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Life Forms of Plant Species and Floristic Regions in Iran

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Preface

The present book provides the importance and effectiveness of studies of plant life forms. The relationships between plant life form and the attributes such as *K* and *r*- selection, plant defenses, species interactions, plant productivity as well as succession, grazing and fire are discussed with examples. In addition, this book describes the importance of various climatic, edaphic and topographic variables influencing the distribution of different plant life forms. The life zones, floristic regions and life forms of 3064 of the most abundant plant species in Iran are presented.

Mohammad Mousaei Sanjerehei

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1. Plant Life Forms

Life form

Life form of a plant indicates adaptation of the plant to the environment. In fact, environment is the primary driver of life form evolution. For example, a deciduous tree is a plant life form that responses to an unfavorable season by shedding its leaves, or a geophyte is a plant that survives in a form of underground root or stem in response to unfavorable environment.

Plant life form can also be defined as the structural form of a plant under the condition of its habitat indicating function of the plant in the habitat and its response to climate, soil, topography, disturbances such as grazing and fire as well as interactions between plants (Arnold, 1955). In fact, life form is a result of long term morphological adjustments to the environment that have an evolutionary basis and have become fixed in the heredity of the kind (Cain, 1950).

Sometimes, a species may belong to one life form type in one region and to another type in a region with different climatic conditions. *Ricinus communis*, for example is a perennial in tropical and subtropical climates and an annual in temperate climates.

A species may have more than one life form according to its age. All phanerophytes (e.g., trees) show gradual change of life form as they grow in size (Morey 1936).

Plant species that are phylogenetically close, may have different life forms. For example *Calendula officinalis* and *Artemisia sieberi* are from the same family, but the former is a small herbaceous plant and the latter is a woody shrub. Conversely, species of unrelated families such as *Acantholimon scorpius* and *Acanthophyllum squarrosum* may share a similar life form through convergent evolution. Similar stem-succulents evolved in the families of Cactaceae and Euphorbiaceae are good examples of this case (Cain, 1950). Thus, life forms are not entirely the results of climatic conditions alone, but are dependent on the flora available and on its history (Adamson, 1939).

Although there is a significant correlation between life form and climate, no climatic zone or large scale environmental type is characterized by a single life form. Thus, large climatic regions and principal associated soils contain plant communities composed of several life forms.

Ecological dominance is largely determined by the combinations of life form characteristics. Trees and shrubs exert dominance over all other species in forest communities due to their superiority in life span and structure. Grasses dominate in meadows and bunchgrass openings and are therefore superior life forms in these ecosystems. However, disturbances such as overgrazing, fire and heavy logging can reduce the dominance of superior life forms over inferior life forms (Arnold, 1955). Terrestrial biomes including tropical forests, temperate forests, grasslands, deserts, taiga (coniferous forests) and tundra are differentiated on the basis of dominant plant life forms.

Several studies have shown a strong correlation between life forms and various life history traits such as reproductive rate, length of life and body size. For example therophytes (annuals) have a higher reproductive rate and a smaller body size than phanerophytes (e.g., trees). In forests, trees have significantly higher seed, fruit and flower weight and ratio of fruit to flower mass than other life forms (Ramirez, 1993).

Since a plant's life form represents fundamental adaptation to the environment, community life form composition has a greater potential value than community species composition for use as an indicator of microenvironmental conditions (Cooper, 1961). The variations in community life form composition can be quantified by estimating vegetative attributes such as cover, density, biomass and frequency.

Changes in life forms may alter the structure of food web in an ecosystem. Loss of red-flowered herbs for example, can probably result in loss of hummingbirds, which in turn may lead to the loss of snakes that feed on hummingbirds (Ewel and Bigelow, 1996).

Life form of a plant can determine the ability of the plant to capture resources (Golluscio et al., 2005). Plants of the same life form have approximately similar structure and similar manner for utilization of environmental resources.

Growth form is another characteristic of vegetation which is sometimes used as a synonym for life form. However, there is a distinction between life form which is determined by the general physiognomy and growth form which can be regarded as a subdivision based on the architecture of the shoots (Du Rietz, 1931).

A simple classification of plant life forms that has been extensively used is trees, shrubs, grasses, forbs and annuals. A variety of criteria have been used by researchers for classification of plant life forms. These include physiognomy (Von Humboldt, 1807; Grisebach, 1884), height of the lignified stem and plant longevity (de Candolle 1818), power of vegetative propagation, duration of tillers, hypogeous or epigeous type of shoot, mode of wintering, degree and mode of branching of rhizomes, evergreen and deciduous habit, heterotrophic and autotrophic types (Warming, 1884, 1895, 1909), position of perennial buds

during unfavorable season (Raunkiaer, 1904, 1905,1934), form, size, duration and structure of leaves (Raunkiaer, 1916), morphology (Kerner von Marilaun, 1863; Mueller-Dombois and Ellenberg, 1974), biological-functional types (Drude, 1890) and physiological-adaptational traits (Schimper, 1898).
These life form criteria have been used individually or combined into more diverse and complex schemes for classification of life forms. There is no universal agreement on one system of life form classification and each system has its own advantages and disadvantages.

Raunkiaer's classification system of life forms
Among all life form classification schemes, Raunkiaer's system of life form classification has received much attention and applied to any variety of vegetation types. In addition, it can serve as an ecological classification of plant communities (Mueller-Dombois and Ellenberg, 1974). Raunkiaer's system is based on the adaptation of plants to survive unfavorable season. Raunkiaer characterized life form types based on the kind and the degree of protection afforded to the perennating buds and shoot-apices, and classified life forms based on the location of perennating buds during unfavorable season. Unfavorable season may be due to drought, cold or both, and they may be short or long. The life form types presented by Raunkiaer include phanerophytes, chamaephytes, hemicryptophytes, cryptophytes and therophytes which are arranged from least to most protection of buds.

Phanerophytes
The surviving buds or shoot-apices in these plants are located more than 25 cm above soil surface and borne on the shoots which project into the air (Fig. 1). Phanerophytes are mainly woody perennials such as trees and large shrubs and are subdivided based on plant height:
Megaphanerophytes; with over 30 meters tall,
Mesophanerophytes; between 8-30 m tall,
Microphanerophytes; with 2-8 m tall,
Nanophanerophytes; under 2 m and over 25 cm tall.

In addition to height-based classification, Raunkiaer presented life form subclasses based on bud covering and evergreen or deciduous attributes as;
Evergreen megaphanerophytes with bud covering,
Evergreen megaphanerophytes without bud covering,
Evergreen mesophanerophytes with bud covering,
Evergreen mesophanerophytes without bud covering,
Evergreen microphanerophytes with bud covering,
Evergreen microphanerophytes without bud covering,

Evergreen nanophanerophytes with bud covering,
Evergreen nanophanerophytes without bud covering,
Deciduous megaphanerophytes with bud covering,
Deciduous mesophanerophytes with bud covering,
Deciduous microphanerophytes with bud covering,
Deciduous nanophanerophytes with bud covering

Phanerophytes exhibit the least amount of protection from the unfavorable conditions. These plants decrease in dominance with increasing climatic severity (e.g., extremes of temperature). Some species such as *Quercus stellata* show a mesophanerophytic life form under favorable conditions and nano-or microphanerophytic life form under less favorable environment (e.g., drier climate). The tallest trees occur in the most favorable climates in the warm and humid tropical rainforests, temperate deciduous and coniferous forests, and for any of these life forms, the plant stature is reduced when soil is less favorable and climate is worse (Cain, 1950).

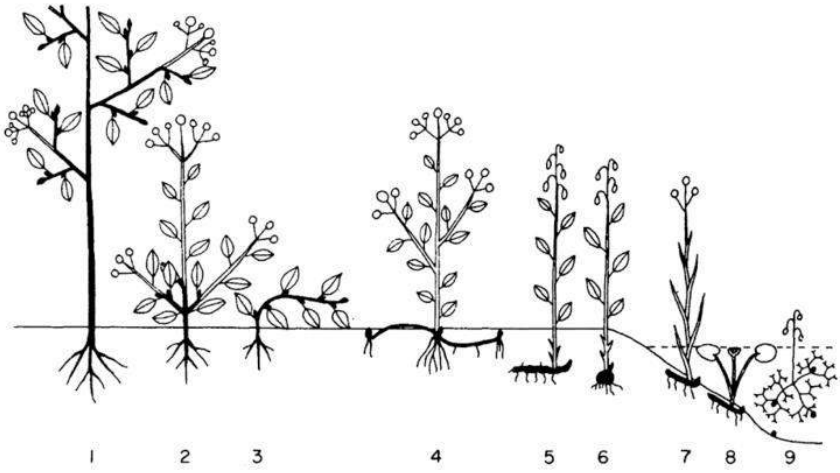

Figure 1- Diagram of the types of life-forms: Phanerophytes (1), Chamaephytes (2-3), Hemicryptophytes (4), and Cryptophytes (5-9). The parts of the plant which die in the unfavorable season are unshaded. The persistent axes with the surviving buds are black. *Proceeding from Phanerophytes* (left) to cryptophytes (right), the plants enjoy progressively better protection during the *unfavorable* season, and the surviving buds being located lower and lower. In Chamaephytes the buds are on the surface of the ground (2 and 3), in Hemicryptophytes they are in the soil-surface (4), and in Cryptophytes (5 and 6) the buds are actually in the soil, or at the bottom of the water in Helophytes (7) and Hydrophytes (8-9). From Raunkiaer (1934), *The life forms of plants and statistical plant geography*.

Chamaephytes

Chamaephytes are the plants having their perennating buds or shoot-apices on the soil surface or above it not exceeding 25 cm (Fig. 1). Chamaephytes include woody plants and are often protected in the unfavorable season by fallen leaves and snow or by the dense growth of the plant itself and thus buds are better protected than in phanerophytes (Cain, 1950).

Chamaephytes are subdivided into four groups as;

a) Suffruticose chamaephytes; the aerial shoots are erect. At the beginning of the unfavorable season, they die back to the portion, of varying length, that bears the surviving buds. In fact they are the plants in which the perennating buds remain on the soil surface after the herbaceous parts have died away on the approach of the critical season, like many Mediterranean species of Labiateae and Papilionaceae (Smith, 1913).

b) Passive chamaephytes; the shoots are negatively geotropic but they are not furnished with sufficient strengthening tissue to keep them erect. Thus they are the plants with weak stems which often lie on the ground.

c) Active chamaephytes: the shoots are persistent and transversely geotropic in light.

d) Cushion plants.

Raunkiaer noted that there is a positive correlation of the percentage of plants in this class with increasingly latitude and altitude. There is sometimes difficult to draw a sharp line to distinguish between phanerophytes, chamaephytes and hemicryptophytes.

Hemicryptophytes

In this life form class, the surviving buds or shoot-apices are located in the soil surface and are therefore more protected than the chamaephytes (Fig. 1). Hemicryptophytes are numerous in humid temperate regions and often constitute a high percentage of the total species of an area particularly in deciduous forests and grasslands (Cain, 1950). Raunkiaer recognized three main subdivisions for hemicryptophytes as follows;

a) Protohemicryptophytes or non-rosette: the plants are without leaf rosettes,

b) Partial rosette: these plants have both basal leaf rosette and leafy stem,

c) Rosette plants; they have all or nearly all of their leaves in a basal rosette and, the elongated aerial shoot bears only flowers.

Cryptophytes

Buds or shoot-apices of these plants are buried in the soil, in water or in the soil under the water at a distance from the surface. They are much more protected than the plants whose perennating buds are on the soil surface or elevated into

the air (Cain, 1950). Three main subdivisions of this life form were presented by Raunkiaer;

a) Geophytes; These plants have tuberous subterranean organs including rhizomes, bulbs and tubers which enable them to make a quick vegetative development with the return of favorable season. These include; rhizome geophytes, bulb geophytes, stem tuber geophytes and root tuber geophytes (Fig. 1).

Geophytes are common in the Mediterranean type of climate, in some steppes and in the vernal flora under deciduous temperate forests where they expand rapidly before the full leaf canopy is displayed (Cain, 1950).

b) Helophytes; or marsh plants are mostly emergent plants. Their perennating buds are rooted in the soil beneath the water (Fig. 1).

c) Hydrophytes; these are the plants which include free floating forms and those which may be rooted but not emergent during the unfavorable season (Fig. 1).

Therophytes

Therophytes or annuals are the plants that survive the unfavorable seasons in the form of seeds. Annuals are abundant in deserts and in weed communities and where native vegetation is disturbed (Cain, 1950).

Phytoclimates

Raunkiaer presented four major phytoclimates based on the relationship between climate and the life forms;

a) phanerophytic climate of the warm humid tropics,

b) hemicryptophytic climate of the midlatitudes, including both the coniferous and deciduous forests as well as the moister steppes (temperate zones),

c) therophytic climate of tropical and subtropical deserts (arid and warm deserts) and

d) chameophytic climate of high latitudes and altitudes (cold zones).

It should be noted that more than one life form may occur in an area with a climate type and that no single life form is limited to a climate type. Local conditions such as microclimate, edaphic conditions, plant interactions as well as disturbances such as fire and grazing may result in an appearance of a variety of life forms in a given climate. However, the dominant life form may be a good indicator of the prevailing climate type.

2. Importance of Life Forms

Importance of studies of life forms

Plant life form is closely related to a variety of vegetation attributes and ecological processes such as structure of community, succession, ecosystem services and functions, intensity of grazing, fire extent and frequency, plant interactions, life history features, fauna of herbivores and carnivores, plant species richness and adaptation of plants. The study of plant life form is important for;

- Determination of the environmental and anthropogenic variables shaping and altering the structure of plant communities,
- Comparison of vegetation among different habitats and quantifying the ecological similarity of different communities,
- Evaluating succession through shifts in plant life forms (i.e., from grass to shrub),
- Understanding the changes in ecosystem services and functions as a result of changes in life form types,
- Detecting changes in fauna of herbivores, carnivores and microorganisms according to the changes in plant life forms,
- Investigation of forage quality and quantity for livestock,
- Assessing and predicting fire frequency and extent,
- Analysis of community resilience following environmental disturbances,
- Detection and interpretation of the type and significance of interactions between plant species,
- Ecologically interpreting vegetation,
- Making an effective and efficient measure of vegetation for remote sensing studies,
- Predicting the survival of plants under fire and grazing,
- Studying soil organic matter, carbon dynamics and storage as well as patterns of other nutrient concentrations,
- Assessing and comparing life history features such as population size, ability to disperse, reproductive strategy, length of life and reproductive age among different plant species,

- Evaluating vertical patterns of ecosystem processes due to differences in root distribution pattern and aboveground plant structure among different life forms,
- Determining the compositional response of vegetation communities to climate changes and disturbances and, planning for effective management practices which will help to maintain a high level of plant productivity and richness in different terrestrial ecosystems.

