)
Perennial- Mm- Maritime sand
Ref.: (Saàd 1967; POWO; Euro+Med Plant Database)
Note: *Convolvulus althaeoides* represented in Egypt by two subspecies: subsp. *althaeoides*

and subsp. *tenuissimus*

155. ***Convolvulus pilosellifolius* Desr.** var. *linearifolius* **Sa'ad**, Meded. Bot. Mus. Herb. Rijks Univ. Utrecht 281: 191 (1967).

Perennial- S- Desert Wadis
Ref.: (Saàd 1967; POWO)

Note: *Convolvulus pilosellifolius* represented in Egypt by two varieties: var. *pilosellifolius* and var. *linearifolius*

156. ***Cuscuta brevistyla* A. Braun ex A. Rich.**, Tent. Fl. Abyss. 2: 79 (1850).

Annual- Mm, Ms, Dg- Twining parasite
Ref.: (Muschler 1912; POWO)

157. ***Cuscuta planiflora* Ten.** var. *sicula* (**Tineo ex Engelm.**) **Trab. ex Yunck.**, Mem. Torrey Bot. Club 18: 294 (1932).

Annual- Ge- Twining parasite
Ref.: (POWO)

Note: The species is represented in Egypt by two varieties: var. *planiflora* and var. *sicula*

158. ***Ipomoea batatas* (L.) Lam.**, Tabl. Encycl. tome 1, 2(2): 465 (1793).

Annual- Nv- introduced and Naturalized
Ref.: (Muschler 1912; POWO)

159. ***Ipomoea nil* (L.) Roth**, Catal. Bot. 1: 36 (1797).

Annual- Nv- introduced
Ref.: (Mahgoub 2019)

160. ***Ipomoea sinaica* Täckh.**, Stud. Fl. Egypt 176 (1956)

Perennial- S- Rocky soils - Endemic
Ref.: (Täckholm 1974; POWO)

161. ***Ipomoea triloba* L.**, Sp. Pl. 1: 161 (1753).

Annual-Nv (Delta), Swampy habitat- Naturalized

Ref.: (Shamso *et al.*; 2019; POWO; Euro+Med Plant Database).

162. ***Ipomoea wrightii* A. Gray**, Syn. Fl. N. Amer. 2 (1): 213 (1878)

Annual-Nv (Delta), Alluvial, damp or silty wet soil- introduced

Ref.: (Shamso *et al.*, 2019; POWO; Euro+Med Plant Database).

Crassulaceae

163. ***Kalanchoe deficiens* Asch. & Schweinf.**, Ill. Fl. Égypte 79 (1887).

Succulent shrubby- Mp, Nv- cultivated and escaped

Ref.: (Muschler 1912).

Cucurbitaceae

164. ***Citrullus lanatus* (Thunb.) Mastum & Naki**, Cat. Sem. Spor. Hort. Bot. Univ. Imp.

Tokyo 1915-1916: 30 (1916).

Syn.: *Momordica lanata* Thunb.

Citrullus vulgaris Schrad.

Annual- Nv- Cultivated and escaped

Ref.: (Muschler 1912; Shaltout 2020; El Beheiry *et. al.*, 2020, POWO, APD).

165. *Cucumis melo* L., Sp. Pl. 2: 1011 (1753).

Syn.: *Cucumis melo* L. subsp. *agrestis* (Naudin) Pangalo.

Luffa cylindrica (L.) M.Roem.

Annual- Mm, Nv - Cultivated and escaped

Ref.: (Muschler, 1912; El-Khanagry, 2005; Dobignard & Chatelain, 2011b; POWO).

166. *Cucurbita pepo* L., Sp. Pl. 2: 1010 (1753).

Climbing plant- Mm-Ms-Nv- cultivated and escaped

Ref.: (Muschler, 1912; Shaltout 2020; El Beheiry *et. al.*, 2020).

*Elaeagnaceae

167. *Elaeagnus angustifolia* L., Sp. Pl. 1: 121 (1753).

Syn.: *Elaeagnus hortensis* M.Bieb var. *orientalis* (L.) Loudon

Frut. - Mm, Nv, Di, Ol- Sandy soil

Ref.: (Muschler 1912, Montasir & Hassib 1956)

*Ericaceae

168. *Arbutus unedo* L., Sp. Pl. 1: 395 (1753).

Frut. - Mm- introduced

Ref. (Muschler 1912)

Euphorbiaceae

169. *Euphorbia bivonae* Steud., Nomencl. Bot., ed. 2. 1: 610 (1840); subsp. *bivonae*

Frut. - Mm, Di- Rocky ridges

Ref. (Täckholm 1974; El Hadidi & Fayed 1994/95; POWO; Euro+Med Plant Database)

170. *Euphorbia chamaepeplus* Boiss. & Gaill. var. *sinaica* Boiss. in A.P.de Candolle, Prodr. 15(2): 142 (1862)

Annual- Ms-Di-Weed of cultivation

Ref.: (Muschler 1912; Täckholm 1974)

171. *Euphorbia heterophylla* L. var. *cyatophora* (Murray) Griseb., Fl. Brit. W. I: 45

(1859)

Annusal- Nv- Weed and uncultivated land

Ref.: (Hassib 1951)

172. *Euphorbia hypericifolia* L., Sp. Pl. 1: 454 (1753).

Syn.: *Chamaesyce hypericifolia* (L.) Millsp.

Annual- Nv- Moist places and along irrigation

canals.

Ref.: (Täckholm 1974; El Hadidi & Fayed 1994/95).

173. *Euphorbia maculata* L., Sp. Pl. 1: 455 (1753).

Syn.: *Chamaesyce maculata* (L.) Small

Annual-S- Irrigated gardens, introduced

Ref.: (El Hadidi & Fayed, 1994/95; POWO).

174. *Euphorbia peplus* L. var. *minima* DC. in Lamarck & Candolle, Fl. Franç. 3: 331 (1805)

Syn.: *Euphorbia peploides* Gouan

Annual- Mm, Nv- Weed

Ref.: (Täckholm, 1974; El Hadidi & Fayed, 1994/95).

Note: *Euphorbia peplus* represented in Egypt by two varieties: var. *peplus* and var. *minima*.

Fabaceae (Leguminosae)

175. *Acacia saligna* (Labill.) H. Wendl., Comm. Acac. Aphyll.: 4, 26 (1820)

Syn.: *Mimosa saligna* Labill.

Frut. - Nv- Cultivated ground, escaped

Ref.: (Shaltout 2020; El Beheiry *et. al.*, 2020).

176. *Anthyllis vulneraria* L. subsp. *rubriflora*

(DC.) Arcang., Comp. Fl. Ital.: 178 (1882)

Annual or short-lived perennial- Mm- Coastal plains

Ref.: (Montasir & Hassib 1956, Täckholm 1974)

Note: *Anthyllis vulneraria* represented in Egypt by two subspecies subsp. *maura* and subsp. *rubriflora*

177. *Astragalus callichrous* Boiss., Diagn. Pl. Orient. ser. 1, 9: 62 (1849).

Annual – (Sinai) Di- Sandy soil

Ref. (Hassib 1951; Montasir & Hassib 1956, Täckholm 1974; POWO)

178. *Astragalus contortuplicatus* L., Sp. Pl. 2: 758 (1753).

Annual- Nv- Naturalized

Ref.: (Muschler 1912; Montasir & Hassib 1956, Täckholm 1956 & 1974; Euro+Med Plant Database; POWO)

179. *Astragalus pseudosinaicus* Gazer & Podlech, Sendtnera 1: 110 (1993)

Annual- Mm- Sandy plains

Ref.: (Gazer 1993; POWO)

180. *Astragalus stella* L., Syst. Nat., ed. 12. 2(2): 1134 (1767).

Annual- Dg, Di- Sandy desert

Ref.: (Gazer 1993; Sharawy & Bader 2014; POWO; Euro+Med Plant Database)

181. *Bauhinia variegata* L., Sp. Pl. 1: 375 (1753).

