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## Plant Diversity in Miankaleh Biosphere Reserve (Mazandaran Province) in North of Iran

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**Abstract:** Miankaleh Biosphere Reserve is located in north of Iran, it covers an area about 68800 ha. In this survey the plant specimens were collected from different parts of area during two growing seasons. The aim of this research was identify the plant species, introducing the Flora and determination of life forms. In Miankaleh area 261 species recognized, that belong to 60 families and 177 genera. Among these families represented in area *Asteraceae*, *Poaceae*, *Papilionaceae*, *Cyperaceae* and *Brassicaceae* had the highest number of species 34, 34, 26, 10 and 10, respectively. Fifty four species (20.68%) were endemics of Irano-Turanian region, the following species of them were endemics for Iran: *Lindelofia kandavanensis*, *Papaver tenuifolium*, *P. chelidonifolium*, *Scorzonera tortusissima*, *Scrophularia gaubae*, *Crepis gaubae* and *Crepis papposissima*. Therophytes and hemicryptophytes with 137 species (52.5%) and 76 species (29%) were respectively the most frequent life forms of the Biosphere Reserve.

**Key words:** Flora, chorotype, Miankaleh, Biosphere reserve, Mazandaran province, Iran

### INTRODUCTION

Caspian Sea is the greatest lake of the world and in fact, it is a relic of early aquatic ecosystem. Floristic and phytosociology studies of Caspian Sea south coasts have been carried out by other researchers, too (Asri and Eftekhari, 2002; Asri and Moradi, 2004). The biodiversity of Biosphere Reserve is very important and then recognition and conservation of plant species are very essential for their protection. Miankaleh Biosphere Reserve is in fact a peninsula in the north of Iran situated near the south-east the Caspian Sea with an area about 68800 ha. Despite its uniform climate, Miankaleh has considerable plant diversity. It seems the distribution pattern is influenced by soil elements.

### MATERIALS AND METHODS

The study has carried out during 2003-2004. Miankaleh Biosphere Reserve is located in south-east of Caspian Sea in Mazandaran province (36°48' -36°55' N, 53°25' -54°02' E) (Fig. 1). It covers 68800 ha, its altitude of Sea level is 15-25 m and average of rainfall and temperature are 580 mm and 21.8°C, respectively. Miankaleh is consisted of two terrestrial and aquatic ecosystems. The plant specimens were recognized using

Flora Iranica (Rechinger, 1963-2005). Flora of USSR (Komarov *et al.*, 1963-1974), Flora of Turkey ( Davis, 1965-1988), Flora of Iran (Assadi *et al.*, 1989-2005).

Life forms have determined on the basis of Raunkiaer classification (Raunkiaer, 1934). Voucher specimens are deposited in herbarium of Islamic Azad University, North Tehran Branch.

### RESULTS AND DISCUSSION

Floristic list of Miankaleh is presented in Table 1. In the list 261 taxa of vascular plants in 177 genera and 60 families are recognized. The families consist of 2 families Cryptogames, 1 family Gymnosperm, 6 families monocots and 51 families dicots. Among these families represented in the area, *Poaceae*, *Asteraceae*, *Papilionaceae*, *Cyperaceae* and *Brassicaceae* had the highest number species, 34, 34, 26, 10 and 10, respectively (Fig. 2). The most species means 54 species (20.68%) and 52 species (19.92%) were endemics of Irano-Turanian (IT) and Euro-Siberian, Irano-Turanian, Mediterranean (ES, IT, M) regions (Fig. 3). The following species were endemics of Iran: *Lindelofia kandavanensis*, *Papaver tenuifolium*, *Papaver chelidonifolium*, *Scorzonera tortusissima*, *Scrophularia gaubae*, *Crepis gaubae* and *Crepis papposissima* (Table 1). Therophytes with 137 species



Fig. 1: The map of Iran showing situation of Miankaleh in north with black square