Ecosystem services by plants of different life forms

Plants provide a variety of ecological services and functions which are environmentally, economically and socially beneficial and necessary for human (Costanza et al., 1997). Plant life forms differ in the amount and the extent of services and functions they provide. For example, importance and role of trees in climate regulation and soil formation is much more than that of herbaceous plants, whereas herbaceous plants are more important than trees in biological control and livestock grazing. Plants of similar life forms provide approximately equivalent functions. Therefore, in a community with frequent and diverse plant species of similar life forms, the loss of a species or substitution of one species for another is likely to have small consequences for ecosystem services and functions. But shifts and changes in life forms can strikingly alter ecosystem functions due to the different structure and architecture among different life forms (Ewel and Bigelow 1996). The services and functions which are provided by plants and are largely different among plants of different life forms include but not limited to:

- Regulation of atmospheric gasses: O_2/CO_2 balance, O_3 for UVB protection,
- Climate regulation: regulation of temperature, precipitation and greenhouse gasses as well as vegetation cooling,
- Disturbance regulation: storm protection, flood control, drought recover,
- Water regulation: regulation of water cycle through transpiration, water absorption and infiltration by plants,
- Erosion control: prevention of soil loss by wind and water,
- Soil formation: role of decomposed litters in chemical weathering of stones and role of plant roots in physical weathering of stones,
- Nutrient cycling: role of nitrogen-fixing legumes and decomposition of plant organic materials,
- Waste treatment and pollution control: role of vegetation in removal or breakdown of xenic nutrients and compounds,
- Refugia: provision of habitat for animals,
- Food production: production of crops, nuts, fruits, etc,

- Raw materials: production of lumber, fuel and fodder,
- Forage production for livestock,
- Pharmaceutical uses: medicinal plants and medicinal compounds extracted from plants,
- Recreation: providing opportunities for recreational activities (such as forests),
- Biological control: role of companion plants in repelling and deterring pests. For example, asparagus can deter the root-knot nematode of tomato, and tomato can repel asparagus beetle, when they are planted together.

Influence of climate on plant life forms

Climatic variables such as temperature and precipitation have been long recognized as the most important drivers of life form types. In fact, the relation of physiognomy to climate has often been made the basis of the classification of life forms by many scientists (Raunkiaer, 1934; Adamson, 1939). In deserts with low precipitation and high temperature, life forms such as annuals, succulents (e.g., cacti species) and desert shrubs (e.g., Haloxylon) are adapted. Grasses are dominated in the prairie (temperate grasslands) and Savanna (tropical grasslands).Tallest trees with large, oval and waxy leaves prevail in tropical regions with annual precipitation of more than 2400 mm and annual mean temperature of more than 17° C. Epiphytes are also abundant plants in tropical climates. Temperate climates with annual precipitation of 750- 2000 mm are characterized by deciduous trees with abundant hemicryptophytes and geophytes (Cain, 1950, Stiling, 1996). In these regions, many herbaceous plants flower in spring before the expansion of tree canopies.

In Taiga (coniferous forests) with long and cold winters, most of trees are evergreens or conifers with needle-leaves such as pines and spruces. There are also some small-leaved deciduous trees like birch and alder, mostly in some parts of Taiga escaping the most extreme winter cold.

In Tundra, with an annual precipitation of less than 250 mm, often as snow, summer temperature of 5° C and winter temperature of -32° C, most plants occur in the form of lichens, mosses and grasses (Stiling, 1996).

Woody cushion is a characteristic of damp and cold climate with a short growing season (Adamson 1939). Shrubby species such as Sagebrush (*Artemisia sieberi* and *Artemisi aucheri*) and milk vetch (Astragalus sp.) are important indicators of arid and semiarid climates of Iran covering a large area of this country.

Based on the physiognomic types of Holdridge, trees dominate mainly in the areas with a precipitation of more than 500 mm. Grasses prevail where

precipitation is around 250-500 mm, and scrubs prevail in the regions with precipitation of less than 250 mm.

Although there is a significant correlation between climate and plant life forms, there is no climate zone characterized by a single life form. This is because microclimate conditions, soil attributes, plant interactions and topographic variables (e.g., slope, aspect and elevation) may result in the appearance of a verity of life forms in a plant community. However the occurrence of dominant life form in an area is likely to be highly dependent on the macroclimate of the area.

Plants of the same species (e.g., *Tribulus terrestris*) may have different life forms in accordance with different climatic conditions. The ability of a species to grow in different life forms enables the existence of the species under extreme climatic conditions. For example mat-like, stem shrub, prostrate, multistemmed and single stemmed ecomorphs have been distinguished in the Larch (*Larix sibirica* Ledeb.) along an altitudinal gradient in the polar Urals. Development of vertical stems in prostrate and stem-shrub ecomorphs of Siberian larch occurs mainly in favorable climatic periods (Mazepa and Devi, 2007).

Plants of different life forms respond differently to climatic changes. For example, evergreen dwarf-shrubs and cushion plants in Tundra communities generally respond very little to higher temperature. Deciduous dwarf-shrubs, graminoides and herbs, in contrast tend to increase their growth rate and standing crop and respond more quickly to environmental cues (Michelsen et al., 1996; Molau, 1997).

Relationships between soil and plant life forms

Soil chemical properties such as salinity, pH and nutrient content and soil physical properties like texture, structure, density, porosity and water content can significantly affect on life form type and vegetation structure. In the semiarid valley of Zapotitlan Mexico, nitrogen proved to be significant for columnar cacti, succulents and chamaephytes. pH, EC and nitrogen were significant for globose cacti, and pH was the important driver of therophytes distribution (Pavon et al., 2000).

In a shortgrass steppe community in northeastern Colorado, diversity of life forms has been found to be a function of the spatial partitioning of soil water resources and their differential use by trees, shrubs and grasses (Dodd et al., 1998). Two different life forms (e.g., shrubs and grasses) may occur in one habitat where their different root distributions coincide with the vertical separation of soil water resources (Walter, 1979).

In Sahelian, Burkina Faso, chamaephytes have shown a more pronounced preference of dunes over pediplain than other life forms, whereas diversity of

geophytes has been found to be higher near water courses (Schmidt et al., 2008).

Seeds of different plant life forms have different germinability, germination time and speed of germination in relation to different values of soil water potential and temperature. Shrubs for example, were shown to have higher germinability than columnar succulents and shorter germination time than arborescent semi-succulents in a Mexican inter-tropical desert. In general, different plant life forms utilize different germination strategies to persist (Flores and Briones, 2001).

Shifts in plant life forms can alter chemical and physical characteristics of the underlying soil. Plant life forms differ in belowground structure such as root depth and distribution and aboveground structure such as canopy cover, height and leaf shape and therefore in their influences on soil properties and soil-related processes such as runoff and erosion. Different aboveground plant structures among life forms have different influences on ecosystem processes through airflow, albedo, water percolation and infiltration patterns (Reynolds et al., 1997). Shrubs have been shown to increase sustainability of soil surface more than other types of life forms (grasses, forbs) in semisteppe rangelands of Golestan Park, Iran (Ghodsi et al., 2012). This is due to the coarse roots and deeper root distribution of shrubs in compared to grasses and forbs. In the humid rangelands of Savadkooh, Iran, the most and the least volume of runoff occurred respectively in forb and grass communities, and sediment concentration was found to be more under shrubs than under grasses (Najafian et al., 2010). Soil carbon content, organic matter and chemistry as well as distribution and accumulation of nutrients may change following changes and shifts in dominant plant life form, because plant life forms differ in litter chemistry and patterns of detrital input (Gill and Burke, 1999). Studies have shown that soil carbon, nitrogen and micronutrient concentrations are generally higher under Savanna trees and shrubs than in the bare or grass-dominated interspaces. This is because shrub litter is generally higher in nutrient content and concentration than grass litter (Connin et al., 1997; Kieft et al., 1998; Burke et al., 1998).

Different abiotic conditions such as decomposition, nutrient availability and evaporation rate between under shrub canopy and grass canopy may lead to the occurrence of different fauna under canopy of the two life forms (Gill and Burke, 1999).

Influence of elevation on plant life forms

Elevation is an important topographic variable that significantly influences the climatic conditions such as temperature (e.g., decrease of temperature

by 6°C for every 1000 m increase in elevation). Elevation has been shown to have a significant effect on plant life forms.

In summer rangelands of Ramsar, Iran, life form types were found to depend on the elevation (Askarizedeh and Heshmati, 2013). Annual grasses and perennial forbs were inversely associated with elevation, whereas annual forbs, perennial grasses, shrubs and trees were positively correlated with elevation.

Along a gradient of altitude in the humid rangelands of western Iran, therophytes (annuals) were found to have a higher richness at lower elevations and decrease with increasing elevation. Geophytes, hemicryptopohytes and phanerophytes showed a positive response to elevation and increased with increasing elevation (Hatami et al., 2011).

In the semiarid valley of Zapotitlan Mexico, Rosette plants, microphanerophytes, nanophanerophytes and therophytes were well represented throughout the altitudinal gradient.

Columnar and globose cacti were more abundant at elevations between 1600 and 2000m. Geophytes distributed at 1700 -1800 m range. The life form abundance was found to be inversely correlated with elevation, and only chamaephytes and nanophanerophytes were abundant at 2200 m (Pavon et al., 2000).

In the rupestrian grasslands in south-eastern Brazil, frequency and richness of phanerophytes and chamaephytes were found to decrease with increasing elevation, while hemicryptophytes and therophytes were found to dominate at high elevations (Mota et al., 2018). Korner et al. (1986) evaluated the effects of altitudinal variation on structure and function of different plant life forms in Southern Alps of New Zealand. They concluded that with an increase in elevation, maximum leaf diffusive conductance, leaf nitrogen content and stomatal density increased whereas stomatal area and specific area of leaves decreased in trees (*Nothofagus menziesii*), ericaceous dwarf shrubs and herbaceous plants of the genus *Ranunculus*. In general, the structural and functional changes in the leaves of herbaceous plants along the altitudinal gradient were more than those of shrubs and trees.

K and *r*- selected life forms

K and *r*- strategies are the concepts that bring together several life history features such as reproductive strategy, population size, ability to disperse, length of life and reproductive age (Stiling, 1996). The plants living in environments imposing high density-independent mortality (*r*-selected plants) will be selectively favored to allocate a greater proportion of resources to reproductive activities and conversely, plants living in environments imposing high density-dependent regulation (*K*- selected plants) will be selectively

favored to allocate a greater fraction of resources to non-reproductive activities (Gadgil and Solbrig, 1972).

The concepts of *K* and *r*- selection are not absolute, but are meaningful only by comparison. For example, herbaceous plants tend to be *r*-strategists more than shrubs and trees. The *r*-selected plants such as therophytes (annuals) and weeds produce a large amount of seeds and therefore have high population growth rate. They spread quickly throughout a habitat, mature early, set seed and then disappear. The *r*-selected plants are more frequent in disturbed habitats, because plants from more disturbed habitats devote on the average, a greater proportion of their aboveground production to reproductive tissue than plants from less disturbed habitats (Gadgil and Solbrig, 1972).

K-selected plants such as phanerophytes (e.g., trees) reach to maturity late and tend to increase more slowly to the carrying capacity of the environment. These plants devote much energy to growth and maintenance and have relatively low values of population growth (Stiling, 1996). In general, *r*-selected plants have a higher reproductive rate, earlier sexual maturity, shorter life span, smaller size, higher mortality of young and stronger dispersal ability than *K* - selected plants. Therefore, the concepts of *K* and *r*-strategies appear to be more efficient when applied for life forms rather than for plant species.

Defenses and apparency of plants of different life forms

Plants use various chemical and physical defenses against herbivores. Plant chemical defenses are divided into quantitative and qualitative varieties. Quantitative defenses of plants are the compounds such as tannins that are largely digested by the herbivore and prevent further digestion of food. These compounds often constitute more than 1 percent of the fresh weight of leaves. Qualitative defenses are essentially the substances that can have a poisonous effect on herbivores (especially insects and invertebrates) even when they consume very small amount of the substances. These substances such as atropine are present in leaves of plants at low concentrations, around less than 1 percent of the fresh weight of leaves. Most qualitative defenses are rich in nitrogen and therefore are more common in nutrient- rich environments (Stiling, 1996).

In general, the nature and extent of investment in defense against herbivores has evolved in response to the apparency of the plant (Feeny, 1976; Rhoades and Cates, 1976). Thus, quantitative and qualitative chemical defenses of plants are correlated to the life form and apparency of the plants. Apparent plants such as trees have large size and are named because they are always apparent to herbivores (mainly insects) and easily found by them. The defensive chemical compounds of apparent plants are thought to be mainly quantitative. Unapparent plants (such as annuals) are small and ephemeral plants that are often

unavailable to herbivores for long periods. The defenses of unapparent plants are assumed to be largely qualitative (Stiling, 1996). Thus, nearly all phanerophytes (such as trees and large shrubs) contain digestibility reducing substances, whereas therophytes (annuals) and weeds contain toxins. In addition to plant apparency, "carbon/nutrient balance" is an important factor influencing the patterns of herbivory. According to the carbon/nutrient balance hypothesis, plants will accumulate carbon-based defenses in low-nutrient environments, whereas in low carbon environments (such as limited light conditions), plants are more likely to invest in nitrogen-based defenses (Bryant et al., 1983; Van de Waal et al., 2009). Both apparency and carbon/nutrient balance are related to plant life forms (Maclean and Jensen, 1985). In a study in Alaska arctic tundra, larvae of four generalist-feeding Lepidoptera selected for deciduous shrubs and against evergreen shrubs and graminoids, which is consistent with the carbon/nutrient hypothesis of plant defense. Deciduous shrubs growing on nutrient rich habitats had rapid growth, high leaf turnover and little investment in defense, whereas evergreen shrubs growing on nutrient poor sites had slower growth and leaf turnover and higher investment in defense (Maclean and Jensen, 1985).

Interactions between plant life form and livestock grazing

Influence of grazing on plant life forms mainly depends on the type of life form and the type of herbivore. In addition, life form of a plant can largely influence the pattern and intensity of grazing, because plants with different life forms differ in the quality of forage (eg., crude protein, acid-detergent fiber, digestibility of dry matter, metabolism energy) (Arzani et al., 2010).

Studies in rangelands of Arak and Bojnourd, Iran with cold semiarid climates have shown that annual grasses and forbs were more preferred by sheep than other types of life forms such as perennial grasses and shrubs (Heydarian et al., 2010; Zare et al., 2012). Thus, overgrazing by sheep may result in an increase of shrubs and a decrease of forbs (Heydarian et al., 2010). In rangelands of Golestan and Kordestan, Iran with humid climate, grazing prevention has been shown to lead to an increase in the cover, production and density of hemicryptophytes, forbs and grasses (Imani et al., 2010; Salarian et al., 2013).

Some studies have shown that livestock grazing can largely prevent recruitment of trees and shrubs and thus, transform woodlands into grasslands (Gibson and Kirkpatrick, 1989; Cheal, 1993). Pettit et al. (1995) reported that grazing by domestic livestock in woodlands of Australia significantly reduced the native shrubs and perennial herbs, but increased the number of exotic annual grasses and herbs. Cain (1950) pointed out that overgrazing which is so prevalent in

grasslands tends to increase the percentage of annuals through the introduction and spread of weedy grasses and forbs of this life form.

