Full Length Research Paper

A list of flowering wild plants in Tafila Province, Jordan

Sawsan Atallah Oran

Department of Biological Sciences, Faculty of Sciences, University of Jordan. Amman, Jordan.

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Wild flowering plants in Tafila Province (South of Jordan) in terms of floristic features, with regards to its wild vascular plants were studied. A list of wild flowering plants was prepared. Field trips were made to the study area. A total number of 383 species belong to 198 genera and 48 families were recorded. Wild trees like Cupressus sempervirens, Ceratonia siliqua, Quercus sp. (Oak) and Juniperus phoenica were reported. Some recorded species such as Anthemis maris-mortui, or the medicinal rare species such as Iris petrana and Iris nigricans, Salvador persica, Osyris alba, Datura stramonium, Globularia Arabica and Amygdalus communis are considered as endemic to the area. A number of historical economic trees have been recorded in the study area like Pistacia atlantica; some edible species are reported like Malva sp., Allium sp., Gundelia tournefortii, etc. Some exotic plant species were reported like Iris species and Lupinus varius. Some endemic species were reported, e.g Iris petrana, rare plant species were also recorded, e.g, Globularia arabica, l. nigricans, iris edomensis and Limonium sp. Plant examples are listed and some selected photos for some plant species from the study area are included.

Key words: Plant diversity, Jordan, Tafila, conservation.

INTRODUCTION

Jordan is characterized by a wide range of physical, geographic and ecological conditions which have resulted in a wide variety of plant biodiversity. Despite its small area (about 89,287 km²), Jordan’s location at the crossroads of climatic and botanic regions has endowed the country with a rich variety of plant life. Jordan belongs to four biogeographical regions called Saharo - Arabian (Badia), Irano - Turanian, Mediterranean and Sudanian (tropical). The vascular plants of Jordan have been surveyed to assess the plant biological diversity in the country. The total number of plant species recorded in Jordan exceeds 2500 species (Al-Eissawi, 1982, 1996). Tafila province is situated in the southern part of Jordan; it represents three out of four biogeographical regions in Jordan. These regions are Mediterranean, Irano-Terranian and Tropical or Sudanian Penetration (Al-Eissawi, 1996). The rainfall ranges from 50-400 mm/year. The temperature ranges from (-5 - 20°C) in winter and (20 - 33°C) in summer (Al-Eissawi, 1996).

The study area is characterized by its highly diversified plant species (Oran et al., 2002). The forest formation extends from Tafila to Ras- An-Naqab in the south. The whole forest ecosystem has suffered a great deal of human interaction. Therefore, vast areas were destroyed and almost have no forest vegetation except for randomly distributed remnants of degraded few wild trees. The best stand of this forest can be seen in the north of Tafila. The stand since 1992 has been announced as National Park and named Dana. The Juniperus forest formation is dominated by the leading species of Juniperus phoenica associated with Cupressus sempervirens on sand stone formation. In upper altitude, over 1300 m of the Juniperus vascular plants of Tafila province. The recorded species include herbs, shrubs and trees.

E-mail: oransaw@ju.edu.jo. Tel: +962-6-5355000 or +962-777483616.
forest is overtopped by a forest formation of evergreen Oak forest dominated by *Quercus coccifera*. *Ceratonia siliqua* (Karob) was discovered within the Dana Reserve and on sand stone formation. Dana reserve has been established in Dana village as conservational mature (AL-Eisawi, 1996). This study provides a list of the flowering

Study aims

The study area was investigated for its plant diversity in an attempt to:

1. Survey, identify and conserve wild plant species in Tafila area.
2. Identify the wild natural resources in the study area.
3. Investigate the plant diversity potentials of the area.
4. Offer recommendations and mitigation measures to ecologically rehabilitate the study area in the future.