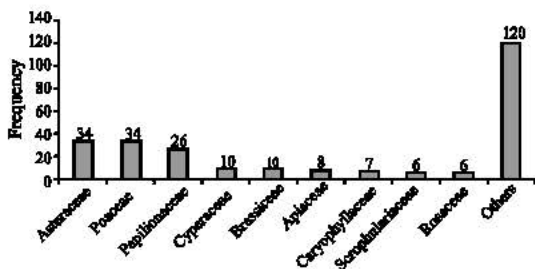


Fig. 2: The number of species in some of families with high frequency

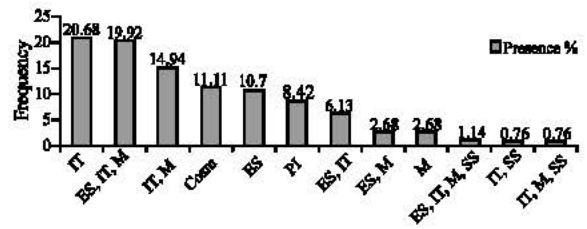


Fig. 3: Chorology of plant elements in Miankaleh showing percent of presence Abbreviation. IT: Irano-Turanian, ES: Euro-Siberian, M: Mediterranean, SS: Sahara-Sindian, PI: pluriregional, Cosm:Cosmopolit

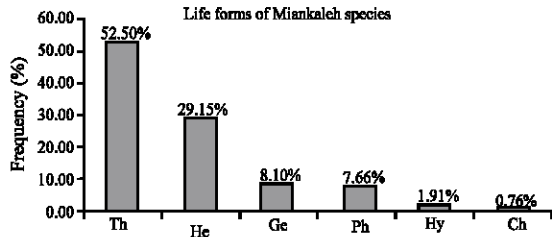


Fig. 4: Life form of miankaleh species (abbreviation: Th = Therophytes, He = Hemicryptophytes, Ge = Geophytes, Ph = Phanerophytes, Hy = Hydrophytes, Ch = Chamaephytes)

(52.5%) and hemicryptophytes with 76 species (29%) were the most frequent life forms of the Miankaleh Biosphere Reserve (Fig. 4).

Table 1: List of floristic elements in Miankaleh Biosphere Reserve, family, chorotype and life form of each species have been presented

Taxon	Life form	Chorotype
<b>Pteridophyta</b>		
<b>Hypolepidaceae</b>		
<i>Pteridium aquilinum</i> (L.) Kuh.	Ge	Pl
<b>Equisetaceae</b>		
<i>Equisetum arvense</i> L.	Ge	Pl
<i>Equisetum palustre</i> L.	Ge	Pl
<b>Gymnospermae</b>		
<b>Ephedraceae</b>		
<i>Ephedra procera</i> Fisch. et Mey.	Ch	IT
<b>Angiospermae</b>		
<b>Dicotyledonae</b>		
<b>Amaranthaceae</b>		
<i>Amaranthus albus</i> L.	Th	Cosm
<i>Amaranthus blitoides</i> S. Watson	Th	Cosm
<b>Apiaceae (Umbelliferae)</b>		
<i>Anthriscus cerefolium</i> (L.) Hoffm.	Th	IT
<i>Anthriscus nemorosa</i> (M.B.) Spreng.	He	IT
<i>Caucalis platycarpus</i> L.	Th	IT-M
<i>Daucus littoralis</i> Smith sp.		
<i>hyrcanicus</i> Rech.f.	Th	M
<i>Eryngium caucasicum</i> Trautv.	He	IT
<i>Foeniculum officinale</i> All.	He	ES, IT
<i>Pimpinella affinis</i> Ledeb.	He	IT
<i>Torilis arvensis</i> (Huds.) Link	Th	ES, IT, M
<b>Apocynaceae</b>		
<i>Trachomitum venetum</i> (L.) Woods.	Ph	IT
<b>Asclepiadiaceae</b>		
<i>Cynancum acutum</i> L.	He	IT, M
<b>Asteraceae (Compositae)</b>		
<i>Anthemis altissima</i> L.	Th	IT
<i>Artemisia absinthium</i> L.	He	ES
<i>Artemisia annua</i> L.	Th	ES, IT
<i>Artemisia tschernieviana</i> Besser	Ch	IT
<i>Calendula persica</i> C.A. Mey.	Th	IT, M
<i>Carduus pycnocephala</i> L.	Th	IT
<i>Carthamus lanatus</i> L.	Th	IT
<i>Centaurea iberica</i> Trev. ex Spreng.	Th	IT
<i>Chondrilla juncea</i> L.	He	ES, IT
<i>Cirsium vulgare</i> (Savi) Ten.	Th	M
<i>Cichorium intybus</i> L.	He	ES, IT, M
<i>Cichorium pumilum</i> Jacq.	He	ES, IT, M
<i>Conyza canadensis</i> (L.) Cronq.	Th	Cosm
<i>Conyanthus squamatus</i> (Spreng.)		
Tamamasch.	He	Cosm
<i>Cousinia crispa</i> Jaub. and Spach	He	IT