Type of grazing animal seems to depend more on plant life form rather than plant species. In general, sheep prefer grasses and forbs over shrubs and therefore is known as a "grass and forb feeder", whereas goats are shrub-feeder and prefer to feed more on shrubs in contrast to sheep (Schulz, 1994; Khan et al., 1999; Fayaz et al., 2015). Camels mainly graze on trees and shrubs and are known as browsers (Schwartz et al., 1983). The study of the diet of camel in rangelands of Semnan, Iran showed that this animal prefers chamaephytes such as *Alhagi psedoalhagi* and *Halocnemum strobilaceum* and the phanerophytes such as *Tamarix leptopetala* rather than other life forms (Fayaz et al., 2015). Cattle mainly prefer grasses especially tall ones (Van Rees and Hutson, 1983; Dougherty et al., 1989; Gallina, 1993). Arnold (1955) stated that overgrazing by cattle reduced tall grasses in meadows and mid grasses in pine bunchgrass openings and resulted in the replacement of tall and mid-grasses by short grasses, perennial prostrate forbs, short-lived half shrubs and annuals.

Resistance of plants to animal grazing varies according to the life form of plants. Annuals are more tolerant to grazing due to their fast growth rates and early seeding than perennial life forms which show a slow growing and need several years to reach reproductive maturity (Grime, 1974). Impact of grazing on woody plants is likely to be much less than that on grasses and shrubs, because large and long lived trees have a greater energy resources in their roots and can draw on large reserves of resources to buffer the impact of herbivory (Bigger and Marvier, 1998; Stiling, 1996). Geophytes can withstand grazing pressure by having above ground growth occurring in winter and spring, and dying back to an underground storage organ such as rhizomes and bulbs through summer when overgrazing usually occurs (Pate and Dixon, 1981; Pettit et al., 1995). Plants such as geophytes with the ability to resprout from an underground storage organ after grazing are more likely to be resistant of continuous grazing than the plants which are killed by grazing (e.g., therophytes) and rely on seed for regeneration. Plants with the ability of both resprouting after grazing and reproducing from seed are not significantly affected by grazing (Bell et al., 1984; Pettit et al., 1995).

Response of plant life forms to fire

Fire extent and frequency are important drivers of changes and shifts in plant life form types and vegetation attributes such as density, cover and frequency. Studies of fire-vegetation relationships in rangelands and forests of Iran with a wide range of climate from arid to humid have shown that fire can significantly change the production, density and cover of forbs, grasses and shrubs and lead to the decrease of perennial grasses and increase of annual grasses

(Siahmansour et al., 2015; Goudarzi et al., 2015; Rafiee et al., 2015; Karmi et al., 2017).

Frequent fires can reduce the abundance of shrub life forms and favor herbaceous life forms. Long-lived woody species have longer juvenile periods than short-lived herbaceous species. Thus, frequent and successive fires can prevent the long-lived woody plants to mature and set seed resulting in the reduction of the abundance of these species and increase of the abundance of life forms with short juvenile periods such as herbaceous plants (Morrison et al., 1995; Burrows and Wardell-Johnson, 2003; Pekin et al., 2012). Great fire frequency can also increase species richness through decreasing the dominant life forms in forest ecosystems where dominant woody life forms competitively suppress short-lived understory plant vegetation (Specht and Morgan, 1981; Peterson and Reich, 2008).

Life forms differ in their resistance to fires, and therefore can be used as efficient measures of predicting the survival of plants under fire. For example, fire will tend to damage the species with exposed perennating buds, whereas the plants with fully protected buds should be least affected. Chapman and Crow (1981) evaluated the response of different life forms to prescribed fire and showed that chamaephytes were most severely affected by fire. Hemicryptophytes varied in their response to fire depending on how well buds were protected and, geophytes best survived the prescribed burn.

Bell et al. (1984) recognized three types of reproductive response after fire; resprouters, obligate seeders and facultative seeder/sprouters. Resprouters are the plants which are able to resprout from an underground storage organ following fire and as a result are more tolerant of fire than obligate seeders. Obligate seeders are the plants which are killed by fire and rely on seed for regeneration. Facultative seeders/sprouters are the least affected plants by fire because they are able both to resprout after fire and to reproduce from seed.

One of the distinct biomes on the earth is chaparral, a Mediterranean scrub habitat adapted to fire. In such ecosystem, precipitation may be sufficient to support tall trees, but frequent fires prevent the trees from surviving long enough to grow tall (Stiling, 1996).

Shifts in life forms through succession

Succession is the process of changes in species structure and life form in a community over time. The study of life form is very important in plant succession because development of a community through succession may proceed by rearrangement of the proportions of some life form types or by preponderance of one or more species in a life form type becoming increasingly abundant (Adamson, 1931).

The actual process of succession include; appearance and substitution of a verity of life forms, changes in the environment and differences in attributes of a variety of species such as establishment, growth rate, dispersal, competition, facilitation, mortality and resistance over time (Monk, 1983). The sequence of species appearance as dominants seems in part related to their rate of growth to maturity; annuals, herbaceous perennials and woody perennials. Larger and longer-lived life forms tend to replace the smaller and shorter-lived ones. For example, the stages of primary succession in a forest include pioneer plants (e.g., lichens and mosses), herbaceous plants, scrubs, shrubs and trees.

With changes of life form dominance from annuals to perennials, certain species within each group may become the dominants. This may be in part because the dominant species produce allelopathic substances (Monk, 1983).

Successional life form changes on coastal Lake Michigan sand dunes are a good example of primary succession. The geophyte, *Ammophila breviligulata* dominates the dune ridges and gradually replaced by the hemicryptophyte, *Schizachyrium scoparium*, the chamaephyte, *Arctostaphylos uva-ursi*, and the phanerophyte, *Juniperus communis* within 100 years. A mixed forest dominated by *Pinus strobus* and *Pinus resinosa* develops between 225 and 400 years and other phanerophytes such as *Quercus rubra* become important component of the forest canopy after 440 years (Lichter, 2000).

Relationship between plant life form and plant interactions

Not only the life form of plants significantly influences on the type of association between the plants, but also the life form of plants can be strongly affected by the type of association between plants (Pate et al. 1984; Holzapfel et al., 2006; Mousaei Sanjerehei et al., 2011; Castanho et al., 2012).

Species interactions are of central importance in the ecology of a species. Two species have some mutual attraction, repulsion, or no interaction in a community. Therefore the association may be positive, negative or absent. Two species are spatially positively associated if any individual of one of the species is found near members of the other species more frequently than random expectation. Two species are negatively associated (segregated) if any individual of one of the species is more likely to be found near members of its own species more frequently than random expectation. Pairs of species are termed “not associated” if the association between the two species is not significant at a chosen probability level (Pielou, 1961; Dixon, 1994).

Negative interactions (competition) and positive interactions (facilitation) between species are regarded as the important drivers of community dynamics, structure and composition (Callaway and Walker, 1997; Callaway et al., 2002; Tirado and Pugnaire, 2005). Facilitation is defined as the positive effects of plants on the establishment or growth of other plants (Callaway 1995;

Holmgren et al., 1997). Several hypotheses suggest that the importance of facilitation among plants may increase with increasing environmental harshness (Bertness and Callaway, 1994; Callaway and Walker, 1997; Callaway et al., 2002; Bruno et al., 2003).

Plants (e.g., nurse plants) may ameliorate harsh environment by providing shade and moisture, increasing water availability, enriching soil nutrients, protecting from desiccant winds as well as introducing in the ecosystem beneficial organisms such as nitrogen fixing bacteria and as a result, facilitate the recruitment and growth of other plants (Bertness and Callaway, 1994; Callaway and Walker, 1997).

Competitive interactions are known to depend on water, nutrients and light as well as the type and life form of plant species (Tremmel and Bazzaz, 1993). It is believed that the importance of competition between plants tends to increase in less stressful environments, e.g., high productivity conditions (Callaway et al., 2002).

In the arid and semiarid Nodushan rangelands of Yazd, Iran, interactions between the shrub species and between the grass species were found to be mainly negative. The strong competition between the shrubs and between the grasses was found to be more affected by similar life form and relatively similar root distribution of the species rather than by the climatic conditions (Mousaei Sanjerehei et al., 2011).

The grass species (*Stipa barbata*) was found near or in contact with the shrub species (*Artemisia sieberi* and *Artemisia aucheri*) in the Nodushan rangelands indicating the positive effects of the shrub species on the grass species. Grasses (e.g., *Stipa barbata*) require a more humid condition for establishment than shrubs in arid and semiarid environments. Less evaporation rates below the canopy of shrubs relative to bare ground may facilitate the establishment and survival of the grass species. A reduced evaporation from subcanopy soils is likely to result in locally lower soil salinities than from soils exposed to direct solar radiation (Mousaei Sanjerehei et al., 2011). In addition, water taken up by shrub roots is released from shallow roots into upper layers during the night via hydraulic lift and can partly be used by the grass species, although the magnitude of water transferred by this way is small (Williams et al. 1993). Due to the different root distribution of the shrub and grass species, they use resources (e.g., water) from different soil layers and, as a result, the competition between them may be less than that between two shrub species or two grass species.

According to a meta-analysis across different life forms and ecosystems, herbs had strong negative effects, especially on other herb species, whereas shrubs had large facilitative effects especially on trees (Gomez-Aparicio, 2009). Among herbaceous plants, grasses were found to be stronger competitors than

forbs (Goldberg et al., 2001; Pywell et al., 2003; Gomez-Aparicio, 2009). The stronger competitive ability of grasses may be due to the fibrous roots and a large root:shoot ratio of grasses which enable them to compete efficiently for soil resources (Caldwell and Richards, 1986).

The competitive ability of shrubs was reported to be less than early-successional grasses for belowground resources. This is due to the differences in allocation patterns (such as lower root:shoot ratio of shrubs) and in architecture (such as higher rooting depth of shrubs) between shrubs and grasses (Jackson et al., 1996; Gomez- Aparicio, 2009; Kochy and Wilson, 2000). In addition, shrubs are not as strong competitors as trees for above ground resources due to their smaller size providing a moderate shade for understory vegetation in compared to the limiting deep shade of trees in closed forests (Puerta-Pinero et al., 2007; Gomes- Aparicio, 2009).

In Mediterranean post-fire shrub communities, pioneer shrubs can act as nurse plants facilitating the establishment of late successional woody species (Siles et al., 2008). In the Mojave Desert, shrubs (*Ambrosia dumosa*) were shown to have strong positive and weak or no negative effects on survival, biomass, production and seed production of the entire annual community, whereas annuals had strong negative and week positive effects on shrub water status, growth and reproductive output (Holzapfel and Mahall, 1999). Dohn et al. (2013) reported a shift from net competitive to net facilitative effects of trees on subcanopy grass production, with decreasing annual precipitation in Savannas. The type of tree-grass interactions was different along a rainfall gradient in tropical and temperate regions, and trees facilitated grass growth in drier regions and suppressed grass growth in wetter regions.

Age and size of plants within a life form can also influence their competitive and facilitative abilities. In the Patagonian Steppe for example, when shrubs were young and small, facilitation between shrubs and tussock grasses was more than competitive interactions resulting in the formation of dense ring of grasses around a shrub. When the shrub became large and the ring of grasses completed, competition overshadowed facilitation (Aguiar and Sala, 1994).

The balance between facilitation and competition appears to vary depending on the life stages of the species, indirect interactions with other neighbors as well as the benefactor size and the intensity of abiotic stress (Bertness and Callaway, 1994; Miller, 1994; Pugnaire et al., 1996; Callaway and Walker, 1997; Tewksbury and Lloyd, 2001; Mousaei Sanjerehei et al., 2011)

Productivity of plants of different life forms

Since one of the most important sources of carbon dioxide absorption is photosynthesis by vegetation, the study of primary production seems to be of high importance. Estimates of primary production are useful for monitoring

ecosystem goods, services and structure, determining resources for herbivores, evaluating the regulation of global climate through the carbon cycles, determining variation in wood production as well as studying energy flow in ecosystems and assessing ecosystem carbon sequestration (Schlapfer and Schmid 1999; Roy and Saugier 2001; Roxburgh et al. 2004; Meyerson et al. 2005).

The amount of energy fixed by plants in photosynthesis is referred to as gross primary production (GPP). Annual GPP is defined as the total of all carbon annually fixed by plants in ecosystems (Ryan 1991).

A portion of the carbon fixed by plants is lost through construction (growth) and maintenance respirations. Construction respiration is the amount of carbon consumed in the processes such as ATP production, transport processes and nutrient uptake which lead to a net increase in plant dry matter (Chiariello et al. 1989). Maintenance respiration provides the energy for the plant processes such as maintenance of ion gradients across membranes, protein repair and replacement and translocation-related processes which do not result in a net gain in biomass, but keep existing phytomass in a healthy state (Penning de Vries 1975).

The amount of carbon allocated in plants in a certain period of time after losses due to respiration is known as net primary production (NPP). The estimates of NPP and biomass for different ecosystems, each of which are dominated by a certain plant life form, are summarized in Table 1 (Whittaker and Likens, 1975).

The most important factors influencing the primary production of plants include climatic conditions, length of growing season, nutrients such as nitrogen and phosphorus and the dominant plant life form.

The highest mean productivity (NPP) in terrestrial ecosystems is related to tropical forests with the dominance of tree life form (2200 g dry matter/ m^2/year) followed by temperate forests (1200), savanna (900), boreal forests (800), woodland and shrublands (700), temperate grasslands (600) and tundra and alpine (140). The lowest productivity occurs in desert and semidesert communities with the dominance of scrub life form (90) and in extreme deserts (3).

Table 1- Net primary production and biomass of different terrestrial ecosystems (Whittaker and Likens 1975)

		Net primary production (dry matter)			**Biomass (dry matter)**		
Ecosystem type	**Area (10^6 km^2)**	**Normal range (g/ m^2/year)**	**Mean (g/m^2/ year)**	**Total (10^9 t/ year)**	**Normal range (kg/ m^2)**	**Mean (kg/m^2)**	**Total (10^9 t)**
Tropical rain forest	17	1000-3500	2200	37.4	6-80	45	765
Tropical seasonal forest	7.5	1000-2500	1600	12	6-60	35	260
Temperate evergreen forest	5	600-2500	1300	6.5	6-200	35	175
Temperate deciduous forest	7	600-2500	1200	8.4	6-60	30	210
Boreal forest	12	400-2000	800	9.6	6-40	20	240
Woodland and shrubland	8.5	250-1200	700	6	2-20	6	50
Savanna	15	200-2000	900	13.5	0.2-15	4	60
Temperate grassland	9	200-1500	600	5.4	0.2-5	1.6	14
Tundra and alpine	8	10-400	140	1.1	0.1-3	0.6	5
Desert and semidesert scrub	18	10-250	90	1.6	0.1-4	0.7	13
Extreme desert	24	0-10	3	0.07	0-0.2	0.02	0.5

The following presents some examples of NPP and GPP by different life forms under a wide range of climatic conditions;

The NPP (g carbon / m^2/ year , carbon ~ 50% of dry matter) has been estimated to be 32 for the shrub life forms, *Artemisia sieberi* and 63 for *Artemisia aucheri* in arid and semiarid shrublands of Yazd, Iran (Mousaei Sanjerehei, 2013), 51.1 in a *Bouteloua eriopoda* grassland and 59.2 in a *Larrea tridentata* shrubland in northern chihuahuan desert, USA (Muldavin et al., 2008), 1207 and 1140 in a *Miscanthus sinensis* grassland in Japan over a two year period (Yazaki et al., 2004), 307 for *Picea mariana* in boreal forests (Ryan et al., 1997), 960 for *Pinus radiata* in temperate coniferous forests (Arneth et al., 1998) and 817 for *Betula ermanii*, *B.platyphylla* and *Quercus mongolia* in temperate deciduous forests (Saigusa et al., 2002).

