

*Full Length Research Paper*

## A list of flowering wild plants in Tafila Province, 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 phoenicea* were reported. Some recorded species such as *Anthemis maris-mortui*, or the medicinal rare species such as *Iris petrana* and *Iris nigricans*, *Salvadora 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*, *I. 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 km<sup>2</sup>), 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 phoenicea* 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.

forest is overtopped by a forest formation of evergreen Oak forest dominated by *Quercus coccifera*. *Ceratonia siliqua* (Karoo) 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 and 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

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**Table 1.** List of plant species in the study area.

Family	Species recorded
Aizoaceae	<i>Aizoon canariense</i> L.
	<i>Aizoon hispanicum</i> L.
	<i>Ammi majus</i> L.
	<i>Astoma seselifolium</i> DC.
	<i>Bifora testiculata</i> (L.) Schultes
	<i>Bupleurum lancifolium</i> Hornem.
	<i>Chaetosciadium trichospermum</i> (L.) Boiss.
	<i>Daucus subsessilis</i> Boiss
	<i>Deverra triradiata</i> Hochst.
	<i>Eryngium creticum</i> Lam.
	<i>Eryngium glomeratum</i> Lam.
	<i>Ferula blanchei</i> Boiss.
	<i>Ferula ovina</i> (Boiss.) Boiss.
	<i>Ferula tingitana</i> L.
	Apiaceae
<i>Malabaila secacul</i> (Miller.) Boiss.	
<i>Pimpinella corymbosa</i> Boiss.	
<i>Pimpinella olivieri</i> Boiss.	
<i>Pituranthos triradiatus</i> (Hocht. ex Boiss.) Aschers & Schweinf.	
<i>Scandix iberica</i> M. Bieb.	
<i>Scandix pecten-veneris</i> L.	
<i>Scandix stellata</i> Banks & Sol.	
<i>Torilis arvensis</i> (Hudson) Link	
<i>Torilis leptophylla</i> (L.) Reichenb. fil.	
<i>Torilis nodosa</i> (L.) Gaertner.	
<i>Turgenia latifolia</i> (L.) Hoffm.	
<i>Zosima absinthifolia</i> (Vent.) Link	
<i>Alkanna strigosa</i> Boiss. et Hohen.	
<i>Alkanna tinctoria</i> (L.) Tausch	
<i>Anchusa aegyptiaca</i> (L.) DC.	
<i>Anchusa neglecta</i> DC.-6075.	
<i>Anchusa strigosa</i> Banks & Sol.	
<i>Arnebia linearifolia</i> DC.	
Boraginaceae	<i>Arnebia tinctoria</i> Forskal.
	<i>Asperugo procumbens</i> L.
	<i>Gastrocotyle hispida</i> (Forskal) C.B. Clarke
	<i>Heliotropium bacciferum</i> Forskal
	<i>Heliotropium europaeum</i> L.
	<i>Heterocaryum</i> <i>szovitsianum</i> (Fischer & C.A. Meyer) A. DC.
	<i>Lappula barbata</i> (Bieb.) Gürke
	<i>Nonea philistaea</i> Boiss.
	<i>Alyssum damascenum</i> Boiss. et Gaill
	<i>Alyssum iranicum</i> Hausskn. et Baumg.
	<i>Alyssum umbellatum</i> Desv.
Brassicaceae	<i>Biscutella didyma</i> L.
	<i>Carrichtera annua</i> (L.) DC.
	<i>Erucaria boveana</i> Cosson.
	<i>Erucaria pinnata</i> (Viv.) Tackholm & Boulos
	<i>Farsetia aegyptiaca</i> Turra

Table 1 Contd.