Table 1: Continued

Taxon	Life form	Chorotype
<i>Crepis foetida</i> L.	Th	ES, IT, M
<i>Crepis gaubae</i> Bornm.	He	ES
<i>Crepis papposissima</i> Babcock	Th	ES
<i>Eclipta alba</i> (L.) Hassk	Th	Pl
<i>Filago arvensis</i> L.	Th	IT, M
<i>Mulgedium tataricum</i> (L.) DC.	He	IT
<i>Onopordon acanthium</i> L.	He	ES, IT, M
<i>Raghadolus stellatus</i> Scop.	Th	IT, M
<i>Scorzonera tortuosissima</i> Boiss.	He	IT
<i>Senecio vernalis</i> Waldst. and Kit.	Th	ES, IT, M
<i>Silybum marianum</i> (L.) Gaertn.	He	ES, IT, M
<i>Sonchus asper</i> (L.) Hill	Th	IT, M
<i>Sonchus oleraceus</i> L.	Th	ES, IT, M
<i>Sonchus palustris</i> L.	He	ES, IT
<i>Taraxacum syriacum</i> Boiss.	He	IT
<i>Tragopogon graminifolius</i> DC.	He	IT
<i>Urospermum picroides</i>	Th	IT, M
<i>Xanthium spinosum</i> L.	Th	Cosm
<i>Xanthium strumarium</i> L.	Th	IT
<b>Betulaceae</b>		
<i>Alnus subcordata</i>	Ph	ES
<b>Boraginaceae</b>		
<i>Echium amoenum</i> Fisch. et Mey.	He	IT
<i>Heliotropium lasiocarpum</i> Fisch. Et Mey.	Th	IT
<i>Lappula spinocarpus</i> (Forssk.) Ascerson and O.Kuntze	Th	IT, SS
<i>Lindlofia kandvanensis</i> Bornm. and Gauba	He	IT
<i>Lithospermum officinale</i> L.	Th	ES, IT
<i>Tournefortia sibirica</i> L.	He	ES, IT
<i>Myosotis propinqua</i> Fisch. and C. A. Mey. ex Ledeb.	Th	ES
<i>Nonnea lutea</i> (Desr.) Reichenb.	Th	ES, IT
<b>Brassicaceae (Cruciferae)</b>		
<i>Cakile maritima</i> Scop.	Th	ES, M
<i>Capsella bursa-pastoris</i> (L.) Medicus	Th	Cosm
<i>Cardaia draba</i> (L.) Desv.	He	IT, M
<i>Hirschfeldia incana</i> (L.) Lag.	Th	IT
<i>Maresia nana</i> (DC.) Batt.	Th	IT, M
<i>Raphanus raphanistrum</i> L.	Th	ES, M
<i>Sisymbrium altissimum</i> L.	Th	ES, IT
<i>Sisymbrium irio</i> L.	Th	ES, IT, M, SS
<i>Sisymbrium officinale</i> (L.) Scop.	Th	Pl
<i>Turritis glabra</i> L.	Th	ES, IT, M
<b>Campanulaceae</b>		
<i>Campanula rapunculoides</i> L.	He	ES
<b>Caprifoliaceae</b>		
<i>Sambucus ebulus</i> L.	He	ES
<b>Caryophyllaceae</b>		
<i>Minuartia subtilis</i> (Fenzl) Hand. Mzt.	Th	IT
<i>Polycarpon tetraphyllum</i> (L.) L.	Th	ES, M
<i>Silene conica</i> L.	Th	ES, IT
<i>Silene conoidea</i> L.	Th	IT, M
<i>Silene ruprechtii</i> Schischk.	Th	ES
<i>Spergularia marina</i> (L.) Griseb.	Th	Cosm
<i>Stellaria media</i> (L.) Cyr.	Th	Pl
<b>Ceratophyllaceae</b>		
<i>Ceratophyllum demersum</i> L.	Hy	ES, IT, M
<i>Ceratophyllum submersum</i> L.	Hy	ES
<b>Chenopodiaceae</b>		
<i>Chenopodium album</i> L. subsp. <i>striatum</i>	Th	ES, IT, M
<i>Chenopodium ambrosioides</i> L.	Th	Cosm
<i>Chenopodium murale</i> L.	Th	Cosm
<i>Salicornia europea</i> L.	Th	ES, IT, M, SS
<i>Salsola kali</i> L.	Th	Cosm
<i>Suaeda heterophylla</i> (Kar. et Kir.) Bge.	Th	IT
<b>Convolvulaceae</b>		