MATERIALS AND METHODS

Field trips and collection of plant specimens:

Plant material

In this inventory, botanical survey and extensive field trips were made in the study area for the period of 2008-2009. Collections of fresh plant specimens were made. The identification of plants was done based on

a) Flora Palaestina (parts 1, 2, 3 and 4) (Zohary, 1966; Feinbrun-Dothan, 1986).
b) Flora Orientalis. Boissier, P. E. (1867-1883).
c) List of Jordan Vascular Plants (Al-Eisawi, 1982, 1986).
d) Checklist of the Flora: Jordan Badia (Cope amd Al- Eisawi, 1998).
e) Checklist of wild edible plants in Jordan (AL- Eisawi and Takruri, 1989).
f) Comparison with similar herbarium specimens at the University of Jordan.

Illustrations

Photographs were taken on some leading herbs, shrubs and trees or the plant species that are dominating the overall total plants. All photographs were produced by the author.

Tables

A list of recorded species was provided.

Voucher specimens

Herbarium specimens (voucher specimen) were deposited at Amman Herbarium (AMM), Department of Biological Sciences, Faculty of Science, University of Jordan, Amman. Each of the collected specimens is given a serial number, properly identified and mounted on herbarium cabinets as a documented reference for further investigations.

RESULTS AND DISCUSSION

Tafila Province, Jordan is one of the most diverse regions in Jordan in terms of its phytogeographical variation and its high botanical diversity in terms of the number of plant species recorded Figure 1 to 3.

The majority of plant species recorded in the study area is facing the danger of loss and degradation, as the area is severely exposed to either man impact or environmental damaging factors. Some of these are the overgrazing; cutting of other old historical trees and collection of herbs for medicine and other irrational activities of the residents of the province populations of that area. Lot of the listed plant species are important genetic resources for their use as parents of cultivars, ornamental, medicinal plants, drought resistant, saline resistant, which can be used for the benefit of human kind. This study showed that this province has suffered severely from deforestation due to lack of any natural forest cover in spite of presence of natural environmental conditions needed for such ecosystem, and due to the irrational activities of the local community.

Recommendations

Plant biodiversity faces the danger of degradation and loss of many plant species as a result of both adverse human impact and environmental factors as it happens in Tafila province of Jordan. Changes in plant resources can directly reduce sources of food, fuel, structural materials and medicinal or genetic resources. Moreover, these changes are occurring at an unnaturally rapid rate as a consequence of human activities, such as land-use, climate change, nitrogen deposition, species introductions, increase in population, over exploitation of plant and animal species, pollution of soil, water and air. Biodiversity in Jordan was exposed to several threats leading to sharp decline in most of the Jordanian flora and the extinction of several species. Many species are at risk, or were classified as threatened or endangered or even extinct on the regional and global levels. This situation has resulted from various anthropogenic activities, as well as from a general lack of knowledge and awareness (Al-Eisawi et al., 2000). Yet serious attempts have been made to protect and conserve the plant genetic resources of the country. Many reserves have been established, but the laws and regulations governing them are not always enforced and dozens of species are facing dramatic pressure (EPA, 2001). As there is critical situation is Tafila province where hundreds of wild plant species are facing the threat of degradation, more attention from the authorities is needed.

ACKNOWLEDGEMENTS

The author is indebted to the Deanship of Scientific
Table 1. List of plant species in the study area.