- Syn.: *Phanera variegata* (L.) Benth.
Perennial-Nv, Cultivated and escaped
Ref.: (Shaltout 2020; El-Beheiry *et al.*, 2020)
182. *Biserrula epiglottis* (L.) Coulot, Rabaute & J.-M.Tison, Biocosme Mésogéen 31(1): 1 (2014).
Syn.: *Astragalus epiglottis* L.
Annual- Mm- Sandy plains
Ref.: (POWO; Euro+Med Plant Database)
183. *Cicer arietinum* L., Sp. Pl. 2: 738 (1753).
Syn.: *Cicer cuneatum* Hochst.
Annual- Nv, Ge- sandy soil; Naturalized
Ref.: (Muschler 1912; El-Gazzar & Hammouda, 2006).
184. *Dalbergia sissoo* Roxb. ex DC., Prodr. 2: 416 (1825).
Frut. – Nv- Naturalized
Ref.: (Shaltout 2020; El-Beheiry *et al.*, 2020).
185. *Desmodium tortuosum* (Sw.) DC., Prodr. 2: 332 (1825).
Syn.: *Hedysarum tortuosum* Sw.
Annual or Perennial- Nn- Naturalized
Ref.: (Shaheen 2008; El-Beheiry *et al.*, 2020).
186. *Erythrina crista-galli* L., Mant. Pl. 1: 99 (1767)
Frut. –Nv- introduced
Ref.: (POWO; Euro+Med Plant Database)
187. *Glycyrrhiza glabra* L., Sp. Pl.: 742. 1753
Perennial- Nv, Ol- Naturalized
Ref.: (Muschler 1912; POWO; Euro+Med Plant Database)
188. *Hippocrepis biflora* Spreng., Pl. Min. Cogn. Pug. 2: 73 (1815)
Syn.: *Hippocrepis unisiliquosa* L. subsp. *biflora* (Spreng.) O. Bolòs & Vigo
Annual- Ms, Di- Sandy soils
Ref.: (Täckholm 1974; El Hadidi & Fayed, 1994/95; POWO; Euro+Med Plant Database)
Note: Boulos (2009) wrote it as a synonym of *Hippocrepis unisiliquosa* L. subsp. *unisiliquosa*
189. *Lablab purpureus* (L.) Sweet. Hort. Brit.: 481 (1826), subsp. *purpureus*
Syn.: *Dolichos purpureus* L.
Annual or perennial- Escaped from cultivation
Ref.: (Shaltout 2020; El-Beheiry *et al.* 2020).
190. *Lathyrus cicera* L., Sp. Pl. 2: 730 (1753)
Annual- Mm, Nv- Sandy soil
Ref.: (Ascherson & Schweinfurth 1887; Sickenberger 1901; Muschler 1912; Täckholm 1974)
191. *Lathyrus hierosolymitanus* Boiss., Diagn. Pl. Orient. ser. 1, 9: 127 (1849).
Syn.: *Lathyrus annuus* var. *hierosolymitanus* (Boiss.) Post
Annual- Mm, O- In fields
Ref.: (Muschler 1912; Täckholm 1956; El Hadidi & Fayed, 1994/95; POWO; Euro+Med Plant Database; WFO)
Note: Boulos (2009) wrote it as a synonym of *Lathyrus annuus* L.
192. *Lathyrus odoratus* L., Sp.Pl. ed.1: 732 (1753)
Annual- Mm-Nv- Escaped from cultivation
Ref.: (El Karemy & Hosni 1996)
193. *Lathyrus pseudocicera* Pamp., Nuovo Giorn. Bot. Ital., nov. ser., 31: 213 (1924).
Annual- Mm- Sandy soil
Ref.: (Täckholm 1974; El Hadidi & Fayed, 1994/95; POWO; Euro+Med Plant Database)
Note: Boulos (2009) wrote it as a synonym of *L. gorgoni* Parl. var. *lineatus* (Post) C.C. Towns.
194. *Leucaena leucocephala* (Lam.) de Wit, Taxon 10(2): 53 (1961).
Syn.: *Mimosa leucocephala* Lam.
Frut. - Nv- Along roads, waste grounds, canal bank, Naturalized.
Ref.: (El-Khanagry 2005; Ahmed *et al.* 2015; POWO; Euro+Med Plant Database).
195. *Lotus alpinus* (DC.) Ramond in Mém. Mus. Hist. Nat. 13: 275 (1826)
Syn.: *Lotus corniculatus* L. var. *alpinus* DC.
Lotus corniculatus L. var. *brachyodon* Boiss.
Perennial- Nv- Weed
Ref.: (Täckholm 1974; El Hadidi & Fayed, 1994/95)
196. *Lotus arenarius* Brot., Fl. Lusit. 2: 120 (1804).
Syn.: *Lotus aurantiacus* Boiss.
Perennial- Mm, Sandy ground.
Ref.: (El Hadidy, 2003; POWO; Euro+Med Plant Database).
197. *Lotus corniculatus* L., Sp. Pl. 2: 775 (1753).
Perennial or Annual- M, Nv, O, Di- Fields and sandy hills.
Ref.: (Muschler 1912; Täckholm 1974; El Hadidi & Fayed, 1994/95; POWO; Euro+Med Plant Database; APD)
198. *Lotus garcinii* DC., Prodr. 2: 212 (1825)
Frut. - Ms, Di, S- Rocky ground
Ref.: (Gillett 1958; Täckholm 1974; El Hadidi & Fayed 1994/95; Euro+Med Plant Database)
199. *Lotus requienii* Mauri ex Sanguin., Cent. Prodr. Fl. Rom. 106 (1837)
Syn.: *Lotus conjugatus* L. subsp. *requienii*

- (Mauri ex Sanguin.) Greuter
Annual- S- Fields and dry places.
Ref.: (El Hadidy, 2003).
200. ***Macroptilium atropurpureum* (DC.) Urb.**, Symbolae Antillanae seu Fundamenta Florae Indiae Occidentalis (1928).
Syn.: *Phaseolus atropurpureus* DC.
Perennial- Nv (Delta)- introduced
Ref.: (El-Khanagry 2005).
201. ***Macroptilium lathyroides* (L.) Urb.**, Symb. Antill. (Urban). 9(4): 457 (1928).
Syn.: *Phaseolus lathyroides* L.
Perennial- Nv (Delta), introduced
Ref.: (El-Khanagry 2005).
202. ***Medicago littoralis* Rohde ex Loisel. var. *aegyptiaca* Turki, El Shayeb & Shehata**, Phytol. Balcan. 27(2): 163 (2021).
Annual- Mm- Sandy soil
Ref.: (Turki et al., 2021).
203. ***Medicago littoralis* Rohde ex Loisel. var. *dentata*, Turki, El Shayeb & Shehata**, Phytol. Balcan. 27(2): 163 (2021).
Annual- Mm- Sandy soil
Ref.: (Turki, et al., 2021).
Note: *Medicago littoralis* represented in Egypt by 3 varieties: var. *littoralis* var. *aegyptiaca* and var. *dentata*
204. ***Ononis reclinata* L. subsp. *minor* (Moris) Arcang.**, Comp. Fl. Ital. 157 (1882).
Syn.: *Ononis reclinata* subsp. *mollis* (Savi) Bég.
Ononis reclinata L. var. *minor* Moris
Annual-Mm, Nv, S- Sandy and stony desert
Ref. (Täckholm 1974; Fayed et al. 2019; POWO; APD)
205. ***Ononis viscosa* L., Sp. Pl.: 718 (1753), subsp. *breviflora* (DC.) Nyman**, Consp. Fl. Eur. 161 (1878)
Syn.: *Ononis breviflora* DC.
Annual-S- Coastal sand and stony deserts
Ref.: (Fayed et al.; 2019; POWO; APD).
206. ***Parkinsonia aculeata* L., Sp. Pl. 1: 375 (1753).**
Frut. – Nv, Ra, Ol - Cultivated and escaped
Ref.: (Simpson 1930; Hassib 1951; Montasir & Hassib 1956; Shaltout 2020; El-Beheiry et al. 2020).
207. ***Prosopis juliflora* (Sw) DC. Prodr. 2: 447 (1825).**
Syn.: *Mimosa juliflora* Sw.
Perennial- Nv- introduced
Ref.: (Shaltout 2020; El-Beheiry et al., 2020).
208. ***Retama raetam* (Forssk.) Webb subsp. *gussonei* (Webb) Greuter** in Willdenowia 15: 429 (1986)
Syn.: *Lygos raetam* (Forssk.) Heywood var. *sarcocarpa* (Zohary) Täckh. & Boulos
Frut. - Ms, Di- Costal plains and wadi beds
Ref.: (Täckholm 1974)
209. ***Senna bicapsularis* (L.) Roxb.**, Fl. Ind. ed. 1832, 2: 342 (1832).
Syn.: *Cassia bicapsularis* L.
Frut. - Mm, Nv - Cultivated and Naturalized
Ref.: (Ascherson & Schweinfurth 1887; Muschler 1912; POWO; Euro+Med Plant Database).
210. ***Tephrosia nubica* (Boiss.) Baker subsp. *arabica* (Boiss.) J.B. Gillett**, Kew Bull. 13: 122 (1958).
Perennial- Da, S- Wadi beds
Ref.: (Täckholm 1974)
Note: The species is represented in Egypt by two subspecies: subsp. *nubica* and subsp. *arabica*
211. ***Tephrosia purpurea* (L.) Pers. subsp. *dunensis* Brummitt**, Bol. Soc. Brot. sér. 2, 41: 251 (1968).
Perennial-On-S- Wadi beds
Ref.: (Hosni & El Karemy 1993; El Hadidi & Fayed, 1994/95)
Note: *Tephrosia purpurea* represented in Egypt by three subspecies: subsp. *purpurea* subsp. *apollinea* and subsp. *dunensis*
212. ***Trifolium lappaceum* L. var. *zoharyi* Eig**, Zionist Org. Inst. Agric. & Nat. Hist. Bull. 6: 24 (1927).
Annual- Ms- Sandy soils
Ref.: (Täckholm 1974; El Hadidi & Fayed, 1994/95)
Notes: The species is represented in Egypt by two varieties: var. *lappaceum* and var. *zoharyi*
213. ***Trigonella foenum-graecum* L., Sp. Pl. 2: 777 (1753).**
Annual- Nv- Naturalized
Ref.: (Muschler 1912; El Hadidi & Fayed, 1994/95; Shaltout 2020; El-Beheiry et al., 2020).
214. ***Vachellia farnesiana* (L.) Wright & Arn.**, Phytologia 87 (3): 157 (2005), var. *farnesiana*
Syn.: *Mimosa farnesiana* L.
Acacia farnesiana (L.) Willd
Frut. – Nv-Naturalized
Ref.: (Shaltout 2020; El Beheiry et. al. 2020).
215. ***Vachellia nilotica* (L.) P. J.H. Hurter & Mabb.**, subsp. *indica* (Benth.) Kyal. & Boatwr., Bot. J. Linn. Soc. 172 (4): 515(2013)
Frut. - Nn- Naturalized
Ref.: (POWO)
216. ***Vachellia nilotica* (L.) P.J.H. Hurter &**

Mabb. subsp. *adstringens* (Schumach.) Kyal. & Boatwr., Bot. J. Linn. Soc. 172(4): 515 (2013)

Syn.: *Acacia arabica* var. *adansoniana* Dubard Frut. - Ug- Sandy and stony plains Ref.: (Täckholm 1974; POWO)

Notes: The species is represented in Egypt by four subspecies: subsp. *nilotica*, subsp. *tomentosa*; subsp. *indica* and subsp. *adstringens*

217. *Vachellia tortilis* (Forssk.) Galasso & Banfi subsp. *spirocarpa* (Hochst. ex A. Rich.) Kyal. & Boatwr. Bot. J. Linn. Soc. 172:517 (2013)

Syn.: *Acacia spirocarpa* Hochst. ex A. Rich. Frut. -Di, Dg, Da, Ra- Sandy and stony plains Ref.: (Ascherson & Schweinfurth 1887; Muschler 1912; Täckholm 1974)

Notes: The species is represented in Egypt by three subspecies: subsp. *tortilis* subsp. *raddiana* and subsp. *spirocarpa*

218. *Vicia faba* L., Sp. Pl. 2: 737 (1753).

Annual- Nv- Naturalized Ref.: (Simpson 1930; Shaltout 2020; El-Beheiry *et al.*, 2020; Euro+Med Plant Database).

219. *Vicia galilaea* Plitmann & Zohary, Israel J. Bot. 14: 91 (1965)

Syn.: *Vicia narbonensis* L. var. *pilosa* Post

Annual- Di – Weed of cultivation.

Ref.: (Täckholm 1974)

220. *Vicia monantha* Retz. subsp. *biflora* (Desf.) Maire, Bull. Soc. Hist. Nat. Afrique N. 31: 17 (1940).

Syn.: *Vicia calcarata* Desf.