The annual GPP (g carbon / m^2/ year) has been obtained to be 85 for *Artemisia sieberi* and 154 for *Artemisia aucheri* shrubs in arid and semiarid rangelands of Yazd, Iran (Mousaei Sanjerehei, 2013), 584 and 1112 in a semiarid grassland in

Hungary in a dry and wet condition, respectively (Nagy et al., 2007), 3000 in tropical forests (Chambers et al., 2000), 1100 for *Picea mariana* in boreal forests (Ryan et al., 1997) and 1600 for *Pinus strobes* and *Acer rubrum* in temperate mixed forests (Curtis et al., 2005).

Precipitation, temperature and evapotranspiration have been recognized as the most important limiting factors in the "efficiency of primary production" that is the percentage of solar energy converted to production. For example desert shrubs are not expected to be very efficient at converting a large amount of solar energy into production due to scarcity of water. The efficiency of NPP in relation to annual solar radiation for the terrestrial ecosystems is 0.3% (Whittaker and Likens 1975). The highest efficiency of primary production occurs for trees in coniferous forests because their numerous needles present a large surface area for photosynthesis (Stiling 1996).

Studies have shown that the percentage of the incoming solar energy absorbed in photosynthesis as GPP (conversion efficiency of GPP) is low by shrubs in arid and semiarid climates (e.g., 0.05% by *Artemisia sieberi* and 0.08% by *Artemisia aucheri*) (Mousaei Sanjerehei, 2013) in compared to grass communities (e.g., 1.2 %) (Golley, 1960), (e.g., 2.4% for C_3 grass and 3.7% for C_4 grass) (Piedade et al., 1991; Beale and Long, 1995) and forest communities (e.g., 1%) (Droste, 1979).

The causes in the energy losses at the different steps of plant photosynthetic processes from interception of radiation to the formation of stored chemical energy in biomass include reflected and transmitted radiation by canopy cover, photochemical inefficiency, photorespiration and respiration which are different among different life forms and climatic conditions (Zhu et al., 2008).

3. Life Zones and Floristic Regions of Iran

Life Zones

Life zone is defined as an ecological altitudinal or latitudinal zone characterized by specific vegetation and climatic conditions (Heyer, 1967). A life zone can be subdivided into associations based on site conditions such as edaphic and microtopographic variables (Holdridge, 1967).

Life zone classification is important in mapping ecosystem and recognizing ecophysiological responses of plants, since it is based on the climatic factors influencing ecosystem processes (Lugo et al., 1999). Depending on the physiognomy of a life zone, conversion of the life zone to a lower level may result in losses to ecosystem services. For example, the conversion of forests to rangelands may lead to losses of soil organic matter, decrease of soil fertility and increase of carbon dioxide flux to the atmosphere (Garcia-Oliva et al., 1994).

Classification and study of life zones are important for;

- Determining the vegetation-environment relationships,
- Assessing the effects of global climate change on the distribution of vegetation,
- Studying species diversity,
- Evaluating the changes in vegetation during successional stages,
- Assessing land use/land cover changes,
- Comparing the potential vegetation and actual vegetation,
- Predicting the dynamics of vegetation distribution,
- Understanding natural and human-driven environmental changes,
- Predicting the future changes in land covers,
- Sustainable management of ecosystems and biodiversity conservation.

The Holdridge life zones

A variety of models have been developed for classification of life zones and predicting the pattern of potential vegetation using temperature (Merriam, 1898), potential evapotranspiration, temperature and precipitation (Box, 1981; Holdridge, 1967), geography techniques (Bailey, 1980), biogeographical criteria

(Smith, 1974), and biogeography, biogeochemistry and fire disturbance (Daly et al., 2000).

One of the most efficient and widely used methods for classification of life zones is the Holdridge life zone system (Holdridge, 1967). This method is objective and requires minimum data on annual precipitation and mean annual biotemperature. The Holdridge system strongly considers the driving forces of ecosystem structure and provides explicit rules for using information to classify ecosystems (Bailey and Hogg 1986). Based on this system, 39 classes of life zones are defined (Fig. 2). The Holdridge life zone classification is based on annual precipitation (*P*), biotemperature (*BT*) and potential evapotranspiration (*PET*). The mean annual *BT* varies from 0 to 30 °C and is calculated as;

$$BT = \frac{\sum T_i}{12}$$

where T_i is the mean monthly temperature ($0 < T_i < 30$°C). Potential evapotranspiration ratio (*PETR*) is calculated as;

$$PETR = \frac{PET}{P} = \frac{BT \times 58.93}{P}$$

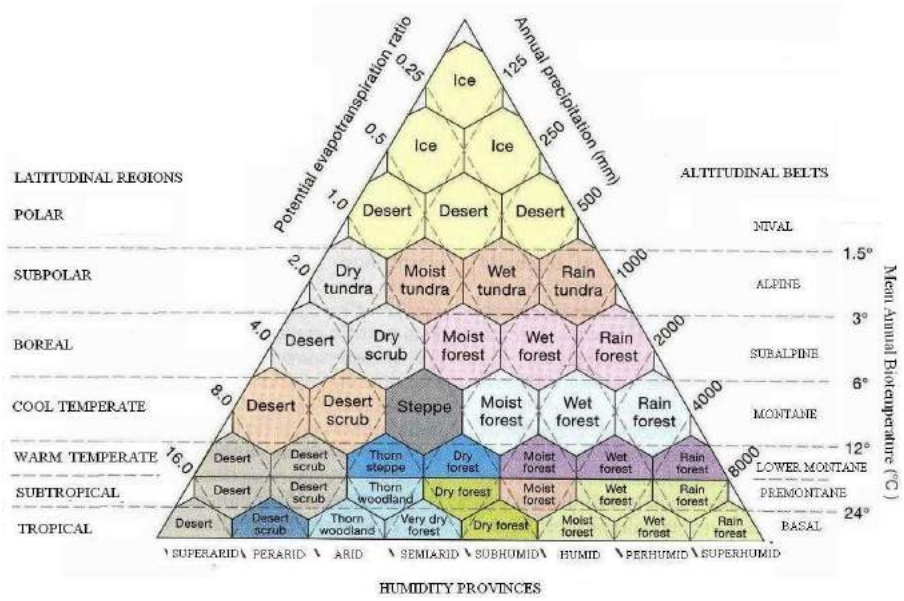

Figure 2- Holdridge life zone classification scheme.

The life zones of Iran based on Holdridge system

Classification of the life zones of Iran using the Holdridge system based on annual precipitation and annual mean temperature maps (Fig. 3) shows that Iran contains 26 life zones (Fig. 4) (Mousaei Sanjerehei, 2014). The area of each life zone based on latitudinal regions, humidity provinces and physiognomic types is presented in Table 2. The most extensive life zone is subtropical desert life zone which covers 22.1% (364581 km^2) of the country followed by cool temperate steppe, warm temperate desert scrub and subtropical desert scrub which cover 13.5%, 12.7% and 11.4% of the country respectively. The life zone with the smallest coverage is subpolar moist tundra covering 0.004% of the area of Iran (66 km^2).

Based on the latitudinal regions, Iran contains one polar, three subpolar, four boreal, five cool temperate, five warm temperate, five subtropical and three tropical life zones. The largest latitudinal life zone is the subtropical life zone covering 40.4% of the country followed by warm temperate life zone covering 30.4% of the country. The smallest latitudinal life zone is polar life zone (0.09%).

Based on the humidity provinces, perarid life zone is the largest humidity life zone covering 34.2 % of the country followed by arid life zone (24.8 %). The least area of the country is covered by the superhumid life zone (0.15%).

According to the physiognomic types, the largest life zone is the desert type occupying 35% of the country followed by scrub (30.4%), steppe (18.7%), forest (10.2%) and woodland (5.6%) types, and the smallest life zone is tundra type (0.14%) (Fig. 5).

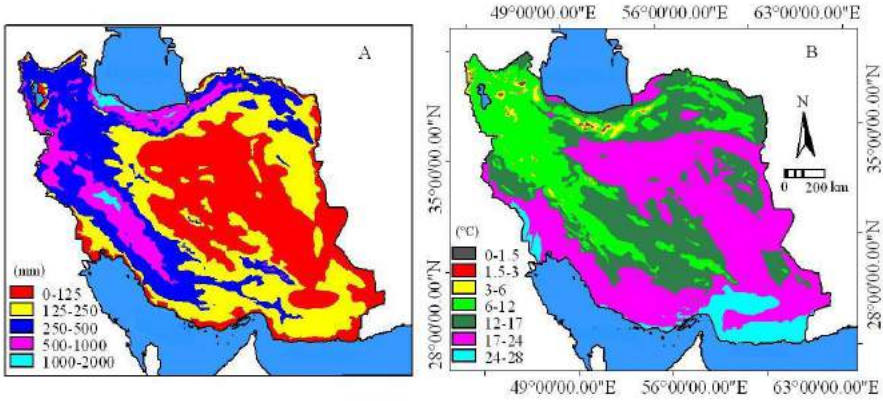

Figure 3. A) Annual precipitation (mm) and B) mean annual temperature (°C) map of Iran.

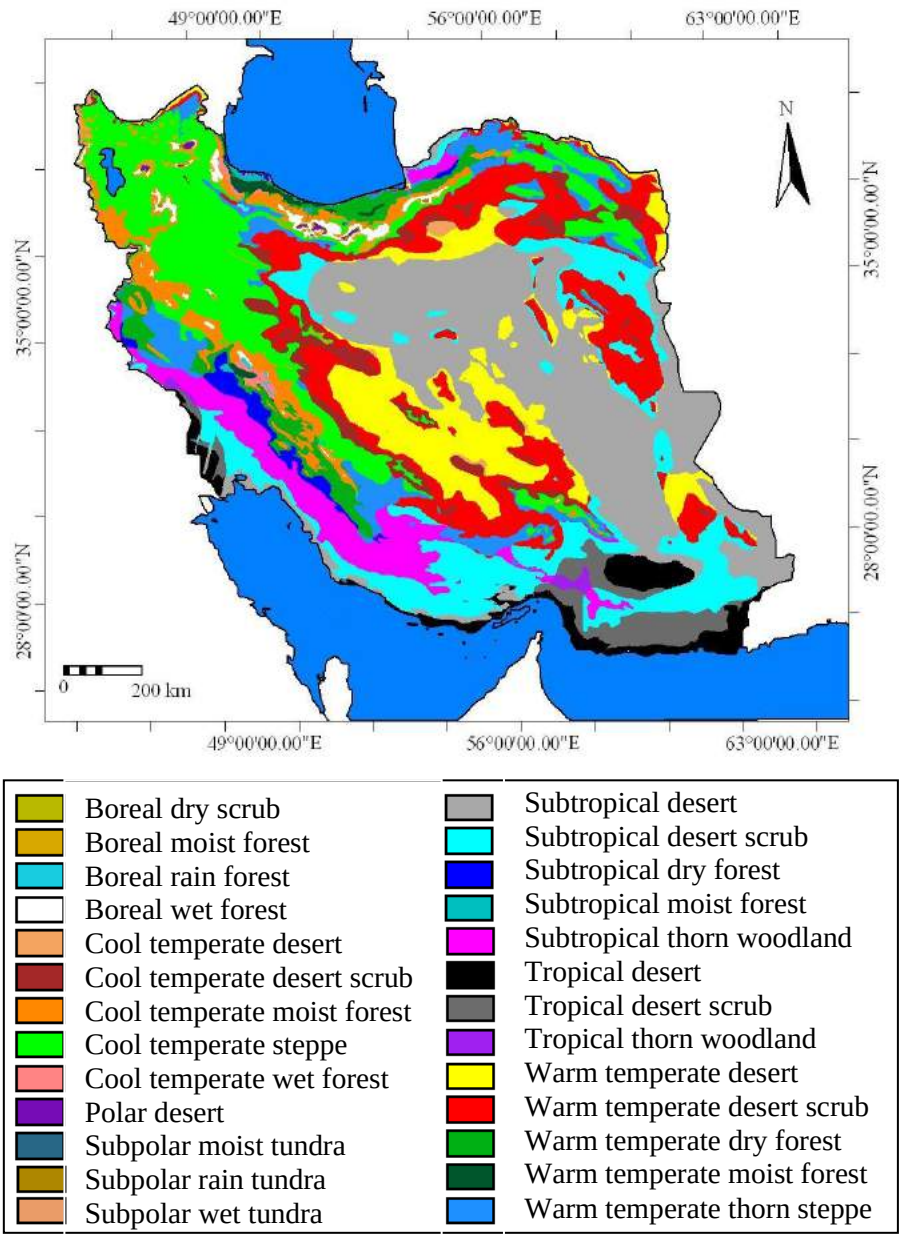

Figure 4. Classification of the life zones of Iran using the Holdridge system (Mousaei Sanjerehei 2014).

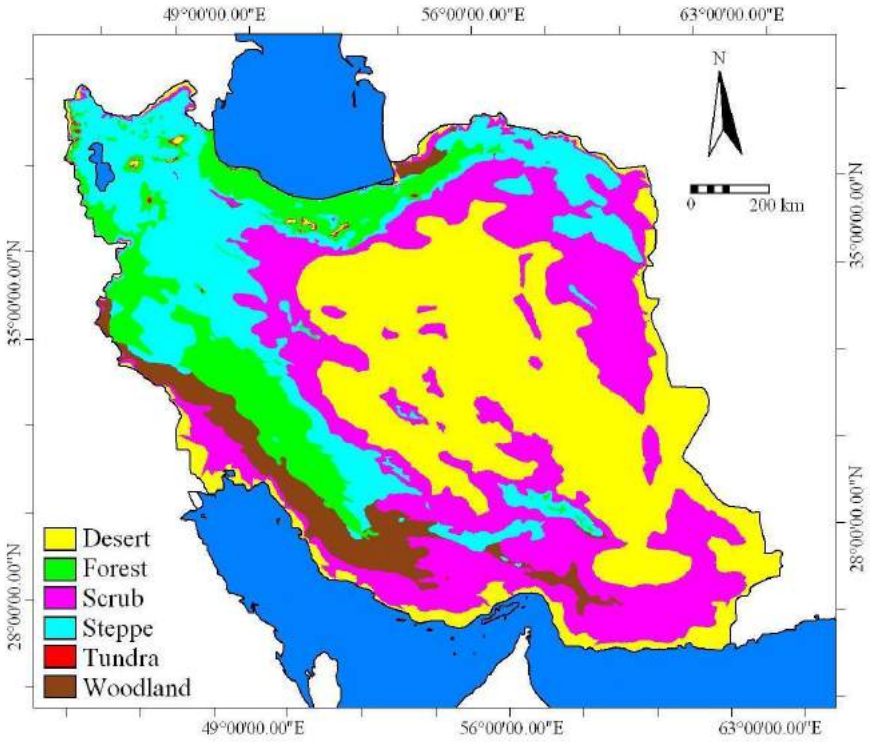

Figure 5. Holdridge life zones of Iran based on physiognomic types.

