Presentation of flora, life forms and chorology of plant species in the Jahrom area (Fars Province, Iran)

Gholam Abbas Ghanbarian[1*], Efat Jafari[2], Ahmad Hatami[3]

[*1] *Dept. of Desert Regions Management, Faculty of Agriculture, Shiraz University, Shiraz, Iran*
[2, 3] *Research Center for Agriculture and Natural Resources of Fars Province P.O.Box 1151, Shiraz 71955, Iran*

Abstract

In the present study, species were classified according to their growth habit and Raunkiaer's life- forms system were used to characterize the flora of Jahrom. Jahrom in the south east of the Fars Province is an area with about 1,627,470 hectares , maximum altitude at 3167 m and minimum altitude at 300 m, located between 52° 30′ to 54° 00′ east latitudes and 28 ° 00′ to 29° 00′north longitudes. We studied the area from a floristic and ecological point of view. The results showed that the flora of this region includes 346 species belonging to 234 genera and 67 families. *Papilionaceae* with 52 species, *Asteraceae* with 47 species and *Poaceae* with 36 species are the main families of this area. Plant life forms were studied by Raunkiaer's method. It showed that therophytes with (30.1%) of species, hemicryptophyte with (30.1%) of species, phanerophytes with (17.6%) of species and chamaephyte with (13%) of species, are the dominant life forms of the area. The chorological studies showed that (81.8%) of species belong to Irano-Turanian zone, (9.2%) of species belong to Sahara-Sindian zone and (9%) of common species belong to Irano-Turanian, Sahara-Sindian zones.

Key words: Flora, species, chorology, Iran, plant
Corresponding Author: Gholam Abbas Ghanbarian (e-mail: ghanbarian@shirazu.ac.ir)
(Received :26.05.2010 Accepted: 02.01.2011)

Introduction

The Jahrom area demonstrates varying degrees of edapho- climatic conditions, generally associated with its altitudes, geomorphology, slope as well as soil depth and its physical and chemical composition. Rainfall usually totals 200-500 mm/year. Most rainfall was concentrated in fall and winter (more than in the present study), and species were classified according to their growth habit. Raunkiaer's life-forms system was used to characterize the flora of Jahrom. Plant species and individuals can be grouped into different life-forms classes based on structural and functional similarities (Muller-Dombois and Ellenberg 1974)

Life-forms have close relationships with environmental factors (Muller-Dombois and Ellenberg 1974) and can be viewed as strategies for obtaining resources (Crosswhite and Crosswhite 1984; Cody 1986). Raunkiaer (1934) proposed a life- form classification system based on the manner in which plants protect their perennating buds during unfavourable seasons. According to this classification system, plant species can be grouped into five main classes: phanerophytes, camaephytes, hemicryptophytes, cryptophytes

and therophytes. This sequence corresponds to an increasing protection of the perennating buds. Climatic types can be characterized by the prevailing life form in plant communities growing under a given climatic regime, using the proportions of species in each life- form class, or the biological spectrum (Raunkiaer 1934; Cain 1950; Muller-Dombois and Ellenberg 1974).

Few studies have been devoted to the structure and flora of the herbaceous layer in plant communities of Jahrom (Ghahraman 1996). In the present study, species were classified according to their growth habit and used Raunkiaer's life-forms system to characterize the flora of Jahrom

Materials and Methods

The present study was carried out in the Jahrom in Iran (52 ^{0} 30' to 54^0 00' E x. 28 ^{0} 00' to 29^0 00' N) during the period (2002-2004) (Fig.1). Climatic data (rainfall and temperature) were obtained from IMO[1] (Anon 2006). The mean annual rainfall and temperature were 200-500 mm and 19.5^{0}C, respectively. Soils in this area are mainly calcareous soils with Clay, and Gypsum soils in some parts. It has 1,393,693 ha of vegetations classified as woodland, scrubland and sub- tropical annual grassland.

For the purpose of studying the area from a floristic and ecological point of view, specimens were collected in several field trips during the period (2002-2004). Specimens were identified according to valid references (Boisser 1870; Rechinger 1963; Townsend 1966; Zohary 1973; Davis 1975).

Data was organized listing the species, their families, life-form and chorology. Observations were made on aerial shoot reduction during unfavorably dry conditions and presence of subterranean reserve organs. Species were classified as phanerophytes, chamaephytes, hemi cryptophytes, cryptophytes and therophytes according to the Raunkiaer method. We computed the proportion of species in each life-form class.