Vicia biflora Desf.

Annual- Mm, Ms, Nv- Gravelly soil. Ref.: (Ascherson & Schweinfurth 1887; Muschler 1912; APD)

* 221. *Vigna vexillata* (L.) A. Rich., Hist. Fis. Cuba 10: 191 (1845).

Syn.: *Phaseolus vexillatus* L.

Annual- Nn- Fields.introduced

Specimens seen: Silwa Bahari between Kom Ombo and Idfu, 29.6.1969; N. El Hadidi & S. Ghabour s.n. (CAI) (Fig. 1b)

Frankeniaceae

222. *Frankenia laevis* L., Sp. Pl. 1: 331 (1753).

Perennial- Mm, Ms- Salty places.

Ref.: (Muschler 1912; Euro+Med Plant Database)

Gentianaceae

223. *Centaureum pulchellum* (Sw.) Druce subsp. *meyeri* (Bunge) Tzvelev, Fl. Evr. Casti SSSR: 63 (1978)

Syn.: *Centaureum meyeri* (Bunge) Druce Annual- Nv, Dg- Along ditches, introduced Ref.: (Täckholm 1974; El Hadidi & Fayed, 1994/95; Euro+Med Plant Database; APD)

Note: The species is represented in Egypt by 2 subspecies: subsp. *pulchellum* and subsp. *Meyrei*

Geraniaceae

224. *Erodium pulverulentum* (Cav.) Willd., Sp. Pl. ed. 4. 3: 632 (1800), subsp. *pulverulentum*

Syn.: *Erodium laciniatum* (Cav.) Willd. subsp. *pulverulentum* (Boiss.) Batt.

Annual- M, Nv, Di, R, S- Desert wadis Ref.: (Täckholm 1974; El Hadidi *et al.*, 1984; El Hadidi & Fayed, 1994/95; POWO; Euro+Med Plant Database; APD)

225. *Erodium pulverulentum* (Cav.) Willd. subsp. *tunetanum* (DC.) Guitt. Index Syn. Fl. Afrique N., 4: 239 (413) (2012).

Syn.: *Erodium pulverulentum* (Cav.) Willd. subsp. *bovei* (Delile) Schönbr. -Tem.

Annual- S- Rocky ground Ref.: (Täckholm 1974; El Hadidi *et al.* 1984; El Hadidi & Fayed 1994/95; POWO; APD)

Note: Boulos (2009) cited the subspecies as a synonym to *E. laciniatum* (Cav.) Willd. subsp. *pulverulentum* (Boiss.) Batt.

226. *Geranium favosum* Hochst. ex A. Rich., Tent. Fl. Abyss. 1: 117 (1847).

Annual- Ge- Stony desert

Ref.: (Simpson 1930)

227. *Geranium mascatense* Boiss., Diagn. Pl. Orient. ser. 1, 1: 59 (1843).

Annual- Ge- Sheltered crevices

Ref.: (Täckholm 1956; Täckholm 1974; Hadidi *et al.* 1984- El Hadidi & Fayed 1994/95; POWO)

228. *Geranium rotundifolium* L., Sp. Pl.: 683. 1753

Annual- S – Stony wadis

Ref.: Täckholm 1974; Hadidi *et al.* 1984; El Hadidi & Fayed 1994/95; POWO; APD)

229. *Geranium yemense* Defflers, Voyage Yemen lices 18 (1889).

Annual-Ge- Crevices

Ref.: (Täckholm 1974- El Hadidi & Fayed 1994/95; POWO)

Note: Boulos (2000) wrote it as a synonym to *Geranium trilophum* Boiss.

Hypericaceae (Guttiferae)

230. *Hypericum aegypticum* L., Sp. Pl. 2: 784 (1753), subsp. *aegypticum*
Syn.: *Triadenia aegyptiacum* (L.) Boiss.
Perennial- without locality (Type)
Ref.: (Boissier, 1867: 783; Linnaeus, type from Egypt).

Lamiaceae

231. *Clinopodium barbatum* (P.H. Davis) Melnikov, Turczaninowia 18 (3): 107 (2015).
Syn.: *Clinopodium serpyllifolium* (M. Bieb.) Kuntze subsp. *barbatum* (P.H. Davis)

Bräuchler,
Micromeria fruticosa (L.) Druce subsp. *barbata* P.H. Davis
Perennial- S- Weed in gardens
Ref.: (Rabei *et al.*, 2019).

232. *Coleus hadiensis* (Forssk.) A.J. Paton, PhytoKeys 129: 54 (2019)
Perennial- Mm- Maritime sand
Ref.: (POWO, Govaerts *et al.* 2021)

233. *Isodon schimperi* (Vatke) J.K.Morton, Novon 8(3): 265 (1998).
Syn.: *Plectranthus schimperi* Vatke
Annual- Nn (Near Aswan)- Cultivated land
Ref.: (Muschler 1912)

234. *Mentha longifolia* (L.) L., Fl. Monsp.: 19 (1756), subsp. *longifolia*
Syn.: *Mentha lavandulacea* Willd.
Perennial- S- Rocky ground
Ref.: (Täckholm 1974; Euro+Med Plant Database)

Note: This species is represented in Egypt by three subspecies: subsp. *longifolia*, subsp. *typhoides* (Briq.) Harley and subsp. *schimperi* (Briq.) Briq.

235. *Mentha spicata* L., Sp. Pl. 2: 576 (1753), subsp. *spicata*
Annual- Di, Nv- Moist habitats (introduced)
Ref.: (El Hadidi & Fayed, 1994/95; POWO; Euro+Med Plant Database).

236. *Mentha spicata* L. subsp. *condensata* (Briq.) Greuter & Burdet, Willdenowia 14(2): 301 (1985).
Syn.: *Mentha tomentosa* d'Urv. subsp. *condensata* Briq.

Mentha microphylla K. Koch
Perennial- Nv, O, S- Moist habitats
Ref.: (Täckholm 1974; POWO; Euro+Med Plant Database)

Note: This species is represented in Egypt by two subspecies: subsp. *spicata* and subsp. *condensata*

237. *Melissa officinalis* L., subsp. *inodora*

Bornm., Beih. Bot. Centralbl. 31 (2): 250 (1914).

Perennial- Mm, Ms, Nv, O, Dg- introduced
Ref.: (Muschler 1912)

238. *Ocimum basilicum* L., Sp. Pl. ed.1: 597 (1753), var. *basilicum*
Annual (-Perennial) –Mm; Ms, Nv, O; Dg- Cultivated and escaped
Ref.: (Muschler, 1912)

239. *Origanum majorana* L., Sp. Pl. ed.1: 590 (1753)
Perennial – Mm; Ms, Nv, O; Dg, Da- Naturalized
Ref.: (Muschler, 1912)

240. *Origanum vulgare* L., Sp. Pl.: 590 (1753)
Perennial- S- Rocky habitats
Ref.: (Täckholm 1974)

241. *Phlomis brachyodon* (Boiss.) Zohary ex Rech. f., Oesterr. Bot. Z. 89: 290 (1940), subsp. *brachyodon*
Perennial- Di- Rocky habitats
Ref.: (Danin *et al.*, 1982)

242. *Salvia bracteata* Banks & Sol., Nat. Hist. Aleppo, ed. 2, 2: 242 (1794).
Annual or biennial – Mm- introduced
Ref.: (Muschler 1912)

243. *Salvia indica* L., Sp. Pl. ed. 1: 26 (1753)
Syn.: *Salvia brachycalyx* Boiss.
Annual- Mm- introduced
Ref.: (Muschler 1912)

244. *Salvia judaica* Boiss., Diagn. Pl. Orient. ser. 1, 12: 61 (1853).
Annual or biennial – Mm- Cultivated and escaped
Ref.: (Muschler 1912)

245. *Salvia lanigera* Poir. var. *grandiflora* (Benth.) Dinsmore in Post, Fl. 2:360 (1933).
Syn.: *S. controversa* Ten. var. *grandiflora* Benth.
Perennial- Mm- Sandy plains and rocky habitats.
Ref.: (El-Banhawy *et al.*, 2016).

246. *Salvia rosmarinus* Spenn., Handb. Angew. Bot. 2: 447 (1735)
Syn.: *Rosmarinus officinalis* L.
Frut. – Mm, Ms, Nv, O; Dg, Da -Loamy soil
Ref. (Muschler 1912; POWO; Euro+Med Plant Database)

247. *Scutellaria tomentosa* Bertol., Misc. Bot. 2: 11 (1843)
Perennial - S- Rocky slopes
Ref.: (Danin *et al.* 1985; POWO; Euro+Med Plant Database)

248. *Teucrium capitatum* L., Sp. Pl. 2:566

(1753), subsp. *capitatum*

Syn.: *Teucrium polium* L. subsp. *capitatum* (L.) Arcangeli

Frut. - S, Stony ground and desert wadies

Ref.: (Fayed *et al.* 2015; POWO; Euro+Med Plant Database).

249. *Teucrium jordanicum* (Danin) Faried, Nordic J. Bot. 33(4): 390 (2015), var. *jordanicum*

Syn.: *Teucrium leucocladum* Boiss. subsp. *jordanicum* Danin

Perennial- Dg, S- Stony and rocky places. - (Near Endemic: Sinai-Palestine)

Ref.: (Fayed *et al.* 2015; POWO).

250. *Teucrium jordanicum* (Danin) Faried, var. *sinaicum* (Danin) Faried, Nordic J. Bot. 33(4): 390 (2015)

Syn.: *Teucrium leucocladum* Boiss. subsp. *sinaicum* Danin

Perennial- S- Stony and rocky places- (Endemic)

Ref.: (Fayed *et al.* 2015; POWO).

251. *Teucrium leucocladum* Boiss., Diagn. Pl. Orient. ser. 1, 5: 44 (1844), var. *leucocladum*

Syn.: *Teucrium schimperi* C. Presl

Perennial- S- Stony and rocky places –(Near Endemic: Sinai, Palestine and Arabia)

Ref.: (Fayed *et al.* 2015; POWO; Euro+Med Plant Database).

252. *Teucrium leucocladum* Boiss. var. *glandulosum* Danin, Willdenowia 27(1–2): 169 (1997).

Perennial- S- Stony and rocky places - (Endemic)

Ref.: (Fayed, *et al.*, 2015; POWO).

Lentibulariaceae

253. *Utricularia stellaris* L. f., Suppl. Pl. 86 (1782).