Table 2. Percentage of the area of Iran life zones, latitudinal regions, humidity provinces and physiognomic types.

Life zone grouping	
Life zone	**Area%**
Subpolar moist tundra	0.004
Boreal dry scrub	0.03
Subpolar wet tundra	0.03
Boreal rain forest	0.04
Polar desert	0.09
Subpolar rain tundra	0.11
Subtropical moist forest	0.11
Cool temperate wet forest	0.28
Tropical thorn woodland	0.3
Cool temperate desert	0.43
Warm temperate moist forest	0.43
Boreal moist forest	0.59
Boreal wet forest	0.85
Subtropical dry forest	1.15
Tropical desert scrub	2.91
Warm temperate dry forest	2.96
Tropical desert	3.15
Cool temperate desert scrub	3.42
Cool temperate moist forest	3.82
Warm temperate thorn steppe	5.15
Subtropical thorn woodland	5.27
Warm temperate desert	9.16
Subtropical desert scrub	11.42
Warm temperate desert scrub	12.66
Cool temperate steppe	13.5
Subtropical desert	22.12

Life zone grouping	
Physiognomic type	**Area%**
Tundra	0.14
Woodland	5.57
Forest	10.23
Steppe	18.65
Scrub	30.44
Desert	34.97
Latitudinal region	
Polar	0.09
Subpolar	0.14
Boreal	1.51
Tropical	6.36
Cool temperate	21.25
Warm temperate	30.38
Subtropical	40.38
Humidity province	
Superhumid	0.15
Perhumid	1.16
Superarid	3.15
Humid	5.04
Semiarid	13.84
Subhumid	17.64
Arid	24.83
Perarid	34.19

Climate of Iran

Iran has a variety of climates ranging from arid to perhumid with different moisture contents. Climate of an area can be effectively classified using de Martonne aridity index (de Martonne, 1926). de Martonne aridity index is calculated as $I = \frac{P}{10+T}$, where P is annual precipitation (mm) and T is annual mean temperature (°C). The values of $I < 5$ indicate arid, 5-10 semi-arid, 10-20 semi-humid, 20-30 humid and > 30 perhumid climate. Based on the de Martonne aridity index, 39 % of the area of Iran was classified as arid, 27% as semiarid, 19 % as semihumid, 9% as humid and 6 % as perhumid (Fig. 6).

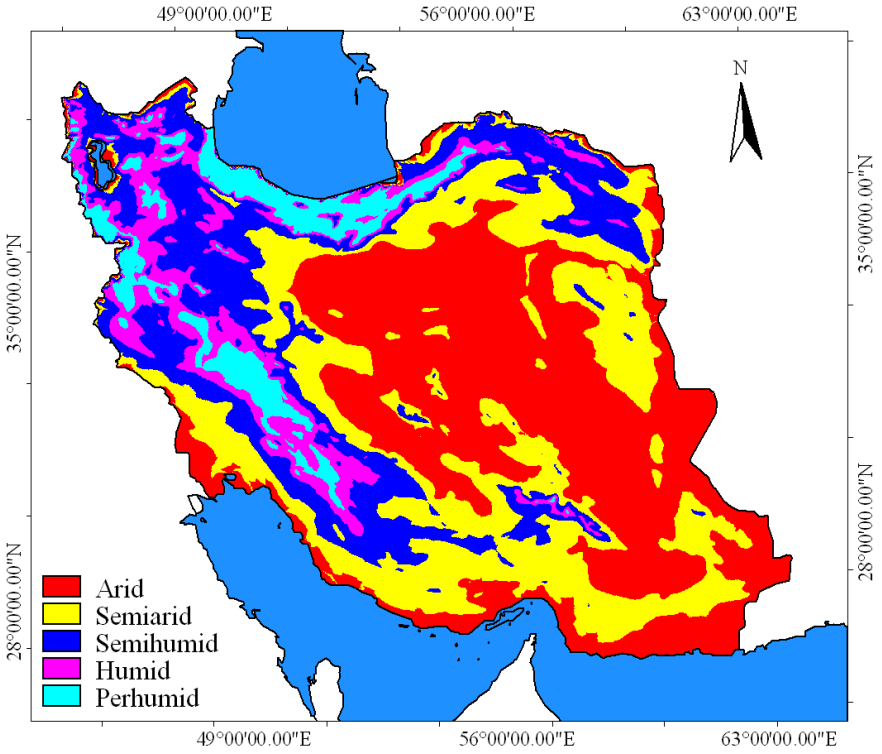

Figure 6- Classification of Iran climate using de Martonne aridity index

Floristic regions of Iran

Various climatic and geological conditions throughout Iran, Alborz and Zagros Mountains, Caspian Sea in the north and Persian Gulf and Oman Sea in the south of Iran have resulted in the appearance of different floristic regions with a variety of plant species and life forms. Iran is classified into five floristic regions including Hyrcanian, Irano- Touranian, Zagros, Khalijo-Omanian and Arasbaran regions (Tregubov and Mobayen 1970).

Hyrcanian region

This region is extended along the southern coasts of Caspian Sea to the northern slopes of the Alborz Mountains and includes humid and perhumid forests (Fig. 7). The flora of Hyrcanian region is related to the Euro-Siberian region. Hyrcanian region is mainly covered by the beech, *Fagus orientalis*. The other abundant species in this region are *Quercus castaneifolia, Buxus hyrcana, Carpinus betulus, Parrotia persica, Acer insigne, Zelkova carpinifolia, Albizia julibrissin, Acer cappadocicum, Alnus glutinosa, Gleditsia caspica, Populus caspica, Pterocarya fraxinifolia, Ulmus glabra* and *Vaccinium arctostaphylos* (Table 4). One of the important characteristics of this region is a low abundance of the large conifers such as Cupressus, Thuja, Juniperus and Taxus occupying small parts of this region. Hyrcanian region has a moderate climate with an annual precipitation of 1500 mm in the central and western coasts and 600-700 mm in the eastern parts and on top of the Alborz Mountains (Javanshir, 1976; Tregubov and Mobayen, 1970).

Irano-Touranian region

This region occupies the central parts of Iran from southern slopes of the Alborz Mountains in the north, to the Zagros Mountains in the west and south, and is extended towards the east and west of Iran (Fig. 7). Irano-Touranian region is the largest floristic region in Iran and includes mountainous xerophytic forests and plain desert vegetation. Plain parts of this region have an arid climate with annual precipitation of less than 250 mm, high rates of evapotranspiration, dry summers and cold winters. However, Juniperus forests in the mountainous parts have an annual precipitation of more than 400 mm and a lower evapotranpiration and more moderate summers than other parts of the Irano-Touranian region. The mountainous parts of Irano-Touranian region are located at the elevation of more than 1500 m and have an annual precipitation of 200- 400 mm. The vegetation in the plains is steppe and semidesert vegetation and mainly belongs to the genera; Astragalus, Acantholimon, Acanthophyllum, Cousinia, Zygophyllum, Artemisia, Haloxylon, Tamarix and Anabasis as well as *Juniperus excelsa* in the mountainous parts (Table 4). Dashte-Kavir is a

desert area in the Irano-Touranian region and is located on saline and limestone soils and almost lacks vegetation. Dashte-Lout is a vast sandy Kavir in south eastern of Dashte-Kavir and is mainly covered with psammophytic plant species (Javanshir, 1976; Tregubov and Mobayen, 1970).

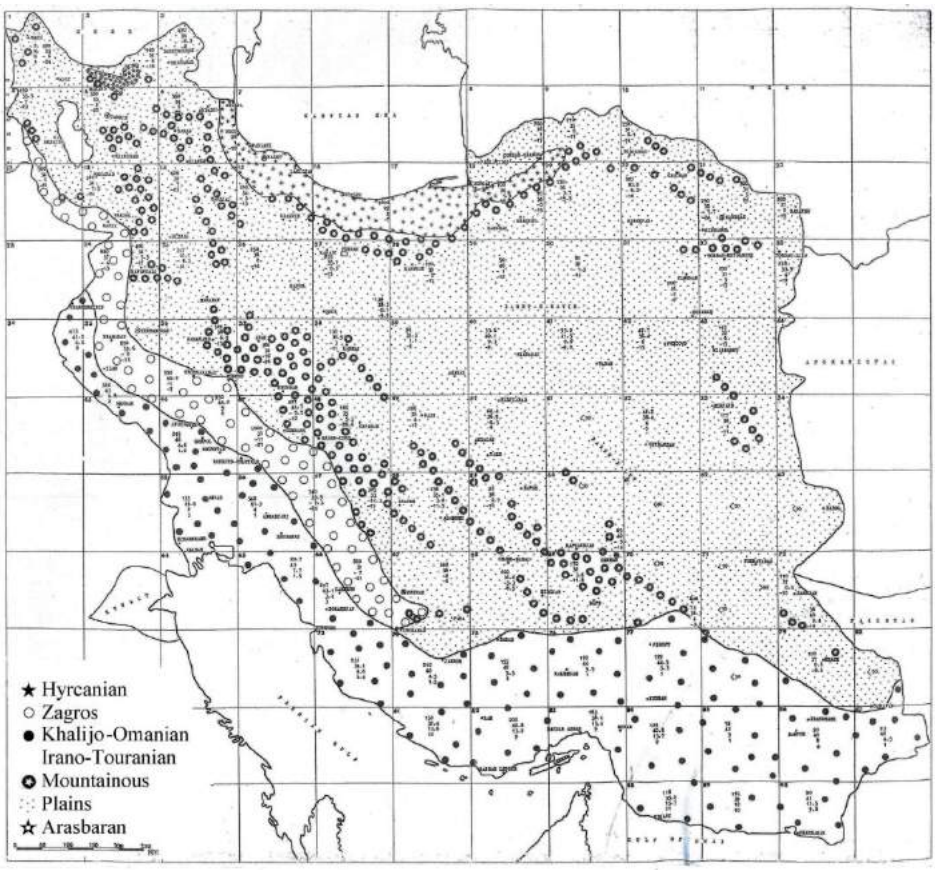

Figure 7- Map of floristic regions of Iran (Javanshir, 1976)

Zagross region

This region includes the Zagros Mountains in the west of Iran and is covered by subxerophytic forests characterized by a variety of oak species such as *Quercus persica, Quercus libani and Quercus infectoria* as well as Amygdalus, Pistacia, *Cercis griffithii* and *Acer cinerascens* (Table 4). The vegetation in this region resembles the Mediterranean plant species. Zagros region has a

moderately arid climate with an annual precipitation of 500-600 mm (Fig. 7) (Javanshir, 1976; Tregubov and Mobayen, 1970).

Khalijo-Omanian region

This region consists of the southern parts of Iran between the Zagros southern slopes and coasts of Persian Gulf and Oman Sea and is divided into Khalijian zone with calcareous soils and Omanian zone with volcanic soils (Fig. 7). The Omanian zone is warmer than the Kahlidjian zone. The annual precipitation in Khalijo-Omanian region is 300 mm which decreases from west to east to 70 mm. This region has hot summers and mild winters and is covered by subtropical xerophytic vegetation. The principle vegetation in this region belongs to the subtropical Saharo-Sindian region. *Ziziphus spina-christi* and *Prosopis stephaniana* are abundant in Khalijian zone, and *Avicennia officinalis, Acacia arabica, Acacia seyal* and *Acacia senegal* are abundant species of Omanian zone. Date tree (*Phoenix dactylifera*) is extensively planted in Khalijo-Omanian region (Javanshir, 1976; Tregubov and Mobayen, 1970).

Arasbaran region

This region consists of subhygrophylic forests in the northwest of Iran (Fig. 7). It was added to the above classification as a separate region, because the plant species of this forest region is significantly different from the plant species of Hyrcanian region (Javanshir, 1976).

4. Life Forms of Plant Species and Floristic Regions in Iran

Life forms of plant species and floristic regions in Iran

The data on the floristic regions and life forms of 3064 of the most abundant plant species throughout Iran were collected from various resources including Colored flora of Iran (Ghahraman 1975-2005), Flora of Yazd (Mozaffarian 2000), Flora of Khuzestan (Mozaffarian 1999) and Flora of Iran, Vol. 1-85 (Research Institute of Forests and Rangelands, 1989-2015).

18% of the number of the studied plant species are phanerophytes, 10% chamaephytes, 30% hemicryptophytes, 23% therophytes, 15% geophytes, 0.14% helophytes, 0.36% hydrophytes and 3.5% both therophytes and hemicryptophytes.

45% of the plant species occur in Irano-Touranian, 8.6% in Khalijo-Omanian, 7.7% in Hyrcanian, 1.5% in Zagros, 0.5% in Arasbaran, 16% in both Irano-Touranian and Hyrcanian, 8.5% in both Irano-Touranian and Khalijo-Omanian, 2.2% in both Irano-Touranian and Zagross regions and 2.2% are *cosmopolitan* (Table 3, 4). The plant species in Khalijo-Omanian region belong to the subtropical Saharo-Sindian region and the plant species in Hyrcanian region are related to Euro-Siberian region. The life forms of the studied plant species and the floristic regions of Iran are presented in Table 4.