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	<i>Lepidium latifolium</i> L.
	<i>Malcolmia africana</i> (L.) R. Br
	<i>Matthiola aspera</i> Boiss.
	<i>Matthiola parviflora</i> (Schousb.) R. Br.-
	<i>Notoceras bicornis</i> (Solander) Caruel.
	<i>Savignya parviflora</i> (Delile) Webb.
	<i>Sisymbrium bilobum</i> (C.Koch) Grossh.
	<i>Sisymbrium irio</i> L
	<i>Zilla spinosa</i> (L.) Prantl
	<i>Cerastium dichotomum</i> L.
	<i>Dianthus sinaicus</i> Boiss.
	<i>Gymnocarpus decandrum</i> Forskal
	<i>Gypsophila arabica</i> Barkoudah
	<i>Gypsophila pilosa</i> Hudson.
	<i>Holosteum umbellatum</i> L.
	<i>Minuartia formosa</i> (Fenyl) Mattf.
	<i>Paronychia argentea</i> Lam.
	<i>Paronychia palaestina</i> Eig
	<i>Paronychia sinaica</i> Fresen
Caryophyllaceae	<i>Petrorhagia cretica</i> (L.) P. W. Ball et Heywood
	<i>Polycarpon tetraphyllum</i> (L.) L
	<i>Pteranthus dichotomus</i> Forskal
	<i>Robbairia delileana</i> Milne-Redhead
	<i>Silene aegyptiaca</i> (L.) L. fil
	<i>Silene conoidea</i> L
	<i>Silene linearis</i> Decne.
	<i>Silene longipetala</i> Vent
	<i>Silene palaestina</i> Boiss
	<i>Spergula fallax</i> (Lowe) Krause
	<i>Spergularia diandra</i> (Guss.) Heldr. et Sart.
	<i>Anabasis articulata</i> (Forskal) Moq.
	<i>Anabasis syriaca</i> Iljin.-
	<i>Atriplex halimus</i> L
	<i>Atriplex rosea</i> L.
	<i>Bassia eriophora</i> (Schrader) Ascherson
Chenopodiaceae	<i>Bassia muricata</i> (L.) Ascherson
	<i>Chenopodium album</i> L
	<i>Chenopodium vulvaria</i> L
	<i>Hammada scoparia</i> (Pomel) Iljin
	<i>Noaea mucronata</i> (Forskal) Ascherson et Schweinf.
	<i>Salsola baryosma</i> (Schultes) Dandy.
	<i>Helianthemum aegyptiacum</i> (L.) Miller.
	<i>Helianthemum ledifolium</i> (L.) Miller
	<i>Helianthemum lippii</i> (L.) Dum. -Courset
Cistaceae	<i>Helianthemum salicifolium</i> (L.) Miller
	<i>Helianthemum sancti-antonii</i> Boiss
	<i>Helianthemum vesicarium</i> Boiss
	<i>Umbilicus intermedius</i> Boiss.
Cyperaceae	<i>Carex padystylis</i> J. Gay

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Table 1 Contd.

	<i>Pterocephalus brevis</i> Coulter
	<i>Pterocephalus plumsus</i> (L.) Coult
	<i>Pterocephalus sanctus</i> Decne.
Dipsacaceae	<i>Scabiosa argentea</i> L
	<i>Scabiosa palaestina</i> L
	<i>Scabiosa porphyroneura</i> Blakelock
	<i>Scabiosa prolifera</i> L.
Ephedraceae	<i>Ephedra alte</i> C.A. Meyer
	<i>Chrozophora tinctoria</i> (L.) Ad. Juss.
Euphorbiaceae	<i>Euphorbia cheiradenia</i> Boiss. et Hohen.
	<i>Euphorbia hierosolymitana</i> Boiss
	<i>Euphorbia petiolata</i> Banks et Sol
	<i>Acacia raddiana</i> Savi
	<i>Astragalus adpressiusculus</i> Eig
	<i>Astragalus cretaceus</i> Boiss. et Kotschy
	<i>Astragalus deinacanthus</i> Boiss.
	<i>Astragalus bethlehemiticus</i> Boiss
	<i>Astragalus macrocephalus</i> Willd
	<i>Astragalus sparsus</i> Decne.
	<i>Astragalus spinosus</i> (Forsk.) Muschler
	<i>Astragalus tribulooides</i> Delile
	<i>Lathyrus cicera</i> L.
	<i>Lathyrus pseudocicera</i> Pamp.
	<i>Lathyrus setifolius</i> L
	<i>Lens orientalis</i> (Boiss.) Schmalh.
	<i>Lotus halophilus</i> Boiss.et Spruner
Fabaceae	<i>Medicago laciniata</i> (L.) Miller
	<i>Medicago lupulina</i> L
	<i>Medicago polymorpha</i> L.
	<i>Medicago radiata</i> L.
	<i>Onobrychis crista-galli</i> (L.) Lam
	<i>Onobrychis kotschyana</i> Fenzl
	<i>Onobrychis ptolemaica</i> (Delile) Dc
	<i>Onobrychis wettsteinii</i> Nabelek
	<i>Trifolium resupinatum</i> L.
	<i>Trigonella arabica</i> Delile
	<i>Trigonella astroites</i> Fischer et C. A. Meyer
	<i>Trigonella hamosa</i> L.
	<i>Trigonella schlumbergeri</i> Boiss.
	<i>Trigonella stellata</i> Forskal.
	<i>Vicia sericocarpa</i> Fenzl
	<i>Erodium arborescens</i> (Desf.) Willd.
	<i>Erodium glaucophyllum</i> (L.) L'Hér
	<i>Erodium gruinum</i> (L.) L'Hér-
Geraniaceae	<i>Erodium hirtum</i> Willd.
	<i>Erodium laciniatum</i> (Cav.) Willd
	<i>Erodium malacoides</i> (L.) L' Hér.
	<i>Erodium neuradifolium</i> Delile
Globulariaceae	<i>Globularia arabica</i> Jaub.et Spach
Hypocoaceae	<i>Hypocoum imberbe</i> Sibth.& Sm
	<i>Hypocoum pendulum</i> L.
	<i>Hypocoum procumbens</i> L.