Syn.: *Utricularia inflexa* var. *stellaris* (L.f.) P. Taylor

Perennial- Nv- In ditches

Ref.: (Muschler 1912; Täckholm 1974; POWO; Euro+Med Plant Database; African Plant Database

Linaceae

254. *Linum maritimum* L., Sp. Pl. 1: 280 (1753).

Annual- Mm – Maritime sand

Ref.: (Muschler 1912)

Lythraceae

255. *Ammannia baccifera* L. var. *attenuata*

(Hochst. & A. Rich.) Z. Turki, Fl. Medit. 17: 102 (2007)

Syn.: *Ammannia attenuata* Hochst. & A. Rich. Annual- Nv, Ol- Irrigated ground

Ref.: (Turki 2007a)

Note: *Ammannia baccifera* represented by two varieties: var. *baccifera* and var. *attenuata*

256. *Ammannia multiflora* Roxb., Fl. Ind. 1: 447 (1820)

Annual- Mm- Irrigated ground

Ref.: (Täckholm 1974; El Hadidi & Fayed 1994/95; Turki 2007a; POWO; Euro+Med Plant Database)

257. *Lawsonia inermis* L., Sp. Pl. 1: 349 (1753).

Frut. - Mm, Ms, Nv- Cultivated & escaped.

Ref.: (Muschler 1912, Montasir & Hassib 1956)

Malvaceae s.l.

258. *Abelmoschus esculentus* (L.) Moench, Methodus 617 (1794).

Syn.: *Hibiscus esculentus* L.

Annual- Cultivated and escaped

Ref.: (Shaltout 2020; Beheiry *et al.* 2020).

259. *Abutilon angulatum* (Guill. & Perr.)

Mast. in Oliv., Fl. Trop. Afr. 1: 183 (1868).

Perennial- Nv- Naturalized

Ref.: (Ascherson & Schweinfurth 1887; Sickenberger 1901; Muschler 1912)

260. *Abutilon grandifolium* (Willd.) Sweet., Hort. Brit.: 53 (1826)

Syn.: *Sida grandifolia* Willd.

Perennial- Nv- Roadsides

Ref.: (Badry *et al.* 2018; POWO).

261. *Abutilon hirtum* (Lam.) Sweet, Hort. Brit.: 53 (1826), var. *hirtum*

Syn.: *Abutilon graveolens* (Roxb. ex Hornem.) Wight & Arn.

Perennial- Nv, O- Silty soil

Ref.: (Muschler 1912; Hassib 1951).

262. *Anoda cristata* (L.) Schltld., Linnaea 11(2): 210 (1837).

Syn.: *Sida cristata* L.

Annual or short-lived Perennial-Nv- Weed in cultivation

Ref.: (Mobarak & El Khanagry, 2017).

263. *Gossypium arboreum* L., Sp. Pl. 2: 693 (1753).

Frut. - Mm, Ms, Nv- Naturalized

Ref.: (Ascherson & Schweinfurth 1887; Sickenberger 1901; Muschler 1912; Täckholm 1974; El Hadidi & Fayed 1994/95)

264. *Gossypium barbadense* L., Sp. Pl. 2: 693 (1753).

Frut. - Mm, Ms, Nv, O, Dg, Di- Cultivated and Naturalized

Ref.: (Ascherson & Schweinfurth 1887; Muschler 1912; POWO)

265. *Hibiscus diversifolius* Jacq., Collectanea 2: 307 (-308; t. 246) (1789), subsp. *diversifolius*

Perennial-Nv, Nn, Moist habitats

Ref.: (Badry, *et al.* 2015; POWO; APD).

266. *Melhania steudneri* Schweinf., Verh. K.K. Zool.-Bot. Ges. Wien 18: 672 (1868).

Annual- Ge- Stony ground

Ref.: (Shamso & Hamdy, 2010; POWO; APD).

267. *Sida spinosa* L., Sp. Pl. 2: 683 (1753).

Annual or perennial- Nv, Ol- introduced

Ref.: (Muschler 1912; POWO)

*Meliaceae

268. *Khaya senegalensis* (Desv.) A. Juss., Mém. Mus. Hist. Nat. 19: 249 (Meliac. 98, t. 10) (1830).

Frut. - Nv- Cultivated and Naturalized

Ref.: (Shaltout 2020; Beheiry *et al.* 2020).

269. *Melia azedarach* L., Sp. Pl. 1: 384 (1753).

Frut. - Mm, Nv- Naturalized

Ref.: (Muschler 1912; Shaltout 2020; Beheiry *et al.* 2020).

Menispermaceae

270. *Cocculus hirsutus* (L.) W. Theob., in F. Mason, Burmah ed. 3. 2: 657 (1883).

Syn.: *Menispermum hirsutum* L.

Short-lived perennial-S (Wadi Wateer)- A climber on rocky cliffs and crevices as well as prostrate in semi-desert areas.

Ref.: (Fahmy & El-Bakry, 2011).

Molluginaceae

271. *Glinus lotoides* L., Sp. Pl. 1: 463 (1753) , var. *macrantha* Pitot ex Täckh. & Boulos, Publ. Cairo Univ. Herb. 5: 84 (1972 publ. 1974)

Annual- Nv, Mm, Dg, S, Ge- Moist ground

Ref.: (Täckholm 1974)

272. *Glinus lotoides* L., var. *micrantha* Pitot ex Täckh. & Boulos, Publ. Cairo Univ. Herb. 5: 84 (1972 publ. 1974)

Annual- Nv, O, Dg- Moist ground

Ref.: (Täckholm 1974)

Moraceae

273. *Ficus carica* L. subsp. *rupestris* (Hausskn.)Browicz in Rechinger, Fl. Iranica

153: 8 (1982)

Syn.: *Ficus carica* var. *rupestris* Hausskn., in P.E. Boissier, Fl. Orient. 4: 1154 (1879)

Frut. - S- Rocky slops

Ref.: (Post, 1933; Täckholm 1974; El Hadidi & Fayed 1994/95; El Garf 2000; Euro+Med Plant Database)

Note: The species is represented in Egypt by two subspecies: subsp. *carica* (cultivated and naturalized) and subsp. *rupestris* (wild in mountains, Sinai)

*274. *Ficus elastica*

Roxb. ex Hornem., Hort. Bot. Hafn. Suppl. 7 (1819).

Frut. - Nv- Cultivated and Naturalized

Specimen seen: Giza, Doki, 12.9.2021; H. Hosni & E. Shamso s.n. (CAI) - (Fig. 1c)

*275. *Ficus religiosa* L., Sp. Pl. 2: 1059 (1753).

Syn.: *Ficus caudata* Stokes

Frut. - Nv-Cultivated and Naturalized

Specimen seen: Giza, Doki, 5.6.2022; H. Hosni & E. Shamso s.n. (CAI)- (Fig. 1: d)

276. *Ficus retusa* L., Mant. Pl. 129 (1767).

Frut. Nv-Cultivated and naturalized

Ref.: (Shaltout 2020; El-Beheiry *et al.* 2020).

277. *Morus alba* L., Sp. Pl. 2: 986 (1753).

Frut. - Nv- Cultivated and naturalized

Ref.: (Shaltout 2020; El-Beheiry *et al.* 2020).

278. *Morus nigra* L., Sp. Pl. 2: 986 (1753).

Frut. - Nv- Cultivated and naturalized

Ref.: (Shaltout 2020; El-Beheiry *et al.* 2020).

Moringaceae

279. *Moringa oleifera* Lam., Encycl. 1(2): 398 (1785).

Syn.: *Guilandina moringa* L.

Moringa pterygosperma Gaertn.

Frut. - Nv- Cultivated and Naturalized

Ref.: (Muschler 1912; Shaltout 2020; El-Beheiry *et al.* 2020).

*Myrtaceae

280. *Eucalyptus camaldulensis* Dehnh., Cat. Pl. Horti Camald., ed. 2, 20 (1832).

Frut. - Nv- Cultivated and Naturalized

Ref.: (Shaltout 2020; El-Beheiry *et al.* 2020).

281. *Psidium guajava* L., Sp. Pl. 1: 470 (1753).

Frut. - Nv- Cultivated and Naturalized

Ref.: (Shaltout 2020; El-Beheiry *et al.* 2020).

Neuradaceae

282. *Neurada al-eisawii* Barsotti, Borzatti & Garbari, Bot. Chron. 13: 113 (2000)

Syn.: *Neurada procumbens* var. *al-eisawii* (Barsotti, Borzatti & Garbari) Turki

Annual- Nv- Sandy plains – (Near Endemic: Egypt, Jordan & Palestine)

Ref.: (Turki 2007b; Euro+Med Plant Database)

283. *Neurada procumbens* L. var. *stellata* Zohary & D. Zohary, Palest. J. Bot. Jerusalem, ser 5: 249 (1952)

Annual- Nv, Dl, Dg- sandy plains and desert wadis

Ref.: (Turki, 2007b)

Note: The species is represented in Egypt by two varieties: var. *procumbens* and var. *stellata*

Nyctaginaceae

284. *Boerhavia coccinea* Mill., Gard. Dict., ed. 8. n. 4 (1768).

Syn.: *Boerhavia repens* L. var. *undulata* Asch. & Schweinf.

Boerhavia repens L. subsp. *viscosa* (Lag. & Rodr.) Maire

Perennial- Nv, O, De, R, Ge, S- Sand plains and moist places.

Ref.: (Muschler, 1912; Täckholm 1974; POWO; Euro+Med Plant Database)

285. *Commicarpus plumbagineus* (Cav.) Standl., Contr. U.S. Natl. Herb. 18: 101 (1916).

Syn.: *Boerhavia plumbaginea* Cav.

Boerhavia verticillata Poir.

Perennial-Ge, R- Wadi beds and moist places

Ref.: (Muschler 1912; El Hadidi & Fayed, 1994/95; El Husseni 2000).

286. *Mirabilis jalapa* L., Sp. Pl. 1: 177 (1753), var. *jalapa*

Perennial – Nv- Naturalized

Ref.: (Muschler 1912)

Nymphaeaceae

287. *Nymphaea micrantha* Guill. ex Perr., Fl. Seneg. Tent. 1: 16 (1830).

Syn.: *Nymphaea vivipara* Lehm.

Perennial-Nv, weed in rice fields and irrigation canals. introduced

Ref.: (El Hadidi & Fayed, 1994/95; POWO).