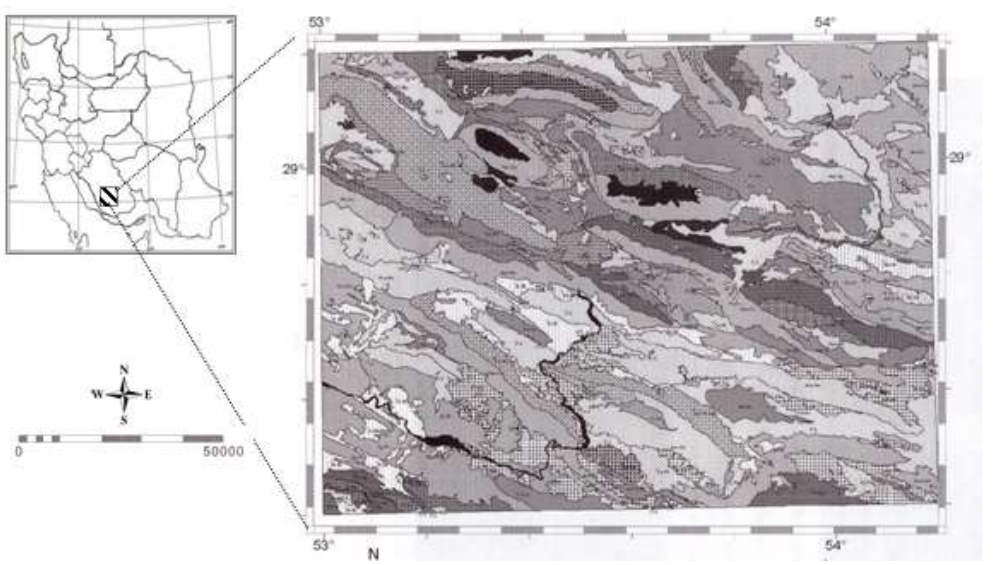

Figure 1. Location of Study area

Results

We recorded 341 species belonging to 234 genera and 65 families (Table 1). The Families with the greatest number of species were *Papilionaceae* with 52 species, *Asteraceae* with 47 species and *Poaceae* with 36 species. Twenty nine families were represented by only a single species. The results showed that therophytes with 30.1% of species hemi cryptophytes with 30.1% of species, phanerophytes with 17.6% of species and chamaephytes with 13% of species are the dominant life forms of the area (Fig. 2).

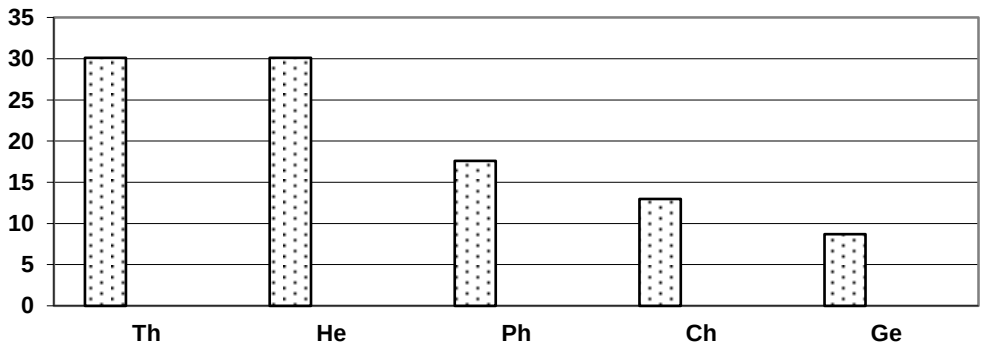

Figure 2. Life forms in Jahrom**,** Ph-phanerophyte, Ch – chamaephytes, He- hemicryptophytes, Th –therophytes, Ge – geophyte

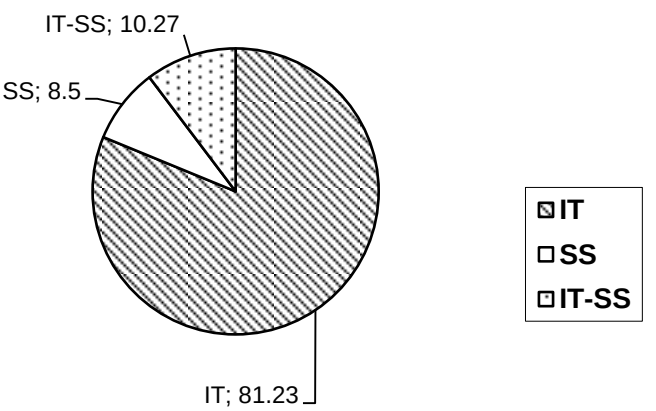

Figure 3. Chorotypes in Jahrom, Irano-Turanian (**IT**) Sahara-seindian (**SS**), Irano-Turanian, Sahara-seindian (**IT-SS**)