Table 3- Percentage of the number of the plant species occurring in the floristic regions of Iran

Floristic regions of Iran	**Percentage of the plant species**	**Floristic regions of Iran**	**Percentage of the plant species**
Irano-Touranian (IT)	**45**	IT, Zag and Hyr	0.95
Khalijo-Omanian (KhO)	**8.6**	IT, Hyr, Ara and Zag	0.8
Hyrcanian (Hyr)	**7.7**	IT, Ara and Hyr	0.47
Zagros (Zag)	**1.5**	Hyr and KhO	0.3
Arasbaran (Ara)	**0.5**	IT and Ara	0.3
IT and Hyr	16	Hyr and Zag	0.27
IT and KhO	8.5	IT, Hyr, Zag and KhO	0.25
IT and Zag	2.2	IT, Zag, KhO and Ara	0.2
Cosmopolitan	2.2	IT, Ara and Zag	0.18
IT, Hyr and KhO	1.6	Ara and Zag	0.17
Hyr and Ara	1.1	Hyr, Ara and Zag	0.11
IT, KhO and Zag	1	Zag and KhO	0.1

Table 4- The life forms of plant species and floristic regions of Iran. Life form: **Ph**: Phanerophyte, **Ch**: Chamaephyte, **He**: Hemicryptophyte, **Ge**: Geophyte, **Th**: Therophyte, **Hyd**: Hydrophyte, **Hel**: Helophyte. Floristic region: **Hyr**: Hyrcanian region, **Ara**: Arasbaran region, **IT**: Irano-Touranian region, **IT***: Mountainous parts of Irano-Touranian region, **Zag**: Zagross region, **KhO**: Khalijo-Omanian region, **Cosm**: Cosmopolitan, **End**: Endemic

Family	Plant species	Life form	Floristic region
Malvaceae	Abutilon muticum	Ch	KhO
Malvaceae	Abutilon theophrasti	Th	IT, Hyr
Mimosaceae	Acacia acuminata	Ph	KhO
Mimosaceae	Acacia aucheri	Ph	IT, KhO
Mimosaceae	Acacia coriacea	Ph	KhO
Mimosaceae	Acacia ehrenbergiana	Ph	KhO
Mimosaceae	Acacia farnesiana	Ph	KhO
Mimosaceae	Acacia flava	Ph	KhO
Mimosaceae	Acacia georginia	Ph	KhO
Mimosaceae	Acacia jacquemontii	Ph	KhO
Mimosaceae	Acacia modesta	Ph	KhO
Mimosaceae	Acacia nubica	Ph	KhO
Mimosaceae	Acacia oligophylla	Ph	KhO
Mimosaceae	Acacia rupestris	Ph	KhO
Mimosaceae	Acacia saligna	Ph	KhO
Mimosaceae	Acacia sclerosperma	Ph	KhO
Mimosaceae	Acacia senegal	Ph	KhO
Mimosaceae	Acacia seyal	Ph	KhO
Mimosaceae	Acacia stenophylla	Ph	KhO
Euphorbiaceae	Acalypha australis	Th	Hyr, IT
Asteraceae	Acantholepis orientalis	Th	IT
Plumbaginaceae	Acantholimon acmostegium	Ch	IT, (End)
Plumbaginaceae	Acantholimon aspadanum	Ch	IT, (End)
Plumbaginaceae	Acantholimon avenaceum	Ch	IT
Plumbaginaceae	Acantholimon blakelockii	Ch	IT
Plumbaginaceae	Acantholimon bromifolium	Ch	IT, Zag,

Family	Plant species	Life form	Floristic region
			(End)
Plumbaginaceae	Acantholimon caryophyllaceum	Ch	IT
Plumbaginaceae	Acantholimon erinaceum	Ch	IT*
Plumbaginaceae	Acantholimon festucaceum	Ch	IT, (End)
Plumbaginaceae	Acantholimon flexuosum	Ch	IT, (End)
Plumbaginaceae	Acantholimon hohenackeri	Ch	IT*
Plumbaginaceae	Acantholimon horridum	Ch	IT, (End)
Plumbaginaceae	Acantholimon incomptum	Ch	IT
Plumbaginaceae	Acantholimon leucacanthum	Ch	IT
Plumbaginaceae	Acantholimon nigricans	Ch	IT*, (End)
Plumbaginaceae	Acantholimon oliganthum	Ch	IT
Plumbaginaceae	Acantholimon olivieri	Ch	IT, Zag, (End)
Plumbaginaceae	Acantholimon oymosum	Ch	IT
Plumbaginaceae	Acantholimon pterostegium	Ch	IT, (End)
Plumbaginaceae	Acantholimon rudbaricum	Ch	IT
Plumbaginaceae	Acantholimon scirpinum	Ch	IT, (End)
Plumbaginaceae	Acantholimon scorpius	Ch	IT, KhO, (End)
Plumbaginaceae	Acantholimon sp.	Ch	
Plumbaginaceae	Acantholimon spinicalyx	Ch	IT, (End)
Plumbaginaceae	Acantholimon talagonicum	Ch	IT, (End)
Plumbaginaceae	Acantholimon tragacanthinum	Ch	IT, (End)
Plumbaginaceae	Acantholimon truncatum	Ch	IT
Plumbaginaceae	Acantholimon wendelboi	Ch	IT, (End)
Caryophyllaceae	Acanthophllum glandulosum	Ch	IT
Caryophyllaceae	Acanthophyllum adenophorum	Ch	IT
Caryophyllaceae	Acanthophyllum bracteatum	Ch	IT
Caryophyllaceae	Acanthophyllum caespitosum	Ch	IT
Caryophyllaceae	Acanthophyllum chloroltegium	Ch	IT
Caryophyllaceae	Acanthophyllum crassifolium	Ch	IT

Family	Plant species	Life form	Floristic region
Caryophyllaceae	Acanthophyllum glandulosum	Ch	IT
Caryophyllaceae	Acanthophyllum gracile	Ch	IT
Caryophyllaceae	Acanthophyllum heratense	Ch	IT
Caryophyllaceae	Acanthophyllum khuzistanum	Ch	KhO
Caryophyllaceae	Acanthophyllum kurdicum	Ch	IT
Caryophyllaceae	Acanthophyllum laxiusculum	Ch	IT
Caryophyllaceae	Acanthophyllum lilacinum	Ch	IT
Caryophyllaceae	Acanthophyllum microcephalum	Ch	IT
Caryophyllaceae	Acanthophyllum microcephalus	Ch	IT
Caryophyllaceae	Acanthophyllum pachystegium	Ch	IT
Caryophyllaceae	Acanthophyllum sordidum	Ch	IT
Caryophyllaceae	Acanthophyllum sp.	Ch	
Caryophyllaceae	Acanthophyllum spinosum	Ch	IT
Caryophyllaceae	Acanthophyllum squarrosum	Ch	IT
Caryophyllaceae	Acanthophyllum stocksianum	Ch	IT
Caryophyllaceae	Acanthophylum speciosum	Ch	IT
Acanthaceae	Acanthus dioscoridis	He	IT
Aceraceae	Acer assyriacum	Ph	Zag
Aceraceae	Acer campestre	Ph	Hyr, Ara
Aceraceae	Acer cappadocicum	Ph	Hyr
Aceraceae	Acer cinerascens	Ph	IT, Zag
Aceraceae	Acer hyrcanum	Ph	Hyr
Aceraceae	Acer ibericum	Ph	Ara, Hyr, IT
Aceraceae	Acer insigne	Ph	Hyr
Aceraceae	Acer monspessulanum	Ph	IT
Aceraceae	Acer opalus	Ph	Hyr
Aceraceae	Acer persicum	Ph	IT, Zag
Aceraceae	Acer platanoides	Ph	Hyr
Aceraceae	Acer pseudoplatanus	Ph	Hyr
Aceraceae	Acer regelii	Ph	Hyr

Family	Plant species	Life form	Floristic region
Aceraceae	Acer tataricum	Ph	Hyr
Aceraceae	Acer turcomanicum	Ph	Hyr
Aceraceae	Acer velutinum	Ph	Hyr
Asteraceae	Achillea biebersteinii	He	IT
Asteraceae	Achillea eriophora	He	IT, KhO, (End)
Asteraceae	Achillea filipendulina	He	IT
Asteraceae	Achillea micrantha	He	IT
Asteraceae	Achillea millefolium	He	IT, Hyr
Asteraceae	Achillea nobilis	He	IT
Asteraceae	Achillea pachycephala	He	IT
Asteraceae	Achillea santolina	He	IT, KhO, Hyr
Asteraceae	Achillea tenuifolia	He	IT
Asteraceae	Achillea vermicularis	He	IT, Hyr
Asteraceae	Achillea wilhelmsii	He	IT, Hyr, KhO
Lamiaceae	Acinos graveolens	Th	IT
Asteraceae	Acroptilon repens	He	IT
Adianthaceae	Adianthum capillus-veneris	Ge	Cosm
Ranunculaceae	Adonis aestivalis	Th	Hyr, IT
Ranunculaceae	Adonis dentata	Th	IT, Hyr
Ranunculaceae	Adonis flammea	Th	IT, Hyr
Ranunculaceae	Adonis scrobiculata	Th	IT
Poaceae	Aegilops columnaris	Th	IT
Poaceae	Aegilops crassa	Th	IT
Poaceae	Aegilops cylindrica	Th	IT
Poaceae	Aegilops ovata	Th	IT
Poaceae	Aegilops tauschii	Th	IT, Hyr
Poaceae	Aegilops triuncialis	Th	IT
Poaceae	Aegilops umbellulata	Th	IT
Asteraceae	Aegopordon berardioides	He	IT, KhO

Family	Plant species	Life form	Floristic region
Chenopodiaceae	Aellenia aurucula	He	IT
Chenopodiaceae	Aellenia subaphylla	He	IT
Poaceae	Aeluropus lagopoides	Ge	IT, KhO
Poaceae	Aeluropus littoralis	Ge	IT, KhO
Poaceae	Aeluropus macrostachyus	Ge	KhO
Amaranthaceae	Aerva javanica	Ch	KhO
Amaranthaceae	Aerva persica	Ch	IT, KhO
Brassicaceae	Aethionema arabicum	Th	IT
Brassicaceae	Aethionema carneum	Th	IT
Brassicaceae	Aethionema grandiflorum	He	IT
Brassicaceae	Aethionema trinervium	He	IT
Rosaceae	Agrimonia eupatoria	He	Hyr, IT
Chenopodiaceae	Agriophyllum lateriflorum	Th	IT
Chenopodiaceae	Agriophyllum minus	Th	IT
Poaceae	Agropyron cristatum	He	IT, Hyr
Poaceae	Agropyron desertorum	He	IT
Poaceae	Agropyron elongatum	He	IT
Poaceae	Agropyron imbricatum	Ge	IT, Ara
Poaceae	Agropyron intermedium	Ge	IT
Poaceae	Agropyron longe-aristatum	Ge	IT
Poaceae	Agropyron pectiniforme	Ge	IT, Hyr
Poaceae	Agropyron repens	Ge	IT
Poaceae	Agropyron trichophorum	Ge	IT
Poaceae	Agrostis gigantea	Ge	Hyr, IT
Poaceae	Agrostis stolonifera	Ge	Hyr, IT
Simaroubaceae	Ailanthus altissima	Ph	IT
Simaroubaceae	Ailanthus glandulosa	Ph	IT
Aizoaceae	Aizoon hispanicum	Th	KhO
Lamiaceae	Ajuga chamaecistus	He	IT*, Zag
Lamiaceae	Ajuga comata	He	IT, Hyr

Family	Plant species	Life form	Floristic region
Mimosaceae	Albizia julibrissin	Ph	Hyr
Mimosaceae	Albizia lebbeck	Ph	KhO, Hyr
Malvaceae	Alcea angulata	Th, He	IT
Malvaceae	Alcea aucheri	He	IT
Malvaceae	Alcea crassicaulis	He	IT
Malvaceae	Alcea digitata	He	IT
Malvaceae	Alcea ficifolia	He	IT, Hyr
Malvaceae	Alcea glabrata	He	IT, (End)
Malvaceae	Alcea hyrcana	He	Hyr
Malvaceae	Alcea Iaxiflora	He	IT, (End)
Malvaceae	Alcea kurdica	He	IT
Malvaceae	Alcea rhyticarpa	He	IT
Malvaceae	Alcea rugosa	He	IT
Malvaceae	Alcea sulphurea	He	IT
Malvaceae	Alcea teheranica	He	IT, (End)
Rosaceae	Alchemilla citrina	He	Hyr, (End)
Rosaceae	Alchemilla kurdica	Ge	IT*
Rosaceae	Alchemilla pectiniloba	He	Hyr, (End)
Rosaceae	Alchemilla persica	Ge	IT, Hyr
Rosaceae	Alchemilla rigida	He	Hyr
Fabaceae	Alhagi cameleruns	Ch	IT
Fabaceae	Alhagi camelorum	Ch	IT
Fabaceae	Alhagi graecorum	Ch	IT
Fabaceae	Alhagi mannifera	Ch	IT, KhO
Fabaceae	Alhagi maurorum	Ch	IT, KhO
Fabaceae	Alhagi persarum	Ch	IT
Fabaceae	Alhagi pseudoalhagi	Ch	IT
Alismaceae	Alisma plantago-aquatica	Hel	Cosm
Boraginaceae	Alkanna orientalis	Ge	IT, Zag
Brassicaceae	Alliaria petiolata	He	Hyr, IT

Family	Plant species	Life form	Floristic region
Liliaceae	Allium ampeloprasum	Ge	IT
Liliaceae	Allium atroviolaceum	Ge	IT
Liliaceae	Allium borszczowii	Ge	IT
Liliaceae	Allium bungei	Ge	IT
Liliaceae	Allium caspium	Ge	IT
Liliaceae	Allium cepa	Ge	IT, KhO
Liliaceae	Allium chloroneurum	Ge	IT
Liliaceae	Allium cristophii	Ge	IT
Liliaceae	Allium eriophyllum	Ge	IT, KhO
Liliaceae	Allium erubesces	Ge	Hyr, IT
Liliaceae	Allium giganteum	Ge	IT
Liliaceae	Allium haemanthoides	Ge	IT
Liliaceae	Allium helicophyllum	Ge	IT
Liliaceae	Allium hirtifolium	Ge	IT
Liliaceae	Allium jesdianum	Ge	IT
Liliaceae	Allium longicuspis	Ge	IT
Liliaceae	Allium minutiflorum	Ge	IT
Liliaceae	Allium monophyllum	Ge	IT
Liliaceae	Allium paniculatum	Ge	IT
Liliaceae	Allium paradoxum	Ge	Hyr
Liliaceae	Allium persica	Ge	IT
Liliaceae	Allium rotundum	Ge	IT
Liliaceae	Allium rubellum	Ge	IT, Hyr
Liliaceae	Allium sarawschanicum	Ge	IT
Liliaceae	Allium scabriscapum	Ge	IT
Liliaceae	Allium scabrum	Ge	IT
Liliaceae	Allium schoenoprasum	Ge	IT
Liliaceae	Allium scotostemon	Ge	IT, Hyr
Liliaceae	Allium sp.	Ge	
Liliaceae	Allium stamineum	Ge	IT

Family	Plant species	Life form	Floristic region
Liliaceae	Allium umbilicatum	Ge	IT
Liliaceae	Allium xiphopetalum	Ge	IT
Betulaceae	Alnus glutinosa	Ph	Hyr
Betulaceae	Alnus subcordata	Ph	Hyr, (End)
Poaceae	Alopecurus apiatus	Ge	IT
Poaceae	Alopecurus arundinaceus	Ge	IT, Hyr
Poaceae	Alopecurus myosuroides	Th	IT, KhO, Hyr
Poaceae	Alopecurus pratensis	Ge	IT
Poaceae	Alopecurus textilis	Ge	IT, Hyr
Poaceae	Alopecurus vaginatus	He	IT
Amaranthaceae	Alternanthera sessilis	Th	IT, Hyr
Malvaceae	Althaea armeniaca	He	Hyr, IT
Malvaceae	Althaea cannabina	He	IT, Hyr
Malvaceae	Althaea hirsuta	Th	IT, Hyr
Malvaceae	Althaea ludwigii	Th, He	IT, KhO
Malvaceae	Althaea officinalis	He	IT
Brassicaceae	Alyssum alyssoides	Th	IT
Brassicaceae	Alyssum bracteatum	He	IT*
Brassicaceae	Alyssum dasycarpum	Th	IT
Brassicaceae	Alyssum desertorum	Th	IT, Hyr
Brassicaceae	Alyssum heterotrichum	Th	IT
Brassicaceae	Alyssum hirsutum	Th	IT
Brassicaceae	Alyssum inflatum	Th	IT
Brassicaceae	Alyssum lanigerum	He	IT
Brassicaceae	Alyssum linifolium	Th	IT, Hyr
Brassicaceae	Alyssum marginatum	Th	IT
Brassicaceae	Alyssum maritimum	Th	IT
Brassicaceae	Alyssum minus	Th	IT
Brassicaceae	Alyssum szovitsianum	Th	IT
Amaranthaceae	Amaranthus albus	Th	Cosm