Orobanchaceae

288. *Cistanche violacea* (Desf.) Hoffmanns. & Link, Fl. Portug. 1: 320 (1813)

Perennial- Mm, Ol, Dl- Sandy desert, parasite on shrubs of Chenopodiaceae

Ref.: (Täckholm 1974; El Hadidi & Fayed

1994/1995; POWO; Euro+Med Plant Database)

289. *Orobanche mutelii* F.W. Schultz var. *sinaica* Beck, Biblioth. Bot. 4, Heft 19: 97 (1890).

Perennial- S- Holoparasite

Ref.: (POWO; Euro+Med Plant Database)

Note: The species is represented in Egypt by two varieties: var. *mutelii* and var. *sinaica*

Oxalidaceae

290. *Oxalis corymbosa* DC., Prodr. 1: 696. (1824).

Syn.: *Oxalis debilis* Kunth var. *corymbosa* (DC.) Lourteig

Perennial- Mm, Nv, Nn; Cultivated grounds and open habitats (Naturalized)

Ref.: (El-Khanagry, 2005; Shamsou *et al.* 2021).

291. *Oxalis latifolia* Kunth, Nov. Gen. Sp. 5: 237. t. 467 (1821-1822).

Syn.: *Oxalis mauritiana* C. Lodd.

Perennial-Nv - Cultivated fields and waste places

Ref.: (El-Khanagry, 2005; Shamsou *et al.* 2021).

Papaveraceae

292. *Papaver somniferum* L., Sp. Pl. 1:508 1753.

Annual-Nv, S – Cultivated and escaped

Ref.: (Muschler 1912; Rabei, *et al.* 2021b).

*Passifloraceae

293. *Passiflora caerulea* L., Sp. Pl.: 959. 1753

Liana- Mm, Ms, Nv, S- introduced

Ref.: (Muschler 1912; Post 1932)

Pedaliaceae

294. *Sesamum indicum* L., Sp. Pl. 2: 634 (1753)

Syn.: *Sesamum orientale* L., Sp. Pl.: 634. 1753

Annual- Mm, Ms, Nv- Cultivated and Naturalized

Ref.: (Muschler 1912; POWO; Euro+Med Plant Database)

*Phytolaccaceae

295. *Phytolacca americana* L., Sp. Pl. 1: 441 (1753), var. *americana*

Perennial- Nv- Naturalized

Ref.: (Muschler 1912; Euro+Med Plant Database)

Plantaginaceae

296. *Anarrhinum forskaohlii* (J.F. Gmel.) Cufod., Bull. Jard. Bot. État Bruxelles 33(Suppl.): 891 (1963), subsp. *forsskaohlii*

Syn.: *Simbuleta forskaohlii* J.F. Gmel.

Perennial-S- Gravely soils- (Near endemic: Sinai, Lebanon-Syria, Palestine, Saudi Arabia, Yemen)

Ref.: (El Hadidi, *et al.* 1999; POWO).

Note: The species is represented in Egypt by two subspecies: subsp. *forsskaohlii* and subsp. *pubescens*

297. *Nanorrhinum acerbianum* (Boiss.) Betsche subsp. *montanum* Betsche, Courier

Forschungsinst. Senckenberg 71: 132 (1984) Annual or Perennial- S- (Endemic)

Ref.: (POWO)

Note: The species is represented in Egypt by two subspecies: subsp. *acerbianum* and subsp. *montanum*

298. *Nanorrhinum scariosepalum* (Täckh. & Boulos) Yousefi & Zarre, Nordic J. Bot. 34(4): 461 (2016).

Syn.: *Kickxia scariosepala* Täckh. & Boulos, Publ. Cairo Univ. Herb. 5: 98 (1974).

Perennial- S- rocky soil - Endemic

Ref.: (Täckholm 1974; El Hadidi & Fayed 1994/1995; POWO)

Note: Boulos (2009) wrote it as a synonym to *K. acerbiana* (Boiss.) Täckh. & Boulos

299. *Plantago stricta* Schousb., Iagttag. Vextrig. Marokko 69. (1800).

Syn.: *Plantago afra* var. *stricta* (Schousb.) Verdc.

Annual- Dg, Da- Sandy plains and wadi beds

Ref.: (Muschler 1912; Täckholm 1974; Euro+Med Plant Database)

300. *Veronica anagalloides* Guss., Pl. Rar.: 5 (1826), subsp. *anagalloides*

Syn.: *Vernica haussknechtii* Boiss.

V. anagallis-aquatica subsp. *anagalloides* (Guss.) Rouy

Annual or perennial- Mm, S- Wet places, ditches and cultivated lands.

Ref.: (Post 1933; Abdel El-Ghani, *et al.* 2010; Euro+Med Plant Database).

Note: The species represented in Egypt by two subspecies: subsp. *anagalloides* and subsp. *tackholmiorum* Chetek & Obs.-Kos.

301. *Veronica heureka* (M.A. Fisch.) Tzvelev, Bot. Zhurn. 69:1257 (1984)

Syn.: *Veronica anagalloides* Guss. subsp. *heureka* M.A. Fisch

Annual- Nv, S- humid habitats

Ref.: (Abd El-Ghani *et al.* 2010; POWO;

APD).

302. *Veronica beccabunga* L., Sp. Pl.: 12. 1753

Perennial- Mm, Nv, On, S- Moist places

Ref.: (Muschler 1912; Post 1933; Täckholm 1974; POWO; Euro+Med Plant Database)

303. *Veronica cymbalaria* Bodard., Mém. Véronique Cymb.: 3 (1798).

Syn.: *Veronica cuneata* Guss.

Annual- Mm, Cultivated soils

Ref.: (Hosny, *et al.* 2007).

Plumbaginaceae

304. *Limonium delicatulum* (Girard) Kuntze, Revis. Gen. Pl. 2: 395 (1891)

Perennial- Mm- Dry salt marshes

Ref.: (Täckholm 1974; APD).

305. *Limonium mareoticum* El Garf ex Hadidi & Fayed, Taekholmia 15: 114 (1994/95)

Perennial- Mm- Dry salt marshes- (Endemic)

Ref.: (El Hadidi & Fayed, 1994/95).

306. *Limonium virgatum* (Willd.) Fourr., Ann. Soc. Linn. Lyon, ser.2, 17: 141. (1869)

Perennial- Mm- Dry salt marshes.

Ref.: (El Hadidi & Fayed, 1994/95).

Polygalaceae

307. *Polygala abyssinica* R.Br. ex Fresen., Mus. Senckenberg 2: 273 (1837)

Perennial- Ge- Stony desert

Ref.: (Simpson 1930)

308. *Polygala negevensis* Danin in Israel J. Bot. 36: 67 (1987)

Syn.: *Polygala sinaica* Botsch. var. *glabrescens* (Zohary) Boulos

Subshrub- S- Stony desert wadis

Ref.: (Danin, 2000; Euro+Med Plant Database)

Polygonaceae

309. *Persicaria alpina* (All.) H. Gross, Bot. Jahrb. Syst. 49: 250 (1913)

Syn.: *Polygonum alpinum* All.

Perennial- S- Moist places.

Ref.: (Täckholm 1974; Euro+Med Plant Database)

310. *Persicaria attenuata* (R.Br.) Soják, Preslia 46(2): 152 (1974).

Syn.: *Polygonum attenuatum* R. Br.

Perennial- M, Nv- Moist places and canal banks. (introduced)

Ref.: (Safa & El Hussein, 1992; El Hadidi & Fayed, 1994/95; El Hussein & El Hadidi, 2000).

311. *Persicaria pulchra* Soják, Preslia 46(2):

154 1974.

Syn.: *Polygonum pulchrum* Blume

Perennial- Mm- Swamps

Ref.: (Safa 1986).

312. *Polygonum argyrocoleon* Steud. ex Kunze, Linnaea 20(1): 17 (1847).

Syn.: *Polygonum deciduum* Boiss. & Noe ex Meissn.

Perennial- Ol (Bahariya)- Weed in cultivation.

Ref.: (Post 1932; Safa & El Hussein 1992; El Hadidi & Fayed, 1994/95; El Hussein & El Hadid 2000; Euro+Med Plant Database)

313. *Polygonum balansae* Boiss., Diagn. Pl. Orient. ser. 2, 4: 78 (1859).

Perennial- Nv- Weed in farmland.

Ref.: (Safa & El Hussein 1992; El Hadidi & Fayed 1994/95).

314. *Polygonum patulum* M. Bieb., Fl. Taur. Caucas. 1: 304 (1808).

Syn.: *Polygonum bellardii* All. subsp. *patulum* (M. Bieb.) Arcang.

Annual- Mm, Nv, Nn, Ol, On- Weed in moist places.

Ref.: (Safa 1986; Safa & El Hussein 1992, El Hussein & El Hadidi 2000).

315. *Rumex pulcher* L. subsp. *anodontus* (Hauskn.) Rech.f., Beih. Bot. Centralbl. 49(2): 34 (1932).

Annual- Ol- Moist ground

Ref.: (Täckholm 1974; Euro+Med Plant Database)

Note: The species is presented in Egypt by two subspecies: subsp. *pulcher* and subsp. *anodontus*

316. *Rumex roseus* L., Sp. Pl. 1: 337 (1753).

Syn.: *Rumex vesicarius* L. var. *roseus* (L.) Schweinf.

Annual- S, Dg- Sand plains

Ref. (Muschler 1912; Post 1933; Euro+Med Plant Database)

Portulacaceae

317. *Portulaca africana* (Danin & H. G. Baker) Danin, Lagasalia 26: 76 (2006)

Syn.: *Portulaca oleracea* subsp. *africana* Danin & H. G. Baker

Annual- Nv- Weed of cultivation

Ref.: (POWO; APD; Euro+Med Plant Database)

318. *Portulaca cypria* Danin, Fl. Medit. 18: 92 (2008).

Annual- Nv- Weed of cultivation, moist & wet ground

Ref.: (Greuter & Raab-Straube, 2011; POWO; APD; Euro+Med Plant Database)

319. *Portulaca granulostellulata* (Poelln.) Ricceri & Arrigoni, Parlatorea 4: 93 (2000)

Syn.: *Portulaca oleracea* subsp.

granulostellulata (Poelln.) Danin & H. G. Baker

Annual- Nv- Weed of cultivation, moist and wet ground

Ref.: (Greuter & Raab-Straube, 2011; POWO; APD; Euro+Med Plant Database)

320. *Portulaca trituberculata* Danin, Domina & Raimondo, Fl. Medit. 18: 91 (2008)

Syn.: *Portulaca oleracea* subsp. *trituberculata* (Danin, Domina & Raimondo) J. Walter

Annual- Nv- Weed of cultivation, moist & wet ground

Ref.: (Greuter & Raab-Straube, 2011; POWO; APD; Euro+Med Plant Database)

Potamogetonaceae

321. *Potamogeton lucens* L. Sp.Pl. 126 (1753)

Perennial- Dg, Nn, - Fresh water

Ref. (Simpson, 1930; El Hadidi & Fayed 1994/95; POWO; APD; Euro+Med Plant Database)

322. *Potamogeton natans* L., Sp. Pl. ed. 11: 126 (1753).