Table 1: Continued

Taxon	Life form	Chorotype
<i>Calystegia silvestris</i> (Willd.) Roem.	He	ES
<i>Convolvulus arvensis</i> L.	He	Cosm
<i>Convolvulus cantabrica</i> L.	He	IT,M
<i>Convolvulus persicus</i> L.	He	ES
<b>Cornaceae</b>		
<i>Cornus australis</i> C. A. Mey.	Ph	ES
<b>Corylaceae</b>		
<i>Corylus avellana</i> L.	Ph	ES
<b>Crassulaceae</b>		
<i>Sedum lenkoranicum</i> Grossh.	Th	ES
<i>Sedum nanum</i> Boiss.	Th	IT
<b>Euphorbiaceae</b>		
<i>Euphorbia helioscopia</i> L.	Th	ES,IT,M
<i>Euphorbia indica</i> Lam.	Th	IT,SS
<i>Euphorbia peploides</i> Gouan	Th	IT,M
<i>Euphorbia turcomanica</i> Boiss.	Th	IT
<i>Mercurialis annua</i> L.	Th	ES,IT,M
<b>Frankeniaceae</b>		
<i>Frankenia hirsuta</i> L.	He	IT,M
<b>Gentianaceae</b>		
<i>Centaurium minus</i> Moench	Th	IT
<i>Centaurium pulchellum</i> (Swartz) Druce	Th	ES,IT
<b>Geraniaceae</b>		
<i>Erodium cicutarium</i> (L.) L. Her.	Th	ES,IT,M
<i>Erodium oxyrhynchum</i> M. B.	Th	IT
<i>Geranium molle</i> L.	Th	ES,M
<i>Geranium robertianum</i> L.	Th	ES,IT
<i>Geranium rotundifolium</i> L.	Th	ES,IT,M
<b>Haloragaceae</b>		
<i>Myriophyllum verticillatum</i> L.	Hy	PI
<b>Hypericaceae</b>		
<i>Hypericum perforatum</i> L.	He	ES
<i>Hypericum tetrapterum</i> Friess	He	ES,IT,M
<b>Lamiaceae (Labiatae)</b>		
<i>Lamium album</i>	He	ES
<i>Marrubium vulgare</i> L.	He	ES,IT,M
<i>Mentha aquatica</i> L.	He	ES,IT,M
<i>Mentha longifolia</i> (L.) Hudson	He	PI
<i>Teucrium hyrcanicum</i> L.	He	ES
<b>Lentibulariaceae</b>		
<i>Utricularia neglecta</i> Lehm.	Hy	PI
<b>Linaceae</b>		
<i>Linum bienne</i> Miller	He	IT,M
<i>Linum corymbulosum</i> Reichenb.	He	IT,M
<b>Malvaceae</b>		
<i>Abutilon theophrasti</i> Medic.	Th	Cosm
<i>Aithaea officinalis</i> L.	He	ES,IT,M
<i>Malva neglecta</i> Wallr.	He	ES,IT,M
<b>Moraceae</b>		
<i>Ficus carica</i> subsp. <i>carica</i>	Ph	ES,IT,M
<i>Ficus carica</i> subsp. <i>rupesstris</i> (Hauskn. Ex Boiss.) Browicz	Ph	IT
<b>Orobanchaceae</b>		
<i>Orobanche ramosa</i> L.	Ge	ES,IT,M
<b>Oxalidaceae</b>		
<i>Oxalis corniculata</i> L.	Th	IT,M
<b>Papaveraceae</b>		
<i>Papaver arenarium</i> M.B.	Th	IT
<i>Papaver chelidoniifolium</i> Boiss and Buhse	Th	ES
<i>Papaver macrostomum</i> Boiss and Huet ex Boiss.	Th	IT
<i>Papaver tenuifolium</i> Boiss and Hohen. ex Boiss.	Th	IT
<b>Papilionaceae</b>		
<i>Ahagi pseudoahagi</i> (M.B.) Desf.	He	IT
<i>Lathyrus aphaca</i> L.	Th	ES,IT,M
<i>Lathyrus inconspicuus</i> L.	Th	IT