Family	Plant species	Life form	Floristic region
Amaranthaceae	Amaranthus blitoides	Th	Cosm
Amaranthaceae	Amaranthus cholorostachys	Th	IT, Hyr
Amaranthaceae	Amaranthus graecizans	Th	KhO, IT
Amaranthaceae	Amaranthus hybridus	Th	IT, Hyr
Amaranthaceae	Amaranthus retroflaxus	Th	Cosm
Amaranthaceae	Amaranthus viridis	Th	Cosm
Asteraceae	Amberboa nana	Th	IT
Asteraceae	Amberboa sosnovskyi	Th	IT
Asteraceae	Amberboa turanica	Th	IT
Lythraceae	Ammannia multiflora	Th	IT
Umbelliferae	Ammi majus	Th	IT, KhO
Umbelliferae	Ammi visnaga	Th, He	Cosm
Fabaceae	Ammodendron persicum	Ph	IT
Vitaceae	Ampelopsis vitifolia	Ph	Ara, Zag, Hyr
Rosaceae	Amygdalus arabica	Ph	IT*, KhO, Zag
Rosaceae	Amygdalus carduchorum	Ph	Zag
Rosaceae	Amygdalus communis	Ph	IT*, Zag, Ara
Rosaceae	Amygdalus eburenea	Ph	IT*, Zag, KhO, (End)
Rosaceae	Amygdalus elaeagnifolia	Ph	IT*, Zag, (End)
Rosaceae	Amygdalus erioclada	Ph	IT*, Zag
Rosaceae	Amygdalus fenzliana	Ph	IT*, Zag
Rosaceae	Amygdalus glauca	Ph	Zag, (End)
Rosaceae	Amygdalus haussknechtii	Ph	IT*, Zag, (End)
Rosaceae	Amygdalus horrida	Ph	IT*, Zag, Ara, KhO
Rosaceae	Amygdalus keredjensis	Ph	IT*, (End)
Rosaceae	Amygdalus kotschyi	Ph	Ara, Zag, IT*

Family	Plant species	Life form	Floristic region
Rosaceae	Amygdalus leiocarpa	Ph	IT*, Zag
Rosaceae	Amygdalus lycioides	Ph	IT*, Zag
Rosaceae	Amygdalus orientalis	Ph	Zag
Rosaceae	Amygdalus podperae	Ph	IT*, Zag, KhO, (End)
Rosaceae	Amygdalus salicifolia	Ph	Zag
Rosaceae	Amygdalus scoparia	Ph	IT*, Zag, KhO
Rosaceae	Amygdalus spartioides	Ph	IT*
Rosaceae	Amygdalus spinosissima	Ph	IT*
Rosaceae	Amygdalus trichamygdalus	Ph	IT*
Rosaceae	Amygdalus turcomanica	Ph	IT*
Rosaceae	Amygdalus urumiensis	Ph	IT*, Zag
Chenopodiaceae	Anabasis annua	Th	IT
Chenopodiaceae	Anabasis aphylla	He	IT
Chenopodiaceae	Anabasis brachiata	He	IT
Chenopodiaceae	Anabasis calcarea	He	IT, (End)
Chenopodiaceae	Anabasis haussknechtii	Ch	IT
Chenopodiaceae	Anabasis setifera	He	IT, KhO
Primulaceae	Anagallis arvensis	Th	Cosm
Fabaceae	Anagyris foetida	Ph	Zag
Boraginaceae	Anchusa aegyptiaca	Th	IT, KhO
Boraginaceae	Anchusa italica	He	IT, Hyr
Boraginaceae	Anchusa ovata	Th	IT, Zag
Boraginaceae	Anchusa strigosa	He	IT
Euphorbiaceae	Andrachne aspera	He	IT, KhO, Ara, Zag
Euphorbiaceae	Andrachne colchica	He	Hyr
Euphorbiaceae	Andrachne fruticulosa	He	IT
Euphorbiaceae	Andrachne rotundifolia	He	IT, Hyr
Euphorbiaceae	Andrachne telephioides	He	IT, KhO, Zag

Family	Plant species	Life form	Floristic region
Primulaceae	Androsace maxima	Th	Hyr, IT
Primulaceae	Androsace villosa	He	Hyr
Ranunculaceae	Anemone biflora	Th	IT
Ranunculaceae	Anemone petiolulosa	Ge	IT
Umbelliferae	Anethum graveolens	Th	IT
Umbelliferae	Anisosciadium orientale	Th	KhO
Asteraceae	Anthemis altissima	Th	IT, Hyr
Asteraceae	Anthemis atropatana	Th	IT
Asteraceae	Anthemis austro-iranica	Th	IT, KhO, (End)
Asteraceae	Anthemis cotula	Th	IT, KhO, Hyr
Asteraceae	Anthemis gayana	Th	IT, (End)
Asteraceae	Anthemis hyalina	Th	IT
Asteraceae	Anthemis odontostephana	Th	IT, KhO
Asteraceae	Anthemis pesudocotula	Th	IT
Asteraceae	Anthemis rhodocentra	Th	IT, KhO
Asteraceae	Anthemis scariosa	Th	KhO
Asteraceae	Anthemis schizostephana	Th	IT
Asteraceae	Anthemis scoparia	He	KhO
Asteraceae	Anthemis susiana	Th	KhO
Asteraceae	Anthemis tinctoria	He	IT, Hyr
Asteraceae	Anthemis triumfettii	He	IT, Hyr
Asteraceae	Anthemis wettsteiniana	Th	IT
Chenopodiaceae	Anthochlamys multinervis	Th	IT, (End)
Chenopodiaceae	Anthochlamys polygaloides	Th	IT
Umbelliferae	Anthriscus nemorosa	He	Hyr
Umbelliferae	Anthriscus sylvestris	He	Hyr
Asteraceae	Anvillea garcinia	Ch	KhO
Umbelliferae	Aphanopleura breviseta	Th	IT
Umbelliferae	Apium graveolens	Th, He	IT

Family	Plant species	Life form	Floristic region
Ranunculaceae	Aquilegia vulgaris	Ge	IT
Brassicaceae	Arabidopsis pumila	Th	IT
Brassicaceae	Arabidopsis sp.	Th	
Brassicaceae	Arabidopsis wallichii	Th	IT
Brassicaceae	Arabis caucasica	He	IT, Hyr, Zag
Brassicaceae	Arabis graellsiiformis	He	IT
Brassicaceae	Arabis nova	Th	IT, Hyr
Brassicaceae	Arabis sagittata	Th, He	Hyr, IT
Asteraceae	Arctium lappa	He	IT, Hyr
Asteraceae	Arctium minus	He	IT
Caryophyllaceae	Arenaria gypsophiloides	He	IT
Caryophyllaceae	Arenaria persica	He	IT
Caryophyllaceae	Arenaria serpyllifolia	Th	Hyr, IT
Fabaceae	Argyrolobium roseum	Th, He	KhO
Fabaceae	Argyrolobium trigonelloides	Th, He	IT
Poaceae	Aristida adscensionis	Th, He	KhO
Aristolochiaceae	Aristolochia bottae	He	IT
Rosaceae	Armeniaca vulgaris	Ph	IT
Boraginaceae	Arnebia decumbens	Th	IT
Boraginaceae	Arnebia fimbriopetala	Th	KhO
Boraginaceae	Arnebia grandiflora	Th	IT
Boraginaceae	Arnebia hispidissima	Th	KhO
Boraginaceae	Arnebia linearifolia	Th	IT
Boraginaceae	Arnebia minima	Th	IT
Poaceae	Arrhenatherum kotschyi	He	IT
Asteraceae	Artemisia absinthium	Ch	IT
Asteraceae	Artemisia annua	Th	Hyr, IT
Asteraceae	Artemisia aucheri	Ch	IT
Asteraceae	Artemisia biennis	He, Th	IT
Asteraceae	Artemisia chamaemelifolia	Ch	IT, Hyr

Family	Plant species	Life form	Floristic region
Asteraceae	Artemisia deserti	Ch	IT
Asteraceae	Artemisia fragrans	Ch	IT
Asteraceae	Artemisia haussknechtii	Ch	IT
Asteraceae	Artemisia khorassanica	He	IT, (End)
Asteraceae	Artemisia kopetdaghensis	Ch	IT
Asteraceae	Artemisia oliveriana	Ch	IT
Asteraceae	Artemisia persica	Ch	IT
Asteraceae	Artemisia santolina	He	IT
Asteraceae	Artemisia scoparia	Ch	IT, Hyr
Asteraceae	Artemisia sieberi	Ch	IT
Asteraceae	Artemisia spicigera	Ch	IT
Asteraceae	Artemisia turanica	Ch	IT
Asteraceae	Artemisia turcomanica	Ch	IT
Asteraceae	Artemisia vulgaris	Ch	IT, Hyr
Araceae	Arum albispathum	Ge	Hyr
Araceae	Arum conophalloides	Ge	IT*, Zag
Araceae	Arum elongatum	Ge	IT*
Araceae	Arum giganteum	Ge	Zag, (End)
Araceae	Arum kotschyi	Ge	IT*
Araceae	Arum maculatum	Ge	Hyr
Poaceae	Arundo donax	Ge	Hyr, KhO
Asparagaceae	Asparagus breslerianus	He	IT
Asparagaceae	Asparagus officinalis	He	Hyr, IT
Asparagaceae	Asparagus persicus	He	IT, Hyr
Asparagaceae	Asparagus verticillatus	He	IT, Hyr
Boraginaceae	Asperago procumbens	Th	IT, Hyr
Rubiaceae	Asperula arvensis	Th	IT, Hyr
Rubiaceae	Asperula glomerata	He	IT
Rubiaceae	Asperula odarata	He	Hyr, Ara
Rubiaceae	Asperula setosa	Th	IT

Family	Plant species	Life form	Floristic region
Rubiaceae	Asperula stylosa	He	Hyr, IT
Rubiaceae	Asperula taurina	Ge	Hyr
Rubiaceae	Asperula trichodes	Th	IT
Liliaceae	Asphodelus tenuifolius	Th	KhO
Aspleniaceae	Asplenium adiantum	Ge	Hyr
Aspleniaceae	Asplenium trichomanes	He	IT, Hyr
Asteraceae	Aster alpinus	He	IT
Asteraceae	Asteriscus pygmaeus	Th	KhO
Fabaceae	Astragalus adscendens	Ch	IT
Fabaceae	Astragalus ajubensis	He	IT
Fabaceae	Astragalus albispinus	Ch	IT, (End)
Fabaceae	Astragalus alopecias	Ch	IT
Fabaceae	Astragalus anacamptus	He	IT
Fabaceae	Astragalus anisacantus	Ch	IT
Fabaceae	Astragalus ankylotus	Th	IT
Fabaceae	Astragalus anserinifolius	He	IT
Fabaceae	Astragalus arbusculinus	He	IT
Fabaceae	Astragalus argyroides	He	IT
Fabaceae	Astragalus asciocalyx	He	IT
Fabaceae	Astragalus bakaliensis	Th	IT, KhO
Fabaceae	Astragalus bassineri	He	IT
Fabaceae	Astragalus biovulatus	Th	IT
Fabaceae	Astragalus bombycinus	He	IT
Fabaceae	Astragalus brachycalyx	Ch	IT, Zag
Fabaceae	Astragalus calliphysa	Ch	IT, (End)
Fabaceae	Astragalus callystachys	Ch	IT, (End)
Fabaceae	Astragalus campylanthus	Ch	IT, (End)
Fabaceae	Astragalus campylorrhynchus	Th	IT, KhO
Fabaceae	Astragalus candolleanus	He	IT
Fabaceae	Astragalus caprinus	He	KhO

Family	Plant species	Life form	Floristic region
Fabaceae	Astragalus carduchorum	Ch	IT
Fabaceae	Astragalus cephalanthus	Ch	IT, KhO, (End)
Fabaceae	Astragalus chartaceus	He	IT
Fabaceae	Astragalus chrysostachys	Ch	IT
Fabaceae	Astragalus citrinus	He	IT
Fabaceae	Astragalus commixtus	Th	IT, KhO
Fabaceae	Astragalus coronilla	Th	IT
Fabaceae	Astragalus crenatus	Th	IT
Fabaceae	Astragalus cruciatus	Th	IT
Fabaceae	Astragalus curvipes	He	IT
Fabaceae	Astragalus dactylocarpus	Ch	IT
Fabaceae	Astragalus denudatum	Ch	IT, Hyr
Fabaceae	Astragalus dschuparensis	Ch	IT, (End)
Fabaceae	Astragalus ecbatanus	Ch	IT, (End)
Fabaceae	Astragalus effuses	He	IT
Fabaceae	Astragalus eremophilus	Th, He	KhO
Fabaceae	Astragalus eriopodus	He	IT
Fabaceae	Astragalus fasciculifolius	Ph	IT, KhO, (End)
Fabaceae	Astragalus fischeri	He	IT, (End)
Fabaceae	Astragalus fridae	He	IT
Fabaceae	Astragalus glaucacanthus	Ch	IT, (End)
Fabaceae	Astragalus glaucops	Ch	IT, (End)
Fabaceae	Astragalus globiflorus	Ch	IT, Zag
Fabaceae	Astragalus glycyphyllos	He	Hyr
Fabaceae	Astragalus gossypinus	Ch	IT
Fabaceae	Astragalus hamosus	Th	IT, KhO
Fabaceae	Astragalus heratensis	He	IT
Fabaceae	Astragalus hermannii	He	IT, (End)
Fabaceae	Astragalus heterodoxus	He	IT