Table 1. List of species, Families, Their life- forms, and chorotype in Jahrom area. Life forms:Ge –geophyte Ph- phanerophyte, Ch- chamaephytes, H- hemicryptophytes, Cr – cryptophytes, Th –therophytes

Family	Species	Life- form	Chorotype
Acanthaceae	*Blepharis persica* Juss.	Th	SS,IT
Aceraceae	*Acer monspessulanum* L.	Ph	IT
Amaranthaceae	*Amaranthus retroflexus* L.	Th	IT
Anacardiaceae	*Pistacia atlantica* Desf.	Ph	IT
	Pistacia. khinjuk Stocks.	Ph	IT
Apiaceae	*Bunium persicum* Boiss.	Gt	IT
	Chaerophyllum macropodum Boiss.	He	IT
	Dicylophora persica Boiss.	Th	IT
	Dorema aucheri Boiss.	He	IT
	Ducrosia anethifolia (DC.) Boiss.	He	IT
	Eryngium billardieri F.Delapche.	He	IT
	Ferula assa-foetida L.	He	IT
	Ferula ovina Boiss.	He	IT
	Ferulago ungulata Koch.	He	IT
	Lagoecia cuminoides L.	Th	SS, IT
	Malabaila secacul (Miller.)Boiss.	He	IT
	Pimpinella barabata (DC.)Boiss.	He	IT
	Pimpinella eriocarpa Banks & Soland.	He	IT
	Prangos acaulis (DC.)Bornm.	He	IT
	Prangos ferulaceae (L.)Lindl.	He	IT
	Prangos uloptera DC.	He	IT
	Pycnocycla nodiflora Decne.ex Boiss.	Ch	IT
	Scandix stellata Banks & Soland..	Th	IT
	Smyrniopsis aucheri Boiss.	He	IT
	Smyrnium cordifolium Boiss.	He	IT
	Turgenia latifolia (L.) Hoffm.	Th	IT
	Zosimia absinthifolia DC.	He	IT
Asclepiadaceae	*Calotropis procera* (Wild) R.Br.	Ph	SS
	Marsdenia erecta R.Br.ex Dc.	Ch	IT
	Pergularia tomentosa (L.)Pomel.	Ph	SS
	Periploca aphylla Dence.	Ph	SS
Asteraceae	*Achillea eriphora* Dc.	He	IT
	Achillea wilhemsii C.Koch.	He	IT
	Anthemis altissima L.	Th	IT
	Anthemis austro-iranica Rech.f.,Aell.& Esfand.	Th	IT
	*Anthemis microcephala (*Schrenk.) B.Fedtsch.	Th	IT
	Anthemis persica Boiss.	Th	IT
	Anvillea garcini (Burnm)DC.	Ch	IT
	Artemisia sieberi Besser	Ch	IT
	Asteriscus pygmaeus Miller.	Th	IT
	Atractylis cancellata L.	Th	IT
	Calendula persica C.A.Mey.	Th	IT
	Carthamus oxyacantha M.B.	Th	IT
	*Centaurea bruguieriana (*DC.) Hand-Mzt.	He	SS, IT
	Centaurea behen L.	He	IT
	Centaurea depressa M.B.	Th	IT
	Centanrea intricata Boiss.	He	IT
	Centaurea pabotii Wagenitz.	He	IT
	Centaurea persica Boiss.	He	IT

Table 1 (continued)