| Family       | Species recorded                                                                 |
|--------------|----------------------------------------------------------------------------------|
| **Aizoaceae**| Aizoon canariense L.                                                            |
|              | Aizoon hispanicum L.                                                            |
|              | Ammi majus L.                                                                    |
|              | Astomia seseliformium DC.                                                        |
|              | Bifora testiculata (L.) Schultes                                                 |
|              | Bupleurum lancifolium Hornem.                                                    |
|              | Chaetosciadium trichospermum (L.) Boiss.                                         |
|              | Daucus subsessilis Boiss                                                         |
|              | Deverra triadiata Hochst.                                                        |
|              | Eryngium creticum Lam.                                                           |
|              | Eryngium glomeratum Lam.                                                         |
|              | Ferula blanchei Boiss.                                                           |
|              | Ferula ovina (Boiss.) Boiss.                                                     |
|              | Ferula tingitana L.                                                              |
|              | Lagoecia cuminoides L.                                                           |
| Apiaceae     | Malabaila seacul (Miller.) Boiss.                                                |
|              | Pimpinella corymbosa Boiss.                                                      |
|              | Pimpinella olivieri Boiss.                                                       |
|              | Pituranthos triradiatus (Hocht. ex Boiss.) Aschers& Schweinf.                    |
|              | Scandix iberica M. Bieber                                                        |
|              | Scandix pecten-veneris L.                                                        |
|              | Scandix stellata Banks & Sol.                                                    |
|              | Torilis arvensis (Hudson) Link                                                   |
|              | Torilis leptophylla (L.) Reichenb. fil.                                          |
|              | Torilis nodosa (L.) Gaertner.                                                    |
|              | Turgenia latifolia (L.) Hoffm.                                                   |
|              | Zosima absinthifolia (Vent.) Link                                                |
|              | Alkanna strigosa Boiss. et Hohen.                                                |
|              | Alkanna tinctoria (L.) Tausch                                                    |
|              | Anchusa aegyptiaca (L.) DC.                                                      |
|              | Anchusa neglecta DC.-6075.                                                       |
|              | Anchusa strigosa Banks& Sol.                                                     |
|              | Arnebia linearifolia DC.                                                         |
| Boraginaceae | Arnebia tinctoria Forskal.                                                       |
|              | Asperugo procumbens L.                                                           |
|              | Gastrocotyle hispida (Forskal) C.B. Clarke                                       |
|              | Heliotropium bacciferum Forskal                                                   |
|              | Heliotropium europaeum L                                                         |
|              | Heterocaryum                                                                    |
|              | szovitsianum (Fischer&C.A.Meyer) A.DC.                                           |
|              | Lappula barbata (Bieb.) Gürke                                                   |
|              | Nonea philistea Boiss.                                                           |
|              | Alyssum damascenum Boiss. et Gaill                                               |
|              | Alyssum iranicum Hausskn. et Baumg.                                             |
|              | Alyssum umbilatum Desv.                                                          |
| Brassicaceae | Biscutella didyma L.                                                             |