Perennial- Nv- Canals and ditches

Ref.: (Ascherson & Schweinfurth, 1887; Muschler, 1912)

323. *Zannichellia palustris* L. subsp.

pedicellata (Rosén & Wahlenb.) Arcangl.,

Comp. Fl. Ital.: 643 (1882)

Syn.: *Zannichellia pedunculata* Rchb.

Perennial- Nv, On, Mm, Ms, Di, Dl- Brackish and fresh water.

Ref.: (Täckholm V *et al.* 1941; Täckholm 1974; POWO; Euro+Med Plant Database)

Note: This species is represented in Egypt by two subspecies: subsp. *palustris* and subsp. *pedicellata*

Ranunculaceae

324. *Adonis flammea* Jacq., Fl. Austriac. (Jacquin) 4: 29, t. 355 (1776).

Annual- Mm, Ms- Sandy plains

Ref. (Sickenberger 1901; Muschler 1912, Euro+Med Plant Database)

325. *Adonis microcarpa* DC., Syst. Nat. [Candolle] 1: 222 (1817).

Annual- Mm- Sandy Desert

Ref.: (Muschler 1912; POWO; APD; Euro+Med Plant Database)

326. *Delphinium ajacis* L., Sp. Pl. 1: 531 (1753).

Syn.: *Consolida ajacis* (L.) Schur
Annual-Nv- Naturalized
Ref.: (Muschler, 1912)
327. ***Delphinium nanum* DC.**, Syst. Nat. 1: 349 (1817).
Syn.: *Delphinium peregrinum* subsp. *nanum* (DC.) Graebn.
Annual or Biennial- Mm, Dl- Sand plains- (Near Endemic: Egypt and Libya)
Ref.: (Muschler, 1912; Täckholm 1974; Dobignard & Chatelain 2013; POWO; APD; Euro+Med Plant Database)
Note: Cited as a synonym of *Delphinium ambiguum* L. in Boulos (1999, 2009)

Resedaceae

328. ***Reseda lutea* L.** subsp. *petrovichiana* (Müll. Arg.) Jafri, Fl. Libya 34: 22 (1977).
Syn.: *Reseda petrovichiana* Müll. Arg.
Annual or short-lived perennial- Mm- Stony or sandy soils (Near Endemic: Egypt, Libya)
Ref.: (Täckholm 1974)
Note: Cited in Boulos 2002,2009 as a synonym of *Reseda lutea* L.
329. ***Reseda odorata* L.**, Amoen. Acad. 3: 51. 1756
Annual- Nv- Cultivated and Naturalized
Ref.: (Aschers. & Schweinf. 1887, Muschler 1912, Abdallah 1967; Abdallah & De Wit, 1978; POWO; Euro+Med Plant Database)

Rhamnaceae

330. ***Sageretia brandrethiana* Aitch.**, J. Linn. Soc., Bot. 8: 62 (1864).
Frut. - S- Rocky cliffs
Ref.: (Täckholm 1974; POWO)
Note: Erroneously reported by Boulos (2009) as a synonym of *Sageretia thea* (Osbeck) M. C. Johnst.

Rosaceae

331. ***Potentilla supina* L.** subsp. *aegyptiaca* (Vis.) Soják, Preslia 65(2): 128 (1993)
Annual- Ms-Nv- Muddy canal banks – (Endemic)
Ref.: (Täckholm 1974; POWO; Euro+Med Plant Database)
Note: The species is represented in Egypt by two subspecies: subsp. *supina* and subsp. *aegyptiaca*
332. ***Rosa gallica* L.**, Sp. Pl. 1: 492 (1753).
Perennial- S- Gravelly soil.
Ref.: (Abdallah, *et al.* 1984; El Hadidy 1989).

Rubiaceae

333. ***Cruciata articulata* (L.) Ehrendf.**, Notes Roy. Bot. Gard. Edinburgh 22: 396 (1958).
Syn.: *Valantia articulata* L.
Galium articulatum (L.) Roem. & Schult.
Annual- Ms, Dg- Sandy plains
Ref.: (Täckholm 1974; Abdel-Khalik & Bakker, 2007; POWO; APD).
334. ***Galium nigricans* Boiss.**, Diagn. Pl. Orient. ser. 1, 3: 48 (1843).
Annual- Ms, Di- Sandy plains
Ref.: (Muschler, 1912; Montasir & Hassib, 1956; Täckholm 1974; POWO; Euro+Med Plant Database)
335. ***Galium setaceum* Lam.** subsp. *decaisnei* (Boiss.) Ehrendf. Ann. Naturhict. Mus. Wein, IVi 236-238(1948).
Syn.: *Galium decaisnei* Boiss.
Annual- Di, S, Ge- Rock crevices, dry banks or hillsides
Ref.: (Täckholm, 1974; El Kordy 2015; APD; Euro+Med Plant Database).
336. ***Galium verrucosum* Huds.**, Philos. Trans. 56: 251 (1767)
Syn.: *Galium tricorne* Stokes, nom. superfl.
Annual- Mm-Ms- Nv, Ol- Waste places
Ref. (Muschler, 1912)
337. ***Kohautia tenuis* (Bowdich) Mabb.**, Bot. Macaronés. 6: 61 (1980).
Syn.: *Oldenlandia senegalensis* (Cham. & Schltdl.) Hiern
Annual- Ge, Ra- Rocky soil
Ref.: (Montasir & Hassib, 1956)
338. ***Rubia tinctorum* L.**, Sp. Pl. 1: 109 (1753).
Perennial- Mm, Ms, Nv- introduced
Ref.: (Muschler, 1912)

Rutaceae

339. ***Citrus × aurantium* L.**, Sp. Pl.ed.1: 782 (1753).
Syn.: *Citrus paradisi* Macfad.,
Citrus × sinensis (L.) Osbeck
Frut. - Nv-introduced
Ref.: (POWO)
*340. ***Ruta chalepensis* L.**, Mant. Pl.: 69 (1767).
Syn.: *Ruta bracteosa* DC.
Perennial- S- Sandy and gravelly soils.
Note: Mentioned only by Post (1932) from Sinai and Muschler 1912 from Red Sea as well as Hassib 1951 from Oases. Recently recorded from Sinai.
Specimen examined: S Sinai, 27/10/2021; I. El Garf s.n. (CAI), (Fig. 1e & f)

Salicaceae

341. *Salix babylonica* L., Sp. Pl. 2: 1017 (1753).

Frut. – Mm, Nv- Cultivated and naturalized
Ref.: (Aschers. & Schweinf. 1887; Muscher 1912)

Santalaceae

342. *Thesium bergeri* Zucc. in Abh. Math. - Phys. Cl. Königl. Bayer. Akad. Wiss. 2: 324 (1837)

Perennial- Ol (Siwa)- Barley fields, introduced.

Ref.: (Saàd, 1983; Hendy, 1996; Euro+Med Plant Database).

Solanaceae

343. *Brugmansia suaveolens* (Humb. & Bonpl. ex Willd.) Sweet, Hort. Suburb.

Lond. 41 (1818)

Syn.: *Datura suaveolens* Humb. & Bonpl. ex Willd.

Frut. - Mm, Nv- Cultivated and Naturalized

Ref.: (Muschler 1912; Hepper, 1998)

344. *Datura ferox* L., Demonstr. Pl. 6 (1753).

Syn.: *Datura laevis* Bertol.

Annual- S, Nv- Weed in gardens

Ref.: (Rabei, *et al.* 2019).

345. *Datura quercifolia* Kunth, Nov. Gen. Sp. 3: 7 (1818).

Annual- Nv (Delta)- introduced

Ref.: (El-Khanagry, 2005).

346. *Datura stramonium* L. var. *tatula* (L.) Torr., Fl. N. Middle United States 1: 232 (1824).

Syn.: *Datura tatula* L., Sp. Pl., ed. 2: 265 (1762)

Annual- Nv, Mm- weed of cultivation

Ref.: (Täckholm, 1956 & 1974; Hassan & Amer, 2019).

347. *Lycium barbarum* L., Sp. Pl. ed 1: 192 (1753)

Syn.: *Lycium vulgare* Dunal

Frut. - Mm, Di- sandy and rocky ground

Ref. (Muschler 1912; Täckholm 1956 & 1974; El Hadidi & Fayed 1994/1995; Euro+Med Plant Database).

348. *Nicotiana repanda* Willd. ex Lehm., Gen. Nicot. Hist.: 40 (1818)

Annual or perennial- Nv- Naturalized

Ref.: (Täckholm 1956)

349. *Nicotiana tabacum* L., Sp. Pl. ed.1: 180 (1753)

Annual- Mm, Ms, Dg, Nv- Cultivated and escaped

Ref.: (Muschler 1912; Hepper, 1998)

350. *Physalis peruviana* L., Sp. Pl., ed. 2: 2: 1670 (1763).

Perennial- Mm, Ms, Nv, O, Dg, Di- Cultivated and escaped

Ref.: (Ascherson & Schweinfurth 1887; Sickenberger 1901; Muschler 1912, Monatsir & Hassib 1956)

351. *Salpichroa origanifolia* (Lam.) Baillon, Hist. Pl. 9: 288, t. 363 (1888)

Annual or perennial- Nv- Weed (introduced)

Ref.: (Täckholm 1974; Hepper, 1988; El Hadidi & Fayed 1994/95; APD; Euro+Med Plant Database).

352. *Solanum lycopersicum* L., Sp. Pl. ed. 1: 185 (1753)

Syn: *Lycopersicon esculentum* Mill.

Annual-Mm, Ms, S, Nv, Dg- introduced and Naturalized

Ref.: (Muschler 1912; Post, 1933, Hepper, 1998; El Beheiry *et al.*, 2020)

353. *Solanum aethiopicum* L., Cent. Pl. II. 10 (1756).

Frut., Ge- Rocky ground and wadi beds.