Family	Species	Life- form	Chorotype
Asteraceae	*Chardinia orientalis* Desf.	Th	IT
	Cnicus benedictus L.	Th	IT
	Cousinia eriophylla (Kult.) Bornm.	He	IT
	Crepis kotschyana (Boiss.)Boiss.	Th	IT
	Crepis sancta (L.)Babcock.	Th	IT
	Crupina crupinastrum (Moris.) Vis.	Th	IT
	Echinops dichorus Boiss. & Hausskn.	He	IT
	Echinops pungens Trautv.	He	IT
	Garhadiolus angulosus Jaub. & Spach.	Th	IT
	Grantia aucheri Boiss.	He	SS
	Gundelia tourneforti L.	He	IT
	Launaea oligocephala Bornm.	He	IT
	Onopordon leptolepis DC.	He	IT
	Outreya carduiformis Jaub. & Spach.	He	IT
	Pentanema divaricatum Cass.	Th	IT
	Phagnalon nitidum Cass.	He	IT
	Picris strigosa M.B.	He	IT
	Platychaete aucheri Boiss.	Ch	IT
	Platychaete glaucescens Boiss.	Ch	IT
	Platychaete mucronifolia Boiss.	Ch	IT
	Reichardia orientalis Roth.	Th	IT
	Scariola orientalis Boiss.	He	IT
	Scorzonera paradoxa Fish. & C.A.Mey.	Gt	IT
	Scorzonera phaeopappa Boiss.	Gt	IT
	Senecio glaucus L.	Th	IT
	Tanacetum dumosum Boiss.	He	IT
	Tragopogon longirostris Bisch.	Gt	IT
	Zoegea purpurea Fresn.	Th	IT
	Zoegea crinita Boiss.	Th	IT
Bignoniaceae	*Tecomella undulata* (Roxb.)Seem.	Ph	SS
Boraginaceae	*Anchusa italica* Retz.	He	IT
	Anchusa strigosa Labilla.	He	IT
	Paracaryum rugulosum Boiss.	He	IT
Brassicaceae	*Alyssum dasycarpum* Steph.ex.Wind.	Th	IT
	Biscutella didyma L.	Th	SS, IT
	Diplotaxis harra (Forssk.)Boiss.	Th	SS, IT
	Erucaria hispanica (L.) Druce	Th	SS, IT
	Matthiola longipetala (Vent.) DC.	Th	IT
Caprifoliaceae	*Lonicera nummulariifolia* Jaub. & Spach	Ph	IT
Capparidaceae	*Capparis cartilaginea* Decne.	Ch	SS
	Capparis mucronifolia Boiss.	Ch	SS
	Capparis spinosa L.	Ch	IT
	Cleome oxypetala Boiss.	He	IT
Caryophyllaceae	*Acanthophyllum bracteatum* Boiss.	Ch	IT
	Acanthophyllum leucostegium Schiman- Czeika.	Ch	IT
	Dianthus crinitus Sm.	He	IT
	Gymnocarpus decander Forssk.	Ch	IT
	Gypsophila virgata Boiss.	He	IT
	Minuartia subtilis Fenzl.	Th	IT
	Silene chlorifolia Sm.	He	IT
	Silene spergulifolia. (WIilld.) M. B.	He	IT
	Stellaria media (L.)Cyr.	Th	IT

Table 1 (continued)