|              | Carrichtera annua (L.) DC.                                                       |
|              | Erucaria boveana Cosson.                                                         |
|              | Erucaria pinnata (Viv.) Tackholm & Boulos                                        |
|              | Farsetia aegyptiaca Turra                                                       |
| Table 1 Contd. |
|----------------|
| **Lepidium latifolium** L. |
| **Malcolmia africana** (L.) R. Br. |
| **Matthiola aspera** Boiss. |
| **Matthiola parviflora** (Schousb.) R. Br.- |
| **Notoceras bicornes** (Solander) Caruel. |
| **Savignya parviflora** (Delile) Webb. |
| **Sisymbrium bilobum** (C.Koch) Grossh. |
| **Sisymbrium irio** L. |
| **Zilla spinosa** (L.) Prantl |
| **Cerastium dichotomum** L. |
| **Dianthus sinaicus** Boiss. |
| **Gymnocarpos decandrum** Forskal |
| **Gypsophila arabica** Barkoudah |
| **Gypsophila pilosa** Hudson. |
| **Holosteuem umbellatum** L. |
| **Minuartia formosa** (Fenyl) Mattf. |
| **Paronychia argentea** Lam. |
| **Paronychia palaestina** Eig |
| **Paronychia sinaica** Fresen |
| **Petrotragia cretica** (L.) P. W. Ball et Heywood |
| **Polycarpion tetraphylum** (L.) L. |
| **Pteranthus dichotomus** Forskal |
| **Robbairea delileana** Milne-Redhead |
| **Silene aegyptiacae** (L.) L. fil |
| **Silene conoidea** L. |
| **Silene linearis** Decne. |
| **Silene longipetala** Vent |
| **Silene palaeastina** Boiss |
| **Spergula fallax** (Lowe) Krause |
| **Spergularia diandra** (Guss.) Heldr. et Sart. |
| **Anabasis articulata** (Forsk) Moq. |
| **Anabasis syriaca** Iljin.- |
| **Atriplex halimus** L. |
| **Atriplex rosea** L. |
| **Bassia eriophora** (Schrader) Ascherson |
| **Bassia muricata** (L.) Ascherson |
| **Chenopodium album** L. |
| **Chenopodium vulvaria** L. |
| **Hammada scoparia** (Pomel) Iljin |
| **Noaea mucronata** (Forsk) Ascherson et Schweinf. |
| **Salsola baryosma** (Schultes) Dandy. |
| **Helianthemum aegyptiacum** (L.) Miller. |
| **Helianthemum ledifolium** (L.) Miller |
| **Helianthemum lippii** (L.) Dum. -Courset |
| **Helianthemum salicifolium** (L.) Miller |
| **Helianthemum sancti-antonii** Boiss |
| **Helianthemum vesicularum** Boiss |
| **Umbilicus intermedius** Boiss. |
| **Carex padystylis** J. Gay |
| Family       | Species                          |
|-------------|----------------------------------|
| Dipsacaceae | Pterocephalus brevis Coulter     |
| Dipsacaceae | Pterocephalus plumsus (L.) Coult |
| Dipsacaceae | Pterocephalus sanctus Decne.     |
| Dipsacaceae | Scabiosa argentea L              |
| Dipsacaceae | Scabiosa palmetina L             |
| Dipsacaceae | Scabiosa porphyroidea Blakelock  |
| Dipsacaceae | Scabiosa prolifer L.             |
| Ephedraceae | Ephedra alte C.A. Meyer          |
| Ephedraceae | Chrozophora tinctoria (L.) Ad. Juss. |
| Euphorbiaceae | Euphorbia cheiradenia Boiss. et Hohen. |
| Euphorbiaceae | Euphorbia hierosolitana Boiss    |
| Euphorbiaceae | Euphorbia petiolata Banks et Sol |
| Euphorbiaceae | Acacia raddiana Savi             |
| Euphorbiaceae | Astragalus adpressiiscusus Eig    |
| Euphorbiaceae | Astragalus retaceus Boiss. et Kotschy |
| Euphorbiaceae | Astragalus deinacanthus Boiss.    |
| Euphorbiaceae | Astragalus bethlehemiticus Boiss |
| Euphorbiaceae | Astragalus macrocephalus Willd    |
| Euphorbiaceae | Astragalus sparsus Decne.        |
| Euphorbiaceae | Astragalus spinosus (Forskal) Muschler |
| Euphorbiaceae | Astragalus tribuloides Delile    |
| Fabaceae    | Medicago laciniata (L.) Miller   |
| Fabaceae    | Medicago lupulina L              |
| Fabaceae    | Medicago polymorpha L           |
| Fabaceae    | Medicago radiata L              |
| Fabaceae    | Onobrychis crist-galli (L.) Lam  |
| Fabaceae    | Onobrychis kotschyan Fenzl       |
| Fabaceae    | Onobrychis ptolemaica (Delile) Dc |
| Fabaceae    | Onobrychis wettsteinii Nabelek   |
| Fabaceae    | Trifolium resupinatum L.         |
| Fabaceae    | Trigonella arctica Delile        |
| Fabaceae    | Trigonella astroites Fischer et C. A. Meyer |
| Fabaceae    | Trigonella hamosa L.             |
| Fabaceae    | Trigonella schlumbergeri Boiss.  |
| Fabaceae    | Trigonella stellata Forskal.     |
| Fabaceae    | Vicia sericocarpa Fenzl          |
| Fabaceae    | Erodium arborescens (Desf.) Willd. |
| Fabaceae    | Erodium glaucophyllum (L.) L’Hér    |
| Fabaceae    | Erodium gruinum (L.) L’Hér-       |
| Fabaceae    | Erodium hirtum Willd.            |
| Geraniaceae | Erodium laciniatum (Cav.) Willd  |
| Geraniaceae | Erodium malacoides (L.) L’ Hér.  |
| Geraniaceae | Erodium neuradifolium Delile     |
| Globulariaceae | Globularia arabica Jaub.et Spach |