Table 1: Continued

Taxon	Life form	Chorotype
<i>Lathyrus vernus</i> (L.) Bernh.	Ge	ES,IT,M
<i>Lotus corniculatus</i> L.	Th	ES,IT,M
<i>Medicago littoralis</i>	Th	PI
<i>Medicago minima</i> (L.) Bartalini	Th	PI
<i>Medicago polymorph</i> L.	Th	M
<i>Medicago rigidula</i> (L.) All.	Th	M
<i>Medicago sativa</i> L.	He	ES,IT,M
<i>Melilotus alba</i> Desr.	Th	ES,IT,M
<i>Melilotus indicus</i> L.	Th	IT,M
<i>Trifolium alexandrinum</i> L.	Th	IT
<i>Trifolium angustifolium</i> L.	Th	ES,M
<i>Trifolium bullatum</i> Boiss. and Hauskn.	Th	IT
<i>Trifolium campester</i> Schreb.	Th	ES,IT,M
<i>Trifolium lappaceum</i> L.	Th	IT,M
<i>Trifolium ochroleucum</i> Hudson	He	ES,IT,M
<i>Trifolium repens</i> L.	He	ES,IT,M
<i>Trifolium resupinatum</i> L.	Th	ES,IT,M
<i>Trifolium spadicum</i> L.	Th	ES
<i>Trifolium tumens</i> Stev. ex M. B.	Th	IT,M
<i>Trigonella monspeliaca</i> L.	Th	IT,M
<i>Vicia peregrina</i> L.	Th	IT,M
<i>Vicia tetrasperma</i> (L.) Schreb.	Th	ES,IT,M
<i>Vicia sativa</i> L.	Th	ES,IT,M
<b>Phytolaccaceae</b>		
<i>Phytolacca americana</i> L.	He	PI
<b>Plantaginaceae</b>		
<i>Plantago coronopus</i>		
L. subsp. <i>coronopus</i>	He	ES,IT,M
<i>Plantago lagopus</i> L.	Th	M
<i>Plantago lanceolata</i> L.	He	PI
<i>Plantago major</i> L.	He	PI
<i>Plantago psyllium</i> L.	Th	IT,M
<b>Plumbaginaceae</b>		
<i>Psylliostachys leptostachya</i> (Boiss.) Roshk	Th	IT
<b>Polygonaceae</b>		
<i>Polygonum aviculare</i> L.	Th	Cosm
<i>Polygonum lapathifolium</i> L.	Th	ES,IT
<i>Rumex conglomeratus</i> Murr.	He	ES,IT,M
<i>Rumex dentatus</i> L.	Th	PI
<i>Rumex pulcher</i> L. subsp. <i>pulcher</i>	He	IT,M
<b>Primulaceae</b>		
<i>Anagallis arvensis</i> L. var. <i>arvensis</i>	Th	ES,IT,M
<i>Lysimachia linum-stellatum</i> L.	Th	IT,M
<i>Samolus valerandi</i> L.	He	Cosm
<b>Punicaceae</b>		
<i>Punica granatum</i> L.	Ph	IT
<b>Ranunculaceae</b>		
<i>Batrachium trichophyllum</i> (Chaix) Bosch	Hy	PI
<i>Delphinium oliverianum</i> DC.	Th	IT
<i>Ranunculus caucasicus</i> M.B.	Ge	IT
<i>Ranunculus cicutarius</i> Schlechtend.	Ge	IT
<b>Rhamnaceae</b>		
<i>Paliurus spina-christii</i> Miller.	Ph	IT,M
<i>Rhamnus pallasii</i> Fisch. et Mey.	Ph	IT
<b>Rosaceae</b>		
<i>Crataegus melanocarpa</i> M. B.	Ph	ES,IT
<i>Geum urbanum</i> L.	He	ES,IT,M
<i>Mespilus germanica</i> L.	Ph	ES
<i>Potentilla reptans</i> L.	Ge	ES,IT,M
<i>Prunus spinosa</i> L.	Ph	ES
<i>Rubus anatolicus</i> (Focke) Focke ex Hauskn.	Ph	ES,IT,M
<b>Rubiaceae</b>		
<i>Gallium humifusum</i> Bieb.	Th	IT
<b>Scrophulariaceae</b>		
<i>Parentucellia latifolia</i>	Th	IT,M