Family	Species	Life- form	Chorotype
Chenopodiaceae	*Anabasis setifera* Moq.	He	IT
	Atriplex halimus L.	Ph	IT
	Atriplex leucoclada (Boiss) Aellen.	Th	IT
	Ceratocarpus arenarius L.	Th	IT
	Cornulaca monocantha Delile.	Ch	SS, IT
	Halocharis sulphurea Moq.	Th	IT
	Halocnemum strobilaceum M.B.	Ch	IT
	Hammada salicornica Moq.	Ph	SS
	Londesia eriantha Fisch. & C.A.Mey.	Th	SS, IT
	Noaea mucronata (Forsk.)Aschers.	Ch	IT
	Salicornia europaea L.	Th	IT
	Salsola orientalis S.G.Gmelin	Ch	IT
	Seidlitzia rosmarinus (Ehrh.) Bge.	Ph	IT
	Suaeda aegyptiaca (Hasselg) Zoh.	Th	IT
	Suaeda fruticosa (L.) Forssk.	Ch	SS
Cistaceae	*Helianthemum lippi* (L.)Pers.	Ch	IT
Convolvulaceae	*Convolvulus acanthocladus* Boiss.	Ch	SS, IT
	Convolvulus buschiricus Bornm.	Ch	SS, IT
	Convolvulus gonocladus Boiss.	Ch	SS, IT
	Convolvulus leiocalycinus Boiss.	Ch	IT
	Cressa cretica L.	Th	IT
Crassulaceae	*Rosularia sempervivum* (M.B.) Berger	He	IT
Cryptogrammaceae	*Onychium melanolepis Kaulfuss*.	He	SS
Cucurbitaceae	*Citrullus colocynthis* (L.)Schrad.	He	SS
Cupressaceae	*Juniperus excelsa* M.B.	Ph	IT
Cyperaceae	*Carex physodes.*	Gr	IT
	Carex stenophylla	Gr	IT
Dipsacaceae	*Pterocephalus lignosus* Freyn. & Bornm.	Ch	IT
	Scabiosa persica Boiss.	Th	IT
	Scabiosa rotata M. B.	Th	IT
Ephedraceae	*Ephedra foliata Boiss.* et Ky.	Ch	IT
	Ephedra intermedia Schrank et C.A.Mey.	Ch	IT
	Ephedra major Host.	Ch	IT
	Ephedra pachyclada Boiss.	Ch	IT
Euphorbiaceae	*Andrachne telephoides* L.	He	SS, IT
	Chrozophra tinctori	Th	IT
Gentianaceae	*Gentiana olivieri* Griseb.	He	IT
Geraniaceae	*Biebersteinia multifida* DC.	He	IT
	Erodium gruinum L.	Th	IT
	Geranium kotschyi Boiss.	Gt	IT
Hypericaceae	*Hypericum hirsutum* L.	He	IT
Iridaceae	*Iris spuria* L.	Gb	IT
Juncaceae	*Juncus inflexus*.L.	Gr	IT
Lamiaceae	*Ajuga chamaecistus* L.	Ch	IT
	Ballota aucheri.Boiss.	He	IT
	Eremostachys laevigata Bunge.	He	IT
	Eremostachys macrophylla Montbr. & Auch.	Gt	IT
	Lallemantia royleana Fisch. et Mey.	Th	SS, IT
	Marrubium cuneatum Russell.	Ch	IT

Table 1 (continued)

Family	Species	Life- form	Chorotype
Lamiaceae	*Mentha mozaffarianii* Jamzad	Gr	IT
	Micromeria persica Boiss.	He	IT
	Nepeta depauperata Benth.	He	IT
	Nepeta kotschyi Boiss.	He	IT
	Otostegia persica (Burnm) Boiss.	Ph	IT
	Otostegia aucheri Boiss.	Ph	IT
	Phlomis aucheri Boiss.	He	IT
	Phlomis olivieri Benth.	He	IT
	Salvia eremophilla Boiss.	He	IT
	Salvia macrosiphon Boiss.	Th	IT
	Salvia mirzayanii Rech.f. & Esfand.	Ch	IT
	Salvia palaestina Benth.	He	IT
	Stachys acerosa Boiss	Ch	IT
	Stachys inflata Benth.	He	IT
	Teucrium orientale L.	He	IT
	Teucrium persicum Boiss.	He	IT
	Teucrium polium L.	He	IT
	Zataria multiflora Boiss	He	IT
	Ziziphora tenuir L.	Th	IT
Liliaceae	*Allium eriophyllum* Boiss.	Gb	IT
	Allium stamineum Boiss.	Gb	IT
	Asphodelus tenuifolius Cav.	Th	SS, IT
	Colchicum montanum L.	Gb	IT
	Dipcadi unicolor Medicus.	Gb	IT
	*Muscari neglectum.*Guss	Gb	IT
	Ornithogalum brachystachys C. Koch..	Gb	IT
	Tulipa montana Lindl.	Gb	IT
	Urginea maritima (L.)Baker.	Gb	IT
Linaceae	*Linum strictum* L.	Th	IT
Loranthaceae	*Loranthus grewinkii* Boiss. & Buhse.	Ph(parasiye)	IT
Malvaceae	*Alcea Aucheri* (Boiss.) Alef.	He	IT
	Malva neglecta Wallr.	He	IT
Mimosaceae	*Leucaena leucocephala* Lam.	Ph	SS
	Prosopis koelziana Burkill.	Ph	SS
	Prosopis farcta Banks & Soland.	Ch	SS, IT
Moraceae	*Ficus johannis* Boiss.	Ph	IT
Myrtaceae	*Myrtus communis* L.	Ph	IT
Nyctaginaceae	*Commicarpus stenocarpus* Standley.	He	SS
Oleaceae	*Olea aucheri* Ehrendf.	Ph	IT
Orobanchaceae	*Orobanche aegypptica* Pres.	Gp	IT
Palmaceae	*Phoenix dactylifera* L.	Ph	SS
Papaveraceae	*Glaucium oxylolobum Boiss*. & Fedde.	Th	IT
	Glaucium grandiflorum. Boiss &Huet	Th	IT
	Papaver lasiothrix Fedde	Th	IT
Papilionaceae	*Alhagi persarum Boiss*. & Buhse.	He	IT
	Astragalus anacardius Bunge.	He	IT
	Astragalus bakhtiaricus Bunge.	He	IT
	Astragalus brachycalyx Fischer.	Ch	IT
	Astragalus camptoceras Bung-Maassoumi	Th	IT
	Astragalus campylanthus Boiss.	Ch	IT
	Astragalus campylorrhynchus Fisch. & .A.Mey	Th	IT