| Hypecoaceae | Hypecoum imberbe Sibth. & Sm    |
| Hypecoaceae | Hypecoum pendulum L.             |
| Hypecoaceae | Hypecoum procumbens L.           |
| Table 1 Contd.                                                                 |
|-----------------------------------------------------------------------------|
| **Iridaceae**                                                               |
| Crocus aleppicus Baker                                                     |
| Crocus cancellatus Herbert                                                 |
| Crocus pallasii Goldb                                                      |
| Iris edomensis Sealy.                                                      |
| Iris nigricans Dinsm                                                       |
| Iris petranica Dinsm                                                       |
| Ballota saxatilis Sieber ex C. Presl                                      |
| Ballota undulata (Sieber ex Fresen.) Bentham.                              |
| Marrubium cuneatum Banks et. Sol.                                          |
| Phlomis brachyodon (Boiss.) Zohary                                        |
| Phlomis kurdia Rech. fill.                                                 |
| Phlomis platystegia Post.                                                  |
| **Lamiaceae**                                                              |
| Salvia ceratophylla L                                                      |
| Salvia dominica L                                                          |
| Salvia hierosolymitana Boiss.                                              |
| Salvia palaestina Bentham.                                                 |
| Salvia syriaca L                                                           |
| Satureja thymbra L                                                         |
| Satureja thymbrifolia Hedge & Feinbr.                                      |
| Stachys aegyptiaca Person                                                  |
| Ziziphora capitata L                                                       |
| Ziziphora tenuior L                                                        |
| Allium artemisiororum Eig & Feinbr                                         |
| Allium neapolitanum Cyr.                                                   |
| Allium sindjarensis Boiss. et Hausskn.                                    |
| Allium truncatum (Feinbr.) Kollmann & Zohary                               |
| Androcymbium palaestinum (Boiss.) Baker                                    |
| Asparagus aphyllus L                                                       |
| Asparagus stipularis Forskal                                               |
| Bellevalia ciliata (Cyr.) T.Nees.                                          |
| Bellevalia desertorum Eig & Feinbr.                                        |
| Colchicum ritchii R. Br.                                                   |
| Colchicum tauri Siehe ex Stefanoff                                        |
| Colchicum tunicatum Feinbr                                                 |
| Dipcadi erythraeum Webb et Berth.                                         |
| Fritillaria libanotica (Boiss.) Baker                                     |
| Gagea dayana Chodat & Beauvered.                                           |
| Gagea reticulata (Pallas) Schult. Fil.                                     |
| Leopoldia bicolor (Boiss.) Eig & Feinbr.                                   |
| Leopoldia comosa (L.) Parl.                                                |
| Leopoldia deserticola (Rech.fil.) Feinbr                                  |
| Ornithogalum montanum Cyr.                                                 |
| Urginea maritima (L.) Baker                                                |
| **Linaceae**                                                               |
| Linum mucronatum Bertol                                                    |
| Linum pubescens Banks & Sol                                                |
| **Loranthaceae**                                                           |
| Viscum cruciatum Sieber ex Boiss.                                         |
| **Lyticraceae**                                                            |
| Lythrum junceum Banks et Sol.                                              |
| **Malvaceae**                                                              |
| Alcea rufescens (Boiss.) Boiss.                                            |
| Malva nicaeensis All.                                                      |
| Malva parviflora L                                                        |
Table 1 Contd.