Ref.: (Täckholm 1956 & 1974; El Hadidi & Fayed 1994/1995; Hepper, 1998; POWO; APD; Euro+Med Plant Database).

354. *Solanum americanum* Mill., Gard. Dict. (ed. 8) no. 5 (1768).

Syn.: *Solanum nodiflorum* Jacq.

Annual- Nv, Weed in cultivation and waste places.

Ref.: (El Hadidi & Fayed, 1994/95).

355. *Solanum anguivi* Lam., Tabl. Encycl. 2: 23 (1794).

Annual- Nv- introduced

Ref.: (Hepper, 1998)

356. *Solanum pseudocapsicum* L., Sp. Pl. ed. 1: 184 (1753)

Syn.: *Solanum diphyllum* Forssk.

Annual- Nv- introduced

Ref.: (Hepper 1998; Hamada *et al.*, 2010; POWO)

357. *Solanum linnaeanum* Hepper & P.-M.L. Jaeger, Kew Bull. 41(2): 435 (1986).

Perennial- Nv- Silty Nile banks, Naturalized

Ref.: (El Hadidi & Fayed, 1994/95; POWO; APD).

358. *Solanum melongena* L., Sp. Pl. 1: 186 (1753).

Perennial- Mm, Ms, O, S, introduced

Ref.: (Muschler 1912; Post, 1933, Hepper 1998; El Beheiry *et al.*, 2020; APD; Euro+Med Plant Database).

Tamaricaceae

359. *Tamarix arborea* (Sieber ex Ehrenb.) Bunge, Tent. Gen. Tamar. 67 (1852).

Syn.: *Tamarix gallica* var. *arborea* Sieber ex Ehrenb.

Frut. - M, Dg, Nv, Ol, On, R- Sandy and saline habitats and irrigated canals

Ref.: (Muschler 1912; Hosni, 2000; POWO; APD; Euro+Med Plant Database).

360. *Tamarix mannifera* (Ehrenb.) Bunge, Tent. Gen. Tamar. 63 (1852).

Syn.: *Tamarix gallica* var. *mannifera* Ehrenb.

Frut. -M, Dg, Di, S, Salt marshes

Ref.: (Muschler 1912; Hosni, 2000; APD).

Urticaceae

361. *Urtica membranacea* Poir. ex Savigny, Encycl. [J. Lamarck & al.] 4(2): 638 (1798).

Syn.: *Urtica dubia* Forssk.

Annual- Di- Waste ground

Ref.: (Danin, *et al.*, 1982)

Verbenaceae

362. *Duranta erecta* L., Sp. Pl. ed.1: 637 (1753)

Syn.: *Duranta plumieri* Jacq.

Perennial- Nv- Cultivated and Naturalized

Ref.: (Muschler, 1912)

363. *Lantana rugosa* Thunb., Prodr. Pl. Cap. 2: 98 (1800).

Syn.: *Lantana salviifolia* Jacq.

Frut. - Ge- Rocky habitats

Ref.: (Täckholm 1956 & 1974; El Hadidi & Fayed, 1994/95)

Vitaceae

364. *Vitis vinifera* L., Sp. Pl., 1:202 (1753).

Shrubs- S, Nv- Cultivated and escaped

Ref.: (Muschler 1912; Post, 1932, Shaltout 2020; El Beheiry *et al.*, 2020; Euro+Med Plant Database).

Violaceae

365. *Viola odorata* L., Sp. Pl. 2: 934 (1753).

Perennial- Mm, Ms, Nv, Dg- Naturalized

Ref.: (Muschler 1912)

Zygophyllaceae

366. *Fagonia olivieri* DC., Prodr. 1: 704 (1824).

Syn.: *Zygophyllum olivieri* (DC.) Christenh. & Byng

Frut. - S- Rocky habitats

Ref.: (El Hadidi 1972; Täckholm 1974; El Hadidi & Fayed, 1994/95; POWO)

367. *Seetzenia orientalis* Decne., Ann. Sci. Nat., Bot. sér. 2, 3: 281 (1835).

Perennial- Dg, R, S- Desert plains

Ref.: (Muschler 1912; Hassib 1951; POWO)

368. *Tribulus macropterus* Boiss. var. *colletetteae* H. Hosni, Taeckholmia 11:9 (1988).

Annual- Dg; Gravely soils and waste ground.

Ref.: (Hosni, 1988b; El Hadidi & Fayed, 1994/95).

369. *Tribulus pentandrus* Forssk. var. *micropterus* (Kralik) H. Hosni in El Hadidi, Fl. T E Africa (Zygophyllaceae): 3 (1985)

Annual- Ge- Nv- Sandy plains

Ref.: (Hosni, 1988b; POWO; APD)

370. *Zygophyllum album* L. f. var. *amblyocarpum* (Baker) Hadidi, Webbia 33: 52

(1978)

Frut. – Nv, Di, Dg, Mm-Ms, Rq- Salty habitat

Ref.: (El Hadidi & Fayed 1994/95)

Note: The species represented in Egypt by two varieties: var. *album* and var. *amblyocarpum* (Baker) Hadidi

371. *Zygophyllum berenicense* (Muschl.) Hadidi, Bot. Not. 131: 441 (1978)

Perennial- Ra, Rz, Da, Dn - Sandy planis and rocky soil

Ref.: (Täckholm 1974; El Hadidi 1978; El Hadidi & Fayed, 1994/95)

372. *Zygophyllum decumbens* Delile var. *megacarpum* A. Hosny, Bot. Notiser 130:467 (1977)

Frut. - Dg, Rz- Desert plains

Ref.: (El Hadidi & Fayed 1994/95)

Note: The species represented in Egypt by two varieties: var. *decumbens* and var. *megacarpum*

373. *Zygophyllum geslinii* Coss., Bull. Soc. Bot. France 3: 705 (1856)

Frut. – Mm, Dg- Sandy plains- (Near Endemic: Egypt, Algeria, Libya and Tunisia)

Ref.: (Täckholm 1974; El Hadidi & Fayed 1994/95; Euro+Med Plant Database)

374. *Zygophyllum propinquum* Decne., Ann. Sci. Nat., Bot., ser. 2, 3: 283 (1835), subsp. *propinquum*

Frut. – S, Di- Calcareous sandy soil.

Ref.: (Täckholm 1974; Hosny, 1988; El Hadidi & Fayed 1994/95; POWO; Euro+Med Plant Database)

Note: Cited in Boulos 2009 as synonym to *Zygophyllum coccineum* L

375. *Zygophyllum migahidii* Hadidi var. *isthmia* A. Hosny in El Hadidi, Bot. Not. 131:

(1978)

Frut. - Di- Sand plains – (Endemic)

Ref.: (El Hadidi, 1978; El Hadidi & Fayed 1994/95)

The floristic composition showed that the Monocots were represented by 13 families, 46 genera, and 66 taxa, and Eudicots by 70

Families, 229 genera, and 375 taxa. The most represented families are Asteraceae (63 taxa), Fabaceae (47 taxa), Poaceae (33 taxa), Amaranthaceae (25 taxa), Lamiaceae (22 taxa) and others less than 22 taxa; finally, 34 families each possessed only a single species (Table 1).

Table (1): List including the number of different taxa recorded in each family collected in the present study (* new family name)

Family	Number of Genera	Number of species	Number of subspecies	Number of varieties	Total taxa
Acanthaceae	2	2	-	-	2
Aizoaceae	3	4	-	-	4
Alismataceae	2	2	-	-	2
Amaranthaceae	11	21	2	2	25
Amaryllidaceae	2	5	-	-	5
Anacardiaceae	2	2	-	-	2
Apiaceae	8	7	-	2	9
Apocynaceae	5	2	3	1	6
Araceae	4	3	1	-	4
Asparagaceae	3	2	1	-	3
Asphodelaceae	2	1	1	-	2
Asteraceae	36	43	14	6	63
Boraginaceae	8	8	1	-	9
Brassicaceae	9	9	1	1	11
Cactaceae	1	1	-	-	1
Cannabinaceae	1	1	-	-	1
*Cannaceae	1	1	-	-	1
Capparaceae	1	1	-	-	1
Caryophyllaceae	8	2	3	9	14
Casuarinaceae	1	1	-	-	1
Ceratophyllaceae	1	1	-	-	1
Cistaceae	1	1	-	-	1
Cleomaceae	1	1	-	-	1
Colchicaceae	1	1	-	-	1
*Combretaceae	1	1	-	-	1
Commelinaceae	1	1	-	1	2
Convolvulaceae	3	6	1	2	9
Crassulaceae	1	1	-	-	1
Cucurbitaceae	3	3	-	-	3
Cyperaceae	5	5	3	2	10
*Dioscoreaceae	1	1	-	-	1
*Elaeagnaceae	1	1	-	-	1
*Ericaceae	1	1	-	-	1
Euphorbiaceae	1	2	1	3	6
Fabaceae	28	32	11	4	47
Frankeniaceae	1	1	-	-	1
Gentianaceae	1	-	1	-	1
Geraniaceae	2	4	2	-	6
Hydrocharitaceae	1	1	-	-	1
Hypericaceae	1	-	1	-	1
Juncaceae	1	1	-	-	1
Lamiaceae	11	10	6	6	22
Lentibulariaceae	1	1	-	-	1
Linaceae	1	1	-	-	1
Lythraceae	2	2	-	1	3
Malvaceae s.l.	7	8	1	1	10
*Meliaceae	2	2	-	-	2
Menispermaceae	1	1	-	-	1

Molluginaceae	1	-	-	2	2
Moraceae	2	5	1	-	6
Moringaceae	1	1	-	-	1
*Myrtaceae	2	2	-	-	2
Neuradaceae	1	1	-	1	2
Nyctaginaceae	3	2	-	1	3
Nymphaeaceae	1	1	-	-	1
Orobanchaceae	2	1	-	1	2
Oxalidaceae	1	2	-	-	2
Papaveraceae	1	1	-	-	1
*Passifloraceae	1	1	-	-	1
Pedaliaceae	1	1	-	-	1
*Phytolaccaceae	1	-	-	1	1
Plantaginaceae	4	5	3	-	8
Plumbaginaceae	1	3	-	-	3
Poaceae	22	18	8	7	33
Polygalaceae	1	2	-	-	2
Polygonaceae	3	7	1	-	8
Portulacaceae	1	4	-	-	4
Potamogetonaceae	2	2	1	-	3
Ranunculaceae	2	4	-	-	4
Resedaceae	1	1	1	-	2
Rhamnaceae	1	1	-	-	1
Rosaceae	2	1	1	-	2
Rubiaceae	4	5	1	-	6
Rutaceae	2	2	-	-	2
Salicaceae	1	1	-	-	1
Santalaceae	1	1	-	-	1
Solanaceae	7	15	-	1	16
Tamaricaceae	1	2	-	-	2
Urticaceae	1	1	-	-	1
Verbenaceae	2	2	-	-	2
Vitaceae	1	1	-	-	1
Violaceae	1	1	-	-	1
Zygophyllaceae	4	4	1	5	10

Discussion:

Several recorded taxa are invasive taxa or may have been introduced into Egypt through agriculture for various purposes as they were found near fields, orchards or along roadsides, these taxa settled and became part of the Egyptian flora. However, significant new taxa of various genera and families were recorded in Egypt, but these were overlooked in subsequent floristic works. Other new records were found in natural wild vegetation so are more likely to represent under-recorded species. Some species mentioned in the literature are also likely to occur in similar habitats in Egypt.