Table 1 (continued)

Family	Species	Life- form	Chorotype
Papilionaceae	*Astragalus coluteopsis* Parsa.	He	IT
	Astragalus commixtus Bunge- Anders.	Th	IT
	Astragalus crenatus Schultes-Anders.	Th	IT
	Astragalus curvirostris Boiss.	He	IT
	Astragalus doshman- ziariensis Maassoumi & Podl.	He	IT
	Astragalus fasciculifolius Bornm. & Gauba.	Ph	SS, IT
	Astragalus fischeri Fischer.	Ch	IT
	Astragalus hamosus L.	Th	IT
	Astragalus ledinghamii Borneby.	He	IT
	Astragalus melanograma Boiss.	He	IT
	Astragalus meridionalis Bunge	He	IT
	Astragalus microphysa Boiss.	He	IT
	Astragalus myriacanhus Boiss.	Ch	IT
	Astragalus podolobus Boiss.	Ch	IT
	Astragalus pseudoibicinus Maassoumi & Podlech.	He	IT
	Astragalus ptychophyllus Boiss.	He	IT
	Astragalus reuterianus Boiss.	He	IT
	Astragalus rhodosemius Boiss.	He	IT
	Astragalus susianus Tietz. & Zarre.	Th	IT
	Astragalus tribuloides Del.Anders.	Ch	IT
	*Cicer oxyoodon.*Boiss. & Hohen	He	IT
	Coronilla scorpioides L.	Th	IT
	Ebenus stellata Boiss.	Ph	IT
	Hippocrepis unisiliquosa L.	Th	SS, IT
	Hymenocarpus circinnatus (L.) Savi	Th	SS
	Lathyrus aphaca.L.	Th	IT
	Lens culinaris Melicus.	Th	IT
	*Medicago coronata (*L.)Bartalini	Th	SS, IT
	Medicago minima (L.)Bartalini.	Th	SS.IT
	Medicago radiata L.	Th	IT
	Medicago rigidula (L.)All.	Th	IT
	Medicago polymorpha L.	Th	SS, IT
	Onobrychis aucheri Boiss.	Th	IT
	Onobrychis crista–galli (L.)Lam.	Th	SS, IT
	Ononis serrata Forssk.	Ph	SS,IT
	Ononis spinosa L.	He	SS,IT
	Sophora mollis (Royale.)Backer.	Ph	IT
	Trigonella astroites Fisch. & C.A.Mey.	Th	IT
	Trigonella elliptica Boiss.	He	IT
	Trigonella monantha Boiss.	Th	IT
	Trigonella persica Boiss.	Th	IT
	Trigonella uncata Boiss. & Nöe.	Th	IT
	Vicia peregrina L.	Th	IT
Plantaginaceae	*Plantago coronupus* L.	Th	SS, IT
	Plantago lagopus L.	Th	SS, IT
	Plantago ovata Forssk.	Th	SS, IT
Plumbaginaceae	*Acantholimon bracteatum* (Girard.)Boiss.	Ch	IT
	Acantholimon scorpius (Jaub. Spach.)Boiss.	Ch	IT
	Acantholimon asphodelinum Mobayen	Ch	IT
	Limonium iranicum Bornm.	He	IT

Table 1 (continued)