| Poceae                          | Peel                                                                 |
|--------------------------------|----------------------------------------------------------------------|
| *Malva sylvestris* L.           |                                                                      |
| *Aegilops biuncialis* Vis       |                                                                      |
| *Aegilops crassa* Boiss. var.palaestina Eig- |                                                             |
| *Aegilops ovata* L             |                                                                      |
| *Aven fatua* L                  |                                                                      |
| *Boissiera squarosa* (Banks et Sol.) Nevski- |                                                             |
| *Bromus danthoniae* Trin.       |                                                                      |
| *Bromus fasciculatus* Presl var.alexandrinus Thell. |                                                             |
| *Bromus lanceolatus* Roth       |                                                                      |
| *Bromus madritensis* L.         |                                                                      |
| *Bromus rubens* L               |                                                                      |
| *Bromus scoparius* L.           |                                                                      |
| *Bromus tectorum* L.            |                                                                      |
| *Bromus tomentellus* Boiss.     |                                                                      |
| *Dactylis glomerata* L.         |                                                                      |
| *Eremopyrum bonaepartis* (Sprengel) Nevski. |                                                             |
| *Hordeum glaucum* Steudel       |                                                                      |
| *Hordeum marinum* Hudson        |                                                                      |
| *Hordeum spontaneum* C. Koch.   |                                                                      |
| *Lolium rigidum* Gaudin         |                                                                      |
| *Lophochloa berythaea* (Boiss.& Blanche) Bor |                                                             |
| *Panicum repens* L.             |                                                                      |
| *Phalaris minor* Retz.          |                                                                      |
| *Poa annua* L.                  |                                                                      |
| *Poa bulbosa* L.                |                                                                      |
| *Poa sinaica* Steudel           |                                                                      |
| *Schismus arabicus* Nees var.minuts (Roemer & Schultes) Boiss. |                                                             |
| *Stipa lagascae* Roemer&Schultes |                                                                      |
| *Orchidaceae*                   |                                                                      |
| *Limodorum obortivum* (L.) Swartz |                                                                      |
| *Orobanchaceae*                 |                                                                      |
| *Cistanche tubulosa* (Schenk) wight. |                                                                      |
| *Orobanche ramosa* L.           |                                                                      |
| *Papaveraceae*                  |                                                                      |
| *Glaucium arabicum* Fresen.     |                                                                      |
| *Roemeria hybrida* (L.) DC.     |                                                                      |
| *Plantago afra* L.              |                                                                      |
| *Plantago albicans* L.          |                                                                      |
| *Plantaginaceae*                |                                                                      |
| *Plantago coronopus* L          |                                                                      |
| *Plantago cylindrica* Forskal.   |                                                                      |
| *Plantago ovata* Forskal.       |                                                                      |
| *Plantago pumila* L             |                                                                      |
| *Limonium lobatum* (L.fil.) O. Kuntze. |                                                             |
| *Plumbaginaceae*                |                                                                      |
| *Limonium meyeri* (Boiss.) O. Kuntze. |                                                             |
| *Limonium pruinorum* (L.) O. Kuntze. |                                                             |