Family	Plant species	Life form	Floristic region
Fabaceae	Astragalus hohenackeri	He	IT
Fabaceae	Astragalus hymenocalyx	He	IT, (End)
Fabaceae	Astragalus impexus	He	IT, (End)
Fabaceae	Astragalus ischredensis	He	IT, (End)
Fabaceae	Astragalus ispahanicus	He	IT
Fabaceae	Astragalus jesdianus	He	IT, KhO, (End)
Fabaceae	Astragalus kahiricus	He	IT, KhO
Fabaceae	Astragalus khoshjailensis	He	IT, (End)
Fabaceae	Astragalus kirrindicus	He	IT
Fabaceae	Astragalus kopetdaghi	He	IT
Fabaceae	Astragalus laguriformis	He	IT
Fabaceae	Astragalus ledinghamii	He	IT
Fabaceae	Astragalus macropelmatus	He	IT
Fabaceae	Astragalus magistratus	He	IT, (End)
Fabaceae	Astragalus maymanensis	Th	IT
Fabaceae	Astragalus megalocystis	Ch	IT, (End)
Fabaceae	Astragalus melanocalyx	He	IT
Fabaceae	Astragalus mercklini	He	IT
Fabaceae	Astragalus michauxianus	Ch	IT
Fabaceae	Astragalus microcephalus	Ph	IT
Fabaceae	Astragalus microphysa	Ch	IT, (End)
Fabaceae	Astragalus mollis	He	IT
Fabaceae	Astragalus mucronifolius	He	IT, (End)
Fabaceae	Astragalus multijugus	He	IT
Fabaceae	Astragalus murinus	He	IT, (End)
Fabaceae	Astragalus myriacanthus	Ch	IT, (End)
Fabaceae	Astragalus neo-mozaffarianii	Ch	IT, (End)
Fabaceae	Astragalus obtusifolius	Ch	IT
Fabaceae	Astragalus ochrochlorus	Ch	IT, (End)
Fabaceae	Astragalus odoratus	He	IT

Family	Plant species	Life form	Floristic region
Fabaceae	Astragalus ophiocarpus	Ch	IT
Fabaceae	Astragalus ovinus	He	IT
Fabaceae	Astragalus ovoideus	Ch	IT, (End)
Fabaceae	Astragalus oxyglottis	Th	IT
Fabaceae	Astragalus parrowianus	Ch	IT
Fabaceae	Astragalus pelitus	He	IT, (End)
Fabaceae	Astragalus persicus	Ch	IT, (End)
Fabaceae	Astragalus pichleriana	Ch	IT
Fabaceae	Astragalus pinetorum	He	IT, (End)
Fabaceae	Astragalus podolobus	Ch	IT
Fabaceae	Astragalus pseudoszovitsii	He	IT
Fabaceae	Astragalus raddei	He	IT
Fabaceae	Astragalus rawlinsianus	He	IT
Fabaceae	Astragalus saetiger	He	IT, (End)
Fabaceae	Astragalus schahrudensis	Ch	IT
Fabaceae	Astragalus schistocalyx	Ch	IT
Fabaceae	Astragalus scorpius	Ch	KhO
Fabaceae	Astragalus senilis	He	IT, Hyr
Fabaceae	Astragalus shirkuhicus	Ge	IT
Fabaceae	Astragalus sieberi	He	KhO
Fabaceae	Astragalus siliquosus	He	IT
Fabaceae	Astragalus siversianus	Ch	IT
Fabaceae	Astragalus spachianus	He	IT
Fabaceae	Astragalus spinosus	Ch	KhO
Fabaceae	Astragalus squarrosus	Ch	IT, KhO
Fabaceae	Astragalus susianus	Ch	KhO, (End)
Fabaceae	Astragalus talemansurensis	Ch	IT, Zag, KhO
Fabaceae	Astragalus tenuiscapus	He	IT
Fabaceae	Astragalus tragacantha	Ch	IT

Family	Plant species	Life form	Floristic region
Fabaceae	Astragalus tribuloides	Th	IT, KhO
Fabaceae	Astragalus tricholobus	Ch	IT, (End)
Fabaceae	Astragalus vanillae	He	IT, (End)
Fabaceae	Astragalus verus	Ch	IT
Fabaceae	Astragalus wartoensis	Ch	IT
Umbelliferae	Astrodaucus orientalis	He	IT
Campanulaceae	Asyneuma persicum	He	IT
Athyriaceae	Athyrium filix-femina	Ge	Cosm
Asteraceae	Atractylis cancellata	Th	IT
Polygonaceae	Atraphaxis spinosa	Ph	IT, Zag, Ara
Polygonaceae	Atraphaxis suaedifolia	Ch	IT
Polygonaceae	Atraphaxis tournefortii	Ch	IT, Zag
Chenopodiaceae	Atriplex aucheri	Th	IT, Hyr
Chenopodiaceae	Atriplex belangeri	Th	IT
Chenopodiaceae	Atriplex canescens	Ch, Ph	IT
Chenopodiaceae	Atriplex dimorphostegia	Th	IT, KhO
Chenopodiaceae	Atriplex flabellum	Th	IT
Chenopodiaceae	Atriplex griffithii	Ch	IT, KhO
Chenopodiaceae	Atriplex haliumus	Ch	IT, KhO
Chenopodiaceae	Atriplex hortensis	Th	IT
Chenopodiaceae	Atriplex lentiformis	Ph	IT, KhO
Chenopodiaceae	Atriplex leucoclada	He, Th	IT, KhO
Chenopodiaceae	Atriplex micrantha	Th	IT
Chenopodiaceae	Atriplex moneta	Th	IT
Chenopodiaceae	Atriplex persica	Ch	KhO, IT
Chenopodiaceae	Atriplex stocksii	Ch	IT
Chenopodiaceae	Atriplex tatarica	Th	IT
Chenopodiaceae	Atriplex verrucifera	Ch	IT
Solanaceae	Atropa acuminata	He	Hyr
Solanaceae	Atropa belladonna	He	Hyr

Family	Plant species	Life form	Floristic region
Solanaceae	Atropa pallidifolia	He	Hyr
Brassicaceae	Aubrietia parviflora	He	IT
Poaceae	Avena fatua	Th	IT
Poaceae	Avena ludoviciana	Th	IT
Poaceae	Avena sativa	Th	IT
Poaceae	Avena wiestii	Th	IT, KhO
Avicenniaceae	Avicennia officinalis	Ph	KhO
Meliaceae	Azadirachta indica	Ph	KhO
Umbelliferae	Azilia eryngioides	He	IT
Scrophulariaceae	Bacopa monnifera	Hel	KhO
Brassicaceae	Barbarea plantaginea	He	Hyr, IT
Chenopodiaceae	Bassia eriophora	Th	KhO
Chenopodiaceae	Bassia hyssopifolia	Th	IT
Caesalpiniaceae	Bauhinia acuminata	Ph	KhO
Caesalpiniaceae	Bauhinia purprea	Ph	KhO
Caesalpiniaceae	Bauhinia veriegata	Ph	KhO
Liliaceae	Bellevalia longistyla	Ge	IT, Zag
Liliaceae	Bellevalia saiviczii	Ge	IT
Asteraceae	Bellis annua	Th	KhO
Berberidaceae	Berberis integerrima	Ph	IT*, Zag, Hyr, Ara
Berberidaceae	Berberis lycium	Ph	IT*
Berberidaceae	Berberis orientalis	Ph	Hyr
Berberidaceae	Berberis vulgaris	Ph	IT*, Hyr, Zag, Ara
Rhamnaceae	Berchemia lineata	Ph	KhO
Betulaceae	Betula pendula	Ph	Hyr
Geraniaceae	Biebersteinia multifida	Ge	Cosm
Chenopodiaceae	Bienertia cycloptera	Th	IT, KhO
Cupressaceae	Biota orientalis	Ph	Hyr
Brassicaceae	Biscutella didyma	Th	IT, KhO

Family	Plant species	Life form	Floristic region
Acanthaceae	Blepharis edulis	He	IT, KhO
Cyperaceae	Blysmus compressus	Ge	Hyr, IT
Nyctaginaceae	Boerhavia diffusa	He	KhO
Nyctaginaceae	Boerhavia elegans	He	KhO
Poaceae	Boisseria squarrosa	Th	IT
Cyperaceae	Bolboschoenus maritimus	Ge	IT
Malvaceae	Bombax malabaricum	Ph	KhO
Podophylaceae	Bongardia chrysogonum	Ge	IT, Zag, Hyr
Poaceae	Bothriochloa ischaemum	He	IT
Poaceae	Brachypodium pinnatum	Ge	Hyr, IT
Poaceae	Brachypodium sylvaticum	He	Hyr, Ara, IT
Brassicaceae	Brassica deflexa	Th	IT, KhO
Brassicaceae	Brassica elongata	He	IT
Brassicaceae	Brassica nigra	Th	KhO
Brassicaceae	Brassica oleracea	He	IT
Brassicaceae	Brassica rapa	He	IT
Brassicaceae	Brassica tournefortii	Th	Hyr, IT, KhO
Poaceae	Briza minor	Th	Hyr, IT
Poaceae	Bromus briziformis	Th	IT, Hyr
Poaceae	Bromus danthonia	Th	IT
Poaceae	Bromus japonicus	Th	IT, Hyr
Poaceae	Bromus rechingeri	Th	IT
Poaceae	Bromus scoparius	Th	Cosm
Poaceae	Bromus sterilis	Th	IT, Hyr
Poaceae	Bromus tectorum	Th	Cosm
Poaceae	Bromus tomentellus	He	IT
Brassicaceae	Brossardia papyracea	He	IT
Cucurbitaceae	Bryonia aspera	He	IT
Cucurbitaceae	Bryonia dioica	He	IT, Ara

Family	Plant species	Life form	Floristic region
Cucurbitaceae	Bryonia monoica	He	IT
Brassicaceae	Buchingera axillaris	Th	IT
Scrophulariaceae	Buddleja crispa	Ph	IT, KhO
Scrophulariaceae	Buddleja paniculata	Ph	KhO
Caryophyllaceae	Buffomia koelzii	He	IT, Hyr
Caryophyllaceae	Buffonia macrocarpa	He	IT
Caryophyllaceae	Buffonia oliveriana	Th	IT
Boraginaceae	Buglossoides arvensis	Th	Hyr, IT
Boraginaceae	Buglossoides purpurocaerulea	Ge	Hyr
Boraginaceae	Buglossoides tenuifolia	Th	IT
Capparidaceae	Buhsea trinervia	Ge	IT
Scrophulariaceae	Bungea trifida	Ge	IT
Brassicaceae	Bunias oreintalis	Th, He	IT
Umbelliferae	Bunium cylindricum	Ge	IT, Hyr
Umbelliferae	Bunium elegans	Ge	IT
Umbelliferae	Bunium luristanicum	Ge	IT
Umbelliferae	Bunium paucifolium	Ge	IT
Umbelliferae	Bunium persicum	Ge	IT
Umbelliferae	Bupleurum exaltatum	He	IT, Hyr
Umbelliferae	Bupleurum falcatum	He	IT
Umbelliferae	Bupleurum gerardii	Th	IT
Umbelliferae	Bupleurum lancifolium	Th	IT
Umbelliferae	Bupleurum marschallianum	Th	Hyr
Umbelliferae	Bupleurum rotundifolium	Th	IT
Buxaceae	Buxus hyrcana	Ph	Hyr
Boraginaceae	Caccinia macranthera	He	IT
Capparaceae	Cadaba glandulosa	Ph	KhO
Caesalpiniaceae	Caesalpinia bonducella	Ph	KhO
Caesalpiniaceae	Caesalpinia gilliesii	Ph	KhO, IT
Fabaceae	Cajanus indicus	Ph	KhO

Family	Plant species	Life form	Floristic region
Poaceae	Calamagrostis epigejos	Ge	IT
Poaceae	Calamagrostis pseudophragmites	Ge	IT
Lamiaceae	Calamintha grandiflora	He	Hyr, IT
Lamiaceae	Calamintha officinalis	He	Hyr, IT
Asteraceae	Calendula officinalis	Th, He	IT
Asteraceae	Calendula persica	Th	IT, KhO
Asteraceae	Callicephalus nitens	Th	IT, Hyr
Polygonaceae	Calligonum amoenum	Ph	IT, KhO
Polygonaceae	Calligonum bungei	Ph	IT, KhO
Polygonaceae	Calligonum comosum	Ph	IT, KhO
Polygonaceae	Calligonum crinitum	Ph	IT, KhO
Polygonaceae	Calligonum denticulatum	Ph	IT
Polygonaceae	Calligonum intertextum	Ph	KhO
Polygonaceae	Calligonum junceum	Ph	IT
Polygonaceae	Calligonum laristanicum	Ph	KhO
Polygonaceae	Calligonum leucocladum	Ph	IT
Polygonaceae	Calligonum persicum	Ph	IT
Polygonaceae	Calligonum polygonoides	Ph	IT, KhO
Polygonaceae	Calligonum schizopterum	Ph	IT
Polygonaceae	Calligonum stenopterum	Ph	IT
Polygonaceae	Calligonum tetrapterum	Ph	IT
Polygonaceae	Calligonum turkestanicum	Ph	IT
Rubiaceae	Callipeltis cucullaria	Th	IT
Myrtaceae	Callistemon salignus	Ph	KhO
Asclepiadaceae	Calotropis procera	Ph	KhO
Convulvulaceae	Calystegia sepium	He	IT, Hyr
Convolvulaceae	Calystegia silvatica	He	Hyr
Brassicaceae	Camelina laxa	Th	IT
Brassicaceae	Camelina rumelica	Th	Hyr, IT
Campanulaceac	Campanula cecilii	Th	IT, Zag

Family	Plant species	Life form	Floristic region
Campanulaceac	Campanula flaccidula	Th	IT, Zag
Campanulaceac	Campanula glomerata	He	IT, Hyr
Campanulaceac	Campanula humillima	He	IT, (End)
Campanulaceac	Campanula incanescens	He	IT
Campanulaceac	Campanula involucrata	He	IT
Campanulaceac	Campanula kermanica	He	IT, (End)
Campanulaceac	Campanula latifolia	He	Hyr, IT
Campanulaceac	Campanula odontosepala	He	Hyr, IT
Campanulaceac	Campanula perpusilla	He	IT, Zag, (End)
Campanulaceac	Campanula rapunculus	He	Hyr, IT
Campanulaceac	Campanula reuteriana	Th	IT, Zag
Bignoniaceae	Campsis radicans	Ph	KhO
Cannaceae	Canna indica	Ge	KhO
Cannabinaceae	Cannabis sativa	Th	Cosm
Capparidaceae	Capparis cartinaginea	Ch	KhO
Capparidaceae	Capparis decidua	Ph	KhO
Capparidaceae	Capparis parviflora	Ch	IT
Capparidaceae	Capparis sicula	Ch	IT, KhO
Capparidaceae	Capparis spinosa	Ch	IT, KhO
Brassicaceae	Capsella bursa-pastoris	Th, He	IT, Hyr, KhO
Fabaceae	Caragana ambigua	Ch	KhO
Fabaceae	Caragana gerardiana	Ph	KhO
Fabaceae	Caragana ulicina	Ch	KhO
Brassicaceae	Cardamine hirsuta	Th	Hyr, IT
Brassicaceae	Cardamine impatiens	Th, He	Hyr, IT
Brassicaceae	Cardamine uliginosa	Ge	IT, Hyr
Brassicaceae	Cardaria draba	Ge	IT
Asteraceae	Carduus arabicus	Th	IT
Asteraceae	Carduus getulus	Th	KhO

Family	Plant species	Life form	Floristic region
Asteraceae	Carduus pycnocephalus	Th	IT
Asteraceae	Carduus thoermeri