Table 1: Continued

Taxon	Life form	Chorotype
<i>Parentucellia viscosa</i> (L.) Caruel	Th	M
<i>Scrophularia gaubae</i> Bornm.	He	ES
<i>Veronica anagalis-aquatica</i> L.	Hy	Cosm
<i>Veronica arvensis</i> L.	Th	Cosm
<i>Veronica persica</i> Poir.	Th	Cosm
<b>Solanaceae</b>		
<i>Datura innoxia</i> Miller	Th	Pl
<i>Datura stramonium</i> L.	Th	Cosm
<i>Solanum nigrum</i> L.	Th	Cosm
<b>Tamaricaceae</b>		
<i>Tamarix arceuthoides</i> Bge.	Ph	IT
<i>Tamarix karakalensis</i> Baum	Ph	IT
<i>Tamarix ramosissima</i> Ledeb.	Ph	IT
<i>Tamarix tetragina</i> C. A. Mey. var. <i>meyeri</i> Boiss.	Ph	IT,M,SS
<b>Ulmaceae</b>		
<i>Celtis australis</i> L.	Ph	ES
<i>Ulmus carpiniifolia</i> G. Suckow	Ph	ES,M
<b>Urticaceae</b>		
<i>Urtica dioica</i> L. var. <i>dioica</i>	He	ES,IT,M
<i>Urtica urens</i> L.	Th	ES,IT,M
<b>Verbenaceae</b>		
<i>Phyla nodiflora</i> (L.) Greene	Ge	Pl
<i>Verbena officinalis</i> L.	He	Pl
<b>Violaceae</b>		
<i>Viola odorata</i> L.	He	ES,IT,M
<b>Vitaceae</b>		
<i>Vitis sylvestris</i> Gmelin	Ph	ES
<b>Zygophyllaceae</b>		
<i>Peganum harmala</i> L. var. <i>harmala</i>	He	ES,IT,M,SS
<i>Tribulus terrestris</i> L.	Th	ES,IT,M
<b>Angiospermae</b>		
<b>Monocotyledonae</b>		
<b>Alliaceae</b>		
<i>Allium rotundum</i> L.	Ge	ES,IT,M
<b>Cyperaceae</b>		
<i>Carex diluta</i> M. B.	He	IT
<i>Carex distans</i> L.	He	ES,IT,M
<i>Carex extensa</i> Good.	He	ES,M
<i>Carex flacca</i> Schreb subsp. <i>serrula</i> (Biv-Bern) Greuter		
<i>Cyperus rotundus</i> L.	He	Cosm
<i>Fimbristylis bisumbellata</i> (Forsk.) Bubani	Th	Cosm
<i>Fimbristylis turkestanica</i> (Regel) B. Fedtsch	He	IT
<i>Pycneus flavescens</i> (L.) Reichenb.	Th	Pl
<i>Schoenus nigricans</i> L.	He	Pl
<i>Scirpus lacustris</i> L.	He	ES,IT,M
<b>Juncaceae</b>		
<i>Juncus acutus</i> L.	Ge	Cosm
<i>Juncus articulatus</i> L.	Ge	Cosm
<i>Juncus littoralis</i> C. A. Mey.	Ge	IT,M
<i>Juncus maritimus</i> Lam.	Ge	ES,IT,M
<b>Liliaceae</b>		
<i>Asparagus officinalis</i> L.	Ge	ES,IT,M
<i>Asparagus verticillatus</i> L.	Ge	IT
<i>Eremurus iberiensis</i> (Stev.) Boiss.	Ge	IT
<i>Ornithogalum orthophyllum</i> Ten.	Ge	ES,IT
<i>Smilax excelsa</i> L.	Lian	ES,IT
<b>Poaceae (Graminae)</b>		
<i>Aegilops crassa</i> Boiss.	Th	IT
<i>Aegilops tauschii</i> Cosson	Th	IT
<i>Agrostis teuis</i> Sibth.	He	ES,IT
<i>Aeluropus littoralis</i> (Goen) Parl.	He	IT,M
<i>Arundo donnx</i> L.	Ge	ES,IT,M
<i>Avena eriantha</i> Durieu	Th	IT,M
<i>Briza media</i> L.	He	ES,IT,M
<i>Bromus diandrus</i> Roth	Th	IT,M