Family	Species	Life- form	Chorotype
Plumbaginaceae	*Limonium thouini* (Viv.)O. Kuntze	Th	IT
	Psylliostachys fragilis (Jaub. Et Spach) Nevski.	Th	SS
Poaceae	*Aegilops cylindrica* Host	Th	IT
	Aegilops crassa Boiss	Th	IT
	Aegilops umbellulata Zhuk.	Th	IT
	Aeluropus lagopoides (L.)Trin. ex Thwaites.	Gr	IT
	Aeluropus littoralis (Gouan.)Parl.	Gr	IT
	Aristida caerulescens Desf.	He	IT
	Arrhenatherum kotschyi Boiss.	Gb	IT
	Arundo donax L.	Gr	IT
	Avena fatua L.	Th	IT
	Boissiera squarrosa Hochst. ex Steud.	Th	IT
	Bromus danthoniae Trin.	Th	IT
	Bromus sterilis L.	Th	IT
	Bromus tectorum L.	Th	IT
	Cenchrus pennisetiformis Hochst.	He	SS
	Cenchrus ciliaris L.	He	SS
	Cymbopogon olivieri (Boiss.)Bor.	He	IT
	Enneapogon persicus Boiss.	He	IT
	Heteranthelium piliferum Hochst.	Th	IT
	Hordeum bulbosum L.	Gb	IT
	Hordeum glaucum Steud.	Th	IT
	Hordeum spontaneum C. Koch	Th	IT
	Hyparrhenia hirta (L.) Stapf.	He	SS
	Imperata cylindrica (L.) Beauv.	Gr	SS
	Melica persica Kunth.	He	IT
	Pennisetum orientale L.C.Rich.	He	IT
	Phragmites australis (Cav.) Trin. ex Steud	Gr	IT
	Poa bulbosa L.	Gb	IT
	Polypogon semiverticillatus (Forssk.) Hyl.	Th	SS, IT
	Schismus arabicus Nees.	Th	SS, IT
	Stipa barbata Desf.	He	IT
	Stipa capensis Thunb.	Th	SS
	Stipa hohenacheriana Trin. & Rupr.	He	IT
	Stipa parviflora Desf.	He	IT
	Stipagrostis plumosa (L.)Munro ex. T.Anders	He	IT
	Taeniatherum crinitum (Schreb.) Nevski	Th	IT
	Trachynia distachya (L.)Link.	Th	SS
Polygonaceae	*Polygonum aridum* Boiss. & Hausskn.	Ch	IT
	Polygonum dumosum.Boiss.	Ch	IT
	Pteropyrum olivieri Jaub .& Spach	Ph	IT
	Rheum ribes L.	Gr	IT
	Rumex vesicarius L.	Th	SS,IT
Primulaceae	*Dionysia revoluta* Boiss.	He	IT
Rafflesiaceae	*Pilostyles haussknechtii* Boiss.	Ch(parasite)	IT
Ranunculaceae	*Anemone biflora* DC.	Gt	IT
	Ranunculus arvensis L..	Th	IT
Resedaceae	*Ochradenus baccatus* Delile.	Ph	SS
	Reseda lutea L.	Th	IT
Rhamnaceae	*Rhamnus persica* Boiss. & Hohen.	Ph	IT
	Sugeretia thea Osbeck	Ph	IT

Table 1 (continued)

Family	Species	Life- form	Chorotype
Rhamnaceae	*Ziziphus nummularia (*Burm. F.)Wighth & Arn.	Ph	SS
	Ziziphus spina – christi (L.)Willd.	Ph	SS
Rosaceae	*Amygdalus eburnea* Spach.	Ph	IT
	Amygdalus elaegnifolia Spach.	Ph	IT
	Amygdalus scoparia Spach.	Ph	IT
	Cerasus brachypetale Boiss .	Ph	IT
	Cerasus microcarpa (C.A.Mey.)Boiss.	Ph	IT
	Cotoneaster morulus Pojark.	Ph	IT
	Crataegus azarolus L.	Ph	IT
	Rosa foetida Herrm.	Ph	IT
	Sanguisorba minor Scop.	He	IT
Rubiaceae	*Gaillonia curcianelloides* Jaub .& Spach.	Ch	SS
	Gaillonio eriantha Jaub .& Spach.	Ch	SS
	Galium aparine L.	Th	IT
	Galium setaceum Lam.	Th	IT
Rutaceae	*Haplophyllum canaliculatum* Boiss.	He	SS, IT
Salicaceae	*Salix alba* L.	Ph	IT
	Populus euphratica Olivier	Ph	SS
Scrophulariaceae	*Scrophularia striata* Boiss.	He	IT
	Verbascum farsistanicum (Murb.) Hub.- Mor	He	IT
	Verbascum songaricum Schrenk ex Fisch. & C. A. Mey.	He	IT
Solanaceae	*Hyocyamus orthocarpus* Schonbeck - Temesy	Gr	IT
	Lycium shawii Roemer & Schult	Ph	IT
	Lycium depressum Stocks	Ph	IT
Tamaricaceae	*Tamarix aphylla* (L.)Krasten.	Ph	IT
	Tamarix stricta Boiss.	Ph	IT
Thymelaeaceae	*Daphne mucronata*Royle	Ph	IT
	Daphne oleoides Schreb	Ph	IT
Typhaceae	*Typha australis* Schum . & Thonn.	Gr	IT
Urticaceae	*Forsskaolea tenacissima L.*	He	SS, IT
	Parietaria judaica L.	Gr	IT
	*Parietaria alsinifolia.*Delile	Th	SS, IT
	*Urtica pilulifera.*L.	Th	IT
Verbenaceae	*Vitex pseudo-negundo* (Hausskn.) Hand-Mtz.	Ph	SS, IT
Violaceae	*Viola modesta* Fenz	Th	IT
Zygophyllaceae	*Fagonia acerosa* Boiss.	Ch	SS. IT
	Peganum harmala L.	He	IT
	Zygophyllum atriplicoides Fisch. & C.A.Mey.	Ph	IT