Table 1 Contd.

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	<i>Crocus aleppicus</i> Baker
	<i>Crocus cancellatus</i> Herbert
Iridaceae	<i>Crocus pallasii</i> Goldb
	<i>Iris edomensis</i> Sealy.
	<i>Iris nigricans</i> Dinsm
	<i>Iris petrana</i> Dinsm
	<i>Ballota saxatilis</i> Sieber ex C. Presl
	<i>Ballota undulata</i> (Sieber ex Fresen.) Bentham.
	<i>Marrubium cuneatum</i> Banks et. Sol.
	<i>Phlomis brachyodon</i> (Boiss.) Zohary
	<i>Phlomis kurdia</i> Rech. fill.
	<i>Phlomis platystegia</i> Post.
Lamiaceae	<i>Salvia ceratophylla</i> L
	<i>Salvia dominica</i> L
	<i>Salvia hierosolymitana</i> Boiss.
	<i>Salvia palaestina</i> Bentham.
	<i>Salvia syriaca</i> L
	<i>Satureja thymbra</i> L
	<i>Satureja thymbriifolia</i> Hedge & Feinbr.
	<i>Stachys aegyptiaca</i> Person
	<i>Ziziphora capitata</i> L.
	<i>Ziziphora tenuior</i> L
	<i>Allium artemisietorum</i> Eig & Feinbr
	<i>Allium neapolitanum</i> Cyr.
	<i>Allium sindjarensis</i> Boiss. et Hauskn.
	<i>Allium truncatum</i> (Feinbr.) Kollmann & Zohary.
	<i>Androcymbium palaestinum</i> (Boiss.) Baker
	<i>Asparagus aphyllus</i> L.
	<i>Asparagus stipularis</i> Forskal
	<i>Bellevalia ciliata</i> (Cyr.) T. Nees.
	<i>Bellevalia desertorum</i> Eig & Feinbr.
Liliaceae	<i>Colchicum ritchii</i> R. Br.
	<i>Colchicum tauri</i> Siehe ex Stefanoff
	<i>Colchicum tunicatum</i> Feinbr
	<i>Dipcadi erythraeum</i> Webb et Berth.
	<i>Fritillaria libanotica</i> (Boiss.) Baker
	<i>Gagea dayana</i> Chodat & Beauvered.
	<i>Gagea reticulata</i> (Pallas) Schult. Fil.
	<i>Leopoldia bicolor</i> (Boiss.) Eig & Fienbr.
	<i>Leopoldia comosa</i> (L.) Parl.
	<i>Leopoldia deserticola</i> (Rech. fil.) Feinbr
	<i>Ornithogalum montanum</i> Cyr.
	<i>Urginea maritima</i> (L.) Baker.
Linaceae	<i>Linum mucronatum</i> Bertol
	<i>Linum pubescens</i> Banks & Sol
Loranthaceae	<i>Viscum cruciatum</i> Sieber ex Boiss.
Lythraceae	<i>Lythrum junceum</i> Banks et Sol.
Malvaceae	<i>Alcea rufescens</i> (Boiss.) Boiss
	<i>Malva nicaeensis</i> All.
	<i>Malva parviflora</i> L

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Table 1 Contd.

