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Botany Department

Weed flora ofsome selected habitats at Fayoum Depression

By

MARWA ANTAR FARAG ISMAEL

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MARWA ANTAR FARAG ISMAEL

B.Sc. in Botany& Chemistry 2008
Faculty of Science
Fayoum University

Under Supervision of

Dr. Mohammed Anwar Karam

Assist. Prof. of Genetics,

Botany Department,Faculty of Science,Fayoum University

Signature:

Dr. Emad Ali Al Sherif

Assist. Prof. of Ecology, Botany Department,

Botany Department,Faculty of Science,Beni-Suef University

Signature:

Dr. Hesham Hassanein Elfayoumi

Lecturer of Flora and Taxonomy

Botany Department,Faculty of Science,Fayoum University

Signature

Approval Sheet

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This thesis for M. Sc degree in Botanyhas been approved by:

1- Prof. Dr. kamal Hussein Shaltout
Prof. of Plant Ecology- Botany Department
Faculty of Science-Tanta University

2- **Dr. ZafarIqbal Khan**
Assist. Prof.of Biological Science- Botany Department-
Faculty of Science- Sargodha University- Pakistan

3- Dr. Mohammed Anwar Karam
Ass. Prof. of Genetics-Botany Department
Faculty of Science-Fayoum University

6. Summary and Conclusion

Weeds are plants that grow where they are not wanted. They differ from other plants in being more aggressive, having peculiar characteristics that make them more competitive. They decrease the crop yield by competing for water, nutrients, space and light. Therefore, there is an urgent need for effective weed management programs. Consequently, the main aim of this work was to survey the wild weed flora in some selected habitats at Fayoum depression, which represent various habitats in summer and winter seasons. So, we might present an updated databank for the weed flora in Fayoum depression to be guide for the researchers in all the fields related to the weed flora.

The main crops of the Fayoum district include wheat, clover, and beet in winter; and maize, cotton and durra in summer. The main trees in orchard lands include mango, olive, citrus, guava, banana, and apricots. The sequence of districts according to the total number of recorded species is as follows; Tamiya, Fayoum, Sinnuris, Itsa, Ibshawai and Yussef El-Sedek. It is obvious that *Chenopodium murale, Convolvulus arvensis, Cynodon dactylon,* and *Anagallis arvensis*. are the most common weeds in winter. On the other hand, the most common summer weeds include *Cynodon dactylon, Echinochloa colona* and *Portulaca oleracea*. While, *Cynodon dactylon, Convolvulus arvensis* and *Chenopodium murale* are commonly recorded during the whole year.

The result obtained in this study can be summarized as follow:

1- The present study recorded a total of 175 species of vascular plants that belong to 120 genera in 37 families. The most species-rich families are *Poaceae* (37 species) followed by *Asteraceae* (21 species), *Fabaceae* (15 species), *Chenopodiaceae* (12 species) and *Brassicaceae* (7 species). Other families are represented in different

ways, where monospecific families (12 families) constituted less than 32% of the total recorded families. *Poaceae, Asteraceae*, and *Fabaceae* are found to be the most frequent families that comprise many weed species (42% of recorded species). These families are the most common in the Mediterranean North African flora. Generally, the family size is small; 33 families have less than 10 species and only 4 families have more than 10 species**.** Eighty-eight genera are represented by one species. Genera with highest number of species are *Euphorbia* (7 species), *Amaranthus* and *Cyperus* (5 species each), *Suaeda* and *Medicago* (4 species each). Another 8 genera are represented by 3 species, including *Chenopodium, Brassica, Zygophyllum, Plantago, Launaea, Echinochloa, Lolium,* and *Setaria*. The rest 19 genera are represented by 2 species.

2- The Chorological analysis showed a noticeable variation, where Cosmopolitan was represented by 25 species with high occurrence in the Fayoum depression, Palaeotropical by 18 species, Pantropical by 16 species and Plurireginalbor-tropical by 6 species. Monoregional is represented by 33 species and Saharo-Arabian is the most common chorotype (represented by 11 species). Biregional is represented by 43 species with highest representation of Mediterranean and Saharo-Sindian (represented by 21 species). Moreover, the triregional chorology is represented by 30 species and Mediterranean, Irano-Turanian and Euro-Siberian chorotype is the most common one as it is represented by 20 species.

3- The life-form spectrum, in the present study, is characteristic of an arid desert region with the dominance of Therophytes (59%) which constitute the largest number of species (102 species) followed by Hemicryptophytes 33 species (19%), Chamaeophytes 14 species (8%), Geophytes 11 species (6%), Phanerophytes 9 species (5%). Additionally, Helophytes and halophytes were represented by 2 species

(1%) and the remains are stand for 0.5%. Preponderance of annuals and shrubs reflects a typical desert flora, as it is closely related with topography of the area. Therophytes (annuals) constituted more than half of the total recorded weeds which could be attributed to; their short life cycle, the prevailing environmental conditions, and their high reproductive capacity, as well as ecological, morphological, and genetic plasticity under high levels of disturbance. On the other hand, the low number of phanerophytes may be related to the intensive management used in the plantations. Annuals constituted the main bulk of the total flora, where 107 species (about 60% of the total species) were recorded, in addition to 47 perennials, 17 shrubs and 2 ferns.

4- The cluster analysis divides the habitats of Fayoum depression into four vegetation groups according to their weeds as follow: *Cynodon dactylon-Convolvulus arvensis* group in the healthy lands, *Bidens pilosa- Euphorbia peplus* group in the orchard habitat, *Xanthium strumarium–Zygophyllum simplex* group in reclaimed land and outskirts, *Cressa cretica-Spergularia marina* group in saline soil and *Alhagi graecorum–Phragmites australis* group in wasteland, desert near the sea, canal bank and roadside.

5- The disappearance of 27 species recorded in last two decades Abdel Ghani (1985) can be attributed to the increase of chemical fertilization application, use of herbicides, sowing high-competitive cereal varieties, and using seed-cleaning techniques. On the other hand, the appearance of more than 52 species, which did not recorded in the previous study, may be attributed to the global environmental change, the intensive survey of larger area as well as to the introducing of new crops. Also, several of these species are related to minimum tillage and direct drilling techniques which are much more frequent nowadays (in new reclaimed lands) and non-existing before. Diversified crop rotations in recent years could be associated with

increased weed diversity compared with monocultures. It is well known that weed communities were more diversified and stable in cereal–forage rotations than in cereal monocultures.

6- El-Fayoumi (1996) studied weed flora of the southern part of Fayoum Governorate especially at El–Gharaq and El-Sultani area. This study revealed the presence of only 115 weed species. Winter weeds comprised the main bulk (64 species), while summer weeds were 31 species and 20 species that were recorded all over the year. Meanwhile, the present study revealed the presence of 175 weed species that were recorded in 6 districts of Fayoum depression, and 102 weed species in Itsa district. Winter weeds in Itsa district were 34 species, while summer weeds were 30 species and 38 species that were recorded all over