Discussion

Studies of the herbaceous flora, life- forms and chorology of plant species in the Jahrom area are scarce and this study demonstrates the importance of herbaceous plants in this area. *Papilionaceae, Asteraceae* and *Poaceae* were among the richest families in the present study and were represented mainly by herbaceous species (hemicryptophytes, cryptophytes,

therophytes and geophytes). The chorological studies showed that 81.2% of species belong to the Irano-Turanian zone and 8.5% of species belong to the Sahara-seindian zone and 10.3 % of common species belong to the Irano-Turanian, Sahara-seindian zones (Takhtajan 1986; Zohary 1973) (Fig. 2).

The appearance of some genera such as *Acantholimon, Allium, Astragalus, Centaurea, Alhagi, Achillea, Cotoneaster, Dianthus, Echinops, Ferula, Ferulago, Gypsophila, Gundelia, Lycium, Peganum, Phlomis, Pistatia, Prangos, Scrophularia, Silene, Tulipa, Verbascum* and *Zygophyllum*, which are characteristic elements of the Irano-Turanian zone, showed this region belongs to this zone. We observed a low incidence of some genera such as *Citrullus, Cenchrus, Caloropis, Blepharis, Periploca, Pergularia, Onychium, Ochradenus, Helianthemum, Hammada, Gallonia, Psylliostachys, Prosopis* and *Ziziphus*, which are characteristic elements of the Sahara- Seindian zone, showing this region was not affected by this zone. It shows an ecoton in this area.

References

Anon. (2006) The annual reports of meteorological data (1982-2005). Iran Meteorological Organization.Tehran.

Boisser E. (1870) Flora Orientalis. Vol: 1-5

Cain S.A (1950) Life- forms and phytoclimate. Botanical review. 16: 1-32.

Cody M. L (1986) Structural niches in plant communities. In: Diamond, J., Case, T. (Eds), Community Ecology. Harper and Row, San Francisco, pp. 381-405.

Crosswhite, F and C. Crosswhite, 1984. A classification of life forms of the Sonoran desert with emphasis on seed plants and their survival strategies. Desert plants. 5:131-161.

Davis P.H (1975) Flora of Turkey. Edinburg at the University Press England. Vol: 5.

Ghahraman A (1996) General code of the families and genera of the flora of Iran. Research Institute of Forest and Rangeland, Tehran.

Muller- Dombois D.and Ellenberg H. (1974) Aims and Methods of vegetation Ecology. Wiley, New York.

Perry J.T.O.B., Setudehnia A. and Nasr M. (1969) South–West Fars geological compilation map. Scale 1:250000.Iranian oil operation companies. Geological and exploration division. Tehran.

Rechinger K.H (1963) Flora Iranica. Vol. 1-176.

Raunkiaer C (1934) The life forms of plants and statistical plant Geography. Clarendon Press, Oxford.

Takhtajan A (1986) Floristic region of the world. University of California Press, Ltd.

Townsend C.C (1966) Flora of Iraq. Vol: 1-9.

Zohary M (1973) Flora Palaestina, Jerusalem, Vol: 1-4.