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	<i>Malva sylvestris</i> L.
	<i>Aegilops biuncialis</i> Vis
	<i>Aegilops crassa</i> Boiss. var.palaestina Eig-
	<i>Aegilops ovata</i> L
	<i>Aven fatua</i> L
	<i>Boissiera squarrosa</i> (Banks et Sol.) Nevski-
	<i>Bromus danthoniae</i> Trin.
	<i>Bromus fasciculatus</i> Presl var.alexandrinus
	Thell.
	<i>Bromus lanceolatus</i> Roth
	<i>Bromus madritensis</i> L.
	<i>Bromus rubens</i> L
	<i>Bromus scoparius</i> L.
	<i>Bromus tectorum</i> L.
	<i>Bromus tomentellus</i> Boiss.
	<i>Dactylis glomerata</i> L.
Poaceae	<i>Eremopyrum bonaepartis</i> (Sprengel)
	Nevski.
	<i>Hordeum glaucum</i> Steudel
	<i>Hordeum marinum</i> Hudson
	<i>Hordeum spontaneum</i> C. Koch.
	<i>Lolium rigidum</i> Gaudin
	<i>Lophochloa berythaea</i> (Boiss.& Blanche)
	Bor
	<i>Panicum repens</i> L.
	<i>Phalaris minor</i> Retz.
	<i>Poa annua</i> L.
	<i>Poa bulbosa</i> L.
	<i>Poa sinaica</i> Steudel
	<i>Schismus arabicus</i> Nees var.minuts
	(Roemer &
	Schultes) Boiss.
	<i>Stipa lagascae</i> Roemer&Schultes
Orchidaceae	<i>Limodorum abortivum</i> (L.) Swartz
Orobanchaceae	<i>Cistanche tubulosa</i> (Schenk) wight.
	<i>Orobanche ramosa</i> L.
Papaveraceae	<i>Glaucium arabicum</i> Fresen.
	<i>Roemeria hybrida</i> (L.) DC.
	<i>Plantago afra</i> L.
	<i>Plantago albicans</i> L..
Plantaginaceae	<i>Plantago coronopus</i> L
	<i>Plantago cylindrica</i> Forskal.
	<i>Plantago ovata</i> Forskal.
	<i>Plantago pumila</i> L
	<i>Limonium lobatum</i> (L.fil.) O. Kuntze.
Plumbaginaceae	<i>Limonium meyeri</i> (Boiss.) O. Kuntze.
	<i>Limonium pruinosum</i> (L.) O. Kuntze.
	<i>Limonium sinuatum</i> (L.) Miller
Polygalaceae	<i>Polygala sinaica</i> Botsch
	<i>Polygonum equisetiforme</i> Sibth. Et Sm.
Polygonaceae	<i>Polygonum patulum</i> Bieb.
	<i>Rumex cypirus</i> Murb.

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Table 1 Contd.