| *Limonium sinuatum* (L.) Miller |                                                                      |
| *Polygalaceae*                  |                                                                      |
| *Polygala sinaica* Botsch       |                                                                      |
| *Polygonum equisetiforme* Sibth. Et Sm. |                                                             |
| *Polygonaceae*                  |                                                                      |
| *Polygonum patulum* Bieb.       |                                                                      |
| *Rumex cyprinus* Murb.          |                                                                      |
| Family               | Species                          |
|---------------------|----------------------------------|
| Primulaceae         | Anagallis arvensis L             |
|                     | Samolus valerandi L.             |
|                     | Adonis dentata Delile.           |
|                     | Anemone coronaria L.             |
| Ranunculaceae       | Ceratocephalas falcate (L.) Pers.|
|                     | Consolida sereola (Boiss.) Schrödinger |
|                     | Ranunculus arvensis L            |
|                     | Ranunculus asiaticus L.          |
|                     | Ranunculus damascenus Boiss.et Gaill |
| Resedaceae          | Ochradenus baccatus Delile       |
|                     | Reseda alba L.                   |
|                     | Reseda lutea L.                  |
|                     | Rhamnus dispermus Ehrenb .ex Boiss. |
| Rhamnaceae          | Rhamnus palaestinus Boiss.       |
|                     | Rhamnus punctatus Boiss          |
|                     | Ziziphus lotus (L.) Lam.         |
|                     | Amygdalus communis L.            |
|                     | Amygdalus Korschinskyi (Hand -Mazz.) |
| Rosaceae            | Cerasus microcarpa (C.A.Meyer) C.Koch |
|                     | Rubus sanguineus Friv.           |
|                     | Sarcopoterium spinosum (L.) Spach. |
|                     | Crucianella herbacea Forskal    |
|                     | Galium canum Req.                |
| Rubiaceae           | Galium incanum Sm.               |
|                     | Galium sinaicum (Delile ex Decne.) Boiss. |
|                     | Galium tricornutum Dandy.        |
|                     | Rubia tenuifolia D’Urv.          |
|                     | Rubia tinctorum L.               |
|                     | Valantia hispida L               |
|                     | Warburgina factorovskyi Eig.     |
| Salicaceae          | Populus euphratica Oliver        |
|                     | Salix acmophylla Boiss.          |
| Salvadoraceae       | Salvadora persica L.             |
| Santalaceae         | Osyris alba L.                   |
|                     | Thesium humile Vahl              |
|                     | Anarrhinum forskahlii (J.F.Gmel.) Cuf. |
|                     | Kickxia aegyptiaca (L.) Nábelek  |
|                     | Linaria haelava (Forskal.) Delile. |
|                     | Linaria simplex Desf.            |
|                     | Parentucellia flaviflora (Boiss.) Nevski |
| Scrophulariaceae    | Scrophularia rubricaulis Boiss    |
|                     | Scrophularia xantoghossia Boiss.  |
|                     | Scrophularia xylorrhiza Boiss. et Hausskn |
|                     | Verbascum fruticulosum Post.     |
|                     | Veronica anagallis-aquatica L    |
|                     | Veronica campylododa Boiss.      |
|                     | Veronica hederifolia L           |
| Solanaceae          | Datura stramonium L              |
|                     | Hyoscyamus aureus L.             |
|                     | Hyoscyamus reticulatus L.        |
| Family       | Species                               | Common Name                  |
|--------------|---------------------------------------|------------------------------|
| Tamaricaceae | Reaumuria hirtella Jaub.et Spach      |                              |
|              | Tamarix tetragyna Ehrenb.             |                              |
| Theligonaceae| Theligonum cynocrambe L.              |                              |
| Thymelaeeae  | Daphne linearifolia Hart              |                              |
| Urticaceae   | Parietaria officinalis L.             |                              |
|              | Parietaria punctata Willd.            |                              |
|              | Fagonia bruguieri DC                  |                              |
| Zygophyllaceae| Fagonia mollis Delile.               |                              |
|              | Peganum harmala L.                   |                              |
|              | Zygophyllum dumosum Boiss.            |                              |

**Figure 1.** Some wild trees in Tafila Province.
Figure 2. Some plant species in Tafila Province.

- *Crocus hyemalis*
- *Ononis natrix*
- *Capparis spinosa*
- *Senecio vernalis*
- *Gundelia tournefortii*
- *Sonchus oleraceus*
- *Tragopogon buphthalmoides*
- *Salvia hierosolymitana*
Figure 2. Contd.
Figure 2. Contd.
Figure 3. Some medicinal plant species in Tafila Province.

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