The study has added nine new families to the Egyptian flora: Cannaceae, Combretaceae, Dioscoreaceae, Elaeagnaceae, Ericaceae, Meliaceae, Myrtaceae, Passifloraceae and Phytolaccaceae and five species have not been previously mentioned in the Egyptian flora namely: *Ficus religiosa*, *F.*

elastica, *Vigna vexillata*, *Sagittaria sagittifolia* and *carpobrous edulis*. *Ruta chalepensis* was reported to be found in Sinai by Post in 1933. Recently, this species had been revived by a specimen collected by El Garf (2021) from Sinai (Fig. 1).

Twenty-two endemics to Egypt were recorded, grouped in ten families and 16 genera, mostly from Sinai Peninsula (11 taxa). In addition to 23 near endemic taxa belonging to 15 families and 19 genera, these taxa have been recognized with the help of several resources as regional floras, Euro+Med PlantBase and POWO. (Table 2). This study serves as a comprehensive documentation of the presence of the endemic and near endemic taxa in Egypt. However, due to the depth of this subject, further detailed discussions regarding the ecological implications and conservation status of these taxa will be presented in subsequent article.

Finally, these findings raised the number of species and infraspecific taxa listed by Boulos (2009) to 2806 and the number of families to 138.

Conclusion:

We have provided an updated checklist of flowering plant species of the Egyptian flora. The inventory of newly recorded taxa presented in this article confirms that the Egyptian flora needs to be extensively updating and can be considered as a

supplementary to the Flora of Egypt Checklist by Boulos (2009). We believe this additional checklist has filled the existing data gaps at the sub-regional administrative level and can be considered as a useful starting point for improving the floristic knowledge of this interesting territory and neighboring areas.

Table (2): Endemic and Near Endemic Taxa with its distribution

Family	Species	Distribution
Acanthaceae	<i>Dicliptera aegyptiaca</i> E. Shams	Egypt (Ra)
Amaranthaceae	<i>Atriplex ehrenbergii</i> F.Muell. ex Asch. & Schweinf.	Egypt (Mm)
	<i>Atriplex nilotica</i> Sukhor.	Egypt (M, Nv)
	<i>Bassia aegyptiaca</i> Turki, El Shayeb & F. Shehata	Egypt (M)
	<i>Bassia muricata</i> (L.) Asch. var. <i>hadidi</i> Turki, El Shayeb & F. Shehata	Egypt (Dg)
	<i>Bassia muricata</i> (L.) Asch. var. <i>sinaica</i> Turki, El Shayeb & F. Shehata	Egypt (S)
	<i>Chenopodium moquinianum</i> Aellen	Egypt (Mm, Nv)
Amaryllidaceae	<i>Allium longanum</i> Pamp.	NW Egypt, NE Libya, Crete
	<i>Pimpinella cretica</i> Poir.	Sinai, Palestine and Jordan
Apiaceae	<i>Bupleurum muschleri</i> H.Wolff	Egypt (Nv)
	<i>Apteranthes europaea</i> (Guss.) Murb. var. <i>judaica</i> (Zohary) Plowes	Palestine-Sinai
Apocynaceae	<i>Rhazya greissii</i> Täckh. & Boulos	Egypt (On)
	<i>Anthemis eliezrae</i> Eig	Sinai-Palestine
Asteraceae	<i>Anthemis leucanthemifolia</i> Boiss. & C.I.Blanche	Lebanon-Syria- Sinai-Palestine
	<i>Anthemis pseudocotula</i> Boiss. subsp. <i>rotata</i> (Boiss.) Eig	Iraq, Palestine, Sinai
	<i>Anthemis scrobicularis</i> Yavin subsp. <i>fungosa</i> Yavin	Egypt (S)
	<i>Artemisia inculta</i> Sieber ex DC.	Egypt, Sinai, Crete
	<i>Artemisia judaica</i> L. var. <i>sinaica</i> Täckh.	Egypt (S)
	<i>Carlina curetum</i> subsp. <i>orientalis</i> Meusel & A.Kastner	Egypt- Lebanon-Syria, Palestine
	<i>Carlina sicula</i> Ten. subsp. <i>mareotica</i> (Asch. & Schweinf.) Greuter	Egypt-Libya-Sicilia
Brassicaceae	<i>Centaurea lanulata</i> Eig	Palestine-Sinai
	<i>Erucaria rostrata</i> (Boiss.) A.W.Hill ex Greuter & Burdet	Palestine, Sinai, Lebanon-Syria
Caryophyllaceae	<i>Isatis microcarpa</i> J.Gay ex Boiss. var. <i>blephrocarpus</i> Asch.	Palestine, Sinai, Jordan
	<i>Arenaria deflexa</i> Decne, var. <i>glabrata</i> Danin	Egypt (S)
	<i>Bolanthus hirsutus</i> (Labill.) Barkoudah var. <i>alpinus</i> (Boiss.) Barkoudah	Sinai, Lebanon-Syria, Palestine
Commelinaceae	<i>Silene apetala</i> Willd., var. <i>glabrata</i> A. Hosny & E. Shams	Egypt (Mm)
	<i>Commelina boissieriana</i> C.B. Clarke	Egypt-Eretria-Ethiopia
Lamiaceae	<i>Teucrium jordanicum</i> (Danin) Faried var. <i>jordanicum</i>	Palestine and Sinai
	<i>Teucrium jordanicum</i> (Danin) Faried var. <i>sinaicum</i> (Danin) Faried	Egypt (S)
	<i>Teucrium leuocladum</i> Boiss. var. <i>glandulosum</i> Danin	Egypt (S)
	<i>Teucrium leuocladum</i> Boiss. var. <i>leuocladum</i>	Egypt, Palestine and Arabia).
Neuradaceae	<i>Neurada al-eisawii</i> Barsotti	Egypt, Jordan & Palestine
plantaginaceae	<i>Anarrhinum forskaohlii</i> (J.F. Gmel.) Cufod. subsp. <i>Forskaohlii</i>	Sinai, Lebanon-Syria, Palestine, Saudi Arabia, Yemen
	<i>Nanorrhinum acerbianum</i> (Boiss.) Betsche subsp. <i>montanum</i> Betsche	Egypt (S)
	<i>Nanorrhinum scariosepalum</i> (Täckh. & Boulos) Yousefi & Zarre	Egypt (S)
Plumbaginaceae	<i>Limonium mareoticum</i> El Garf ex Hadidi & Fayed	Egypt (Mm)
Poaceae	<i>Bromus sinaicus</i> (Hack.) Täckh.	Egypt (S)
	<i>Eragrostis nitida</i> Link	Egypt (Nv)
	<i>Rostraria pumila</i> (Lam.) Tzvelev var. <i>glabrescens</i> (Täckh.) Hosni	Egypt (Ms)
	<i>Sphenopus ehrenbergii</i> Hausskn.	Tunisia-Libya-Egypt
Ranunculaceae	<i>Delphinium nanum</i> DC.	Egypt, Libya
Resedaceae	<i>Reseda lutea</i> L. subsp. <i>petrovichiana</i> (Müll.Arg.) Jafri	Egypt, Libya
Zygophyllaceae	<i>Zygophyllum geslinii</i> Coss.	Egypt, Algeria, Libya, Tunisia
	<i>Zygophyllum migahidii</i> Hadidi var. <i>isthmia</i> A. Hosny	Egypt (Di)

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Not applicable

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الملخص العربي

عنوان البحث: المساهمة في توثيق النباتات في مصر: قائمة للأصناف النباتية المسجلة حديثاً في مصر

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المستخلص: تعتبر الدراسة الحالية هي المحاولة الأولى لتقديم قائمة شاملة لجميع الأصناف النباتية المسجلة حديثاً من مصر بعد قائمة بولوس عام ٢٠٠٩. حيث أن هذه الدراسة اعتمدت على جمع المعلومات من مصادر علمية متعددة مثل الأبحاث العلمية المنشورة ذات الصلة، وقواعد البيانات المتاحة على الإنترنت، والعينات المعشبية، و أيضاً الملاحظات الحقلية. وانتهت هذه الدراسة الى تسجيل ٤٤١ نوعاً و تحت النوع (٣٠٩ نوعاً و تحت النوع و ٦٠ صنف) و التي تنتمي إلى ٨٣ فصيلة و ٢٧٥ جنساً، حيث أنها تمثل ٦٦ نباتاً ذات الفلقة الواحدة و ٣٧٥ نباتاً من نوات الفلقتين. كما كشفت الدراسة عن إضافة خمسة أنواع جديدة هي *Carpobrouis edulis* ، *Sagittaria sagittifolia* ، *Vigna vexillata* ، *F. elastica* ، *Ficus religiosa* ، بالإضافة إلى تسع فصائل لم يتم تسجيلهم من قبل في الفلورة المصرية. و من بين هذه الأصناف المسجلة، تم تحديد ٢٢ نوعاً مستوطن في عشر فصائل و ٢٣ نوعاً شبه مستوطن في ١٥ فصيلة. و تسجيل هذه الفصائل و الأصناف النباتية الجديدة في هذه الدراسة تؤكد أن فلورة مصر تحتاج إلى تحديث كبير، و لذلك يمكن اعتبار هذه الدراسة مكملة لقائمة فلورة مصر لبولوس (٢٠٠٩)، كما يعتقد المؤلفون أيضاً أن القائمة الحالية قد قامت بسد الفجوات الموجودة في البيانات على المستوى الأقليمي.