Primulaceae	<i>Anagallis arvensis</i> L <i>Samolus valerandi</i> L. <i>Adonis dentata</i> Delile. <i>Anemone coronaria</i> L.
Ranunculaceae	<i>Ceratocephalus falcate</i> (L.) Pers. <i>Consolida sceroclada</i> (Boiss.) Schrödinger <i>Ranunculus arvensis</i> L <i>Ranunculus asiaticus</i> L. <i>Ranunculus damascenus</i> Boiss.et Gaill
Resedaceae	<i>Ochradenus baccatus</i> Delile <i>Reseda alba</i> L. <i>Reseda lutea</i> L. <i>Rhamnus dispermus</i> Ehrenb .ex Boiss.
Rhamnaceae	<i>Rhamnus palaestinus</i> Boiss. <i>Rhamnus punctatus</i> Boiss <i>Ziziphus lotus</i> (L.) Lam. <i>Amygdalus communis</i> L. <i>Amygdalus Korschinskyi</i> (Hand -Mazz.) Bornm.
Rosaceae	<i>Cerasus microcarpa</i> (C.A.Meyer) C.Koch <i>Rubus sanguineus</i> Friv. <i>Sarcopoterium spinosum</i> (L.) Spach. <i>Crucianella herbacea</i> Forskal <i>Galium canum</i> Req.
Rubiaceae	<i>Galium incanum</i> Sm. <i>Galium sinaicum</i> (Delile ex Decne.) Boiss. <i>Galium tricornutum</i> Dandy. <i>Rubia tenuifolia</i> D'Urv. <i>Rubia tinctorum</i> L. <i>Valantia hispida</i> L <i>Warburgina factorovskyi</i> Eig.
Salicaceae	<i>Populus euphratica</i> Oliver <i>Salix acmophylla</i> Boiss.
Salvadoraceae	<i>Salvadora persica</i> L.
Santalaceae	<i>Osyris alba</i> L. <i>Thesium humile</i> Vahl <i>Anarrhinum forskahlii</i> (J.F.Gmel.) Cuf. <i>Kickxia aegyptiaca</i> (L.) Nábelek <i>Linaria haelava</i> (Forskal.) Delile. <i>Linaria simplex</i> Desf. <i>Parentucellia flaviflora</i> (Boiss.) Nevski
Scrophulariaceae	<i>Scrophularia rubricaulis</i> Boiss <i>Scrophularia xanthoglossa</i> Boiss. <i>Scrophularia xylorrhiza</i> Boiss. et Hausskn <i>Verbascum fruticosum</i> Post. <i>Veronica anagallis-aquatica</i> L <i>Veronica campylopoda</i> Boiss. <i>Veronica hederifolia</i> L
Solanaceae	<i>Datura stramonium</i> L <i>Hyoscyamus aureus</i> L. <i>Hyoscyamus reticulatus</i> L.



Table 1 Contd.

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Tamaricaceae	<i>Reaumuria hirtella</i> Jaub.et Spach <i>Tamarix tetragyna</i> Ehrenb.
Theligonaceae	<i>Theligonum cynocrambe</i> L.
Thymelaeaceae	<i>Daphne linearifolia</i> Hart
Urticaceae	<i>Parietaria officinalis</i> L. <i>Parietaria punctata</i> Willd. <i>Fagonia bruguieri</i> DC
Zygophyllaceae	<i>Fagonia mollis</i> Delile. <i>Peganum harmala</i> L. <i>Zygophyllum dumosum</i> Boiss.

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***Pistacia atlantica***



***Quercus coccifera***



***Juniperus phoenicea***



***Cupressus sempervirens***



***Crataegus aronia***

Figure 1. Some wild trees in Tafila Province.



***Crocus hyemalis***



***Ononis natrix***



***Capparis spinosa***



***Senecio vernalis***



***Gundelia tournefortii***



***Sonchus oleraceus***



***Tragopogon bupthalmoides***



***Salvia hierosolymitana***

Figure 2. Some plant species in Tafila Province.



*Tulipa agenensis*



*Ornithogalum montanu*



*Lupinus varius*



*Ophrys lutea*



*Iris edomensis*



*Iris petrana*



*Iris nigricans*



*Amygdalus communis*

Figure 2. Contd.



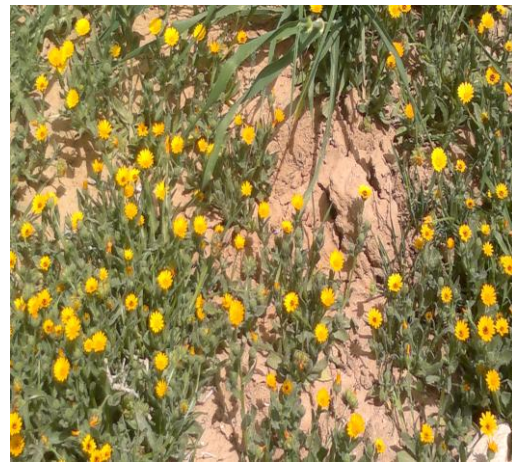
*Eremostachys laciniata*



*Anchusa srtigosa*



*Pyrus syriaca*



*Calendula arvensis*



*Crataegus aronia*



*Ephedra alte*



*Hypochoeris*



*Malva sylvestris*

Figure 2. Contd.



**Figure 3.** Some medicinal plant species in Tafila Province.

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