Table 1: Continued

Taxon	Life form	Chorotype
<i>Bromus racemosus</i> L.	Th	ES
<i>Bromus scoparius</i> L.	Th	ES
<i>Bromus tectorum</i> L.	Th	ES,IT,M
<i>Catapodium rigidum</i> (L.) C.E. Hubb.	Th	M
<i>Cutandia memphitica</i> (Sprengel) K. Richter	Th	IT,M,SS
<i>Cynodon dactylon</i> (L.) Pers.	Ge	Cosm
<i>Dactylis glomerata</i> L.	He	ES
<i>Echinochloa crus-galli</i> (L.) P. Beauv. et Schelt.	Th	Cosm
<i>Hordeum glaucum</i> Steud.	Th	IT,M
<i>Hordeum leporinum</i> Link	Th	IT,M
<i>Imperata cylindrica</i> (L.) Beauv.	He	IT,M
<i>Lolium rigidum</i> Gaudin	Th	IT,M
<i>Parapholiis incurva</i> (L.) C. E. Hubb.	Th	IT
<i>Parapholis gracilis</i> Bor	Th	IT,M
<i>Phalaris minor</i> Retz.	Th	IT,M
<i>Phragmites australis</i> (Cav.) Trin.ex Steud.var. <i>australis</i>	He	Cosm
<i>Phragmites australis</i> (Cav.) Trin.ex Steud.var. <i>stenophylla</i>	He	IT,M
<i>Poa annua</i> L.	Th	Cosm
<i>Poa longifolia</i> A. Rich	He	ES
<i>Polypogon monspeliensis</i> Royle ex Benth.	Th	Cosm
<i>Saccharum griffithii</i> Munro ex Boiss.	Ge	IT
<i>Saccharum kajkaiense</i> (Melderis) Melderis	Ge	IT
<i>Setaria viridis</i> (L.) P. Beauv.	Th	Cosm
<i>Sphenopus divaricatus</i> (Gouan) Reichenb.	Th	IT,M
<i>Trachynia distachya</i> (L.) Link.	Th	IT,M
<i>Vulpia myuros</i> (L.) J. F. Gmel.	Th	ES,IT,M
<i>Zingeria trichopoda</i> (Boiss.) P.Smin.	Th	IT
<b>Typhaceae</b>		
<i>Typha laxmannii</i> Lepech.	He	Pl

(Abbreviation: Th = Therophyte, He = Hemicyptophytes, Ge = Geophytes, Ph = Phanerophytes, Hy = hydrophytes, Ch = Chamaephytes, Es = Euro-Siberian, IT = Irano-Turanian, M = Mediterranean, SS = Sahara-Sindian, Pl = Pluriregional, Cosm = Cosmopolit)

## REFERENCES

- Asri, Y. and T. Eftekhari, 2002. An Introduction to the flora and vegetation of Siah-Keshim wetland. J. Environ. Stud., 28: 1-19.
- Asri, Y. and A. Moradi, 2004. Floristic and phytosociological studies of Amirkelayeh lagoon. J. Agric. Sci. Natur. Resour., 11: 171-179.
- Assadi, M., A.A. Maasoumi, M. Khatamsaz, V. Mozzafarian and Z. Jamzad, 1989-2005. Flora of Iran, Vol.1-52, Research Institute of Forests and Rangelands, Tehran, Iran.
- Davis, P.H., 1965-1988. Flora of Turkey, Vol.1-10, Edinburgh University Press, Edinburgh.
- Komarov, V.L. and B.K. Shishkin, 1963-1974. Flora of the USSR, vols. 1-24. (Translated by Landua, N. *et al.*) Keter and IPST Press, Jerusalem.
- Raunkiaer, C., 1934. The Life forms of Plants and Statically Plant Geography, Oxford, Clarendon Press.
- Rechinger, K.H., 1963-2005. Flora Iranica, Akademisch Druck-UV Verlagsanstalt, Graz, pp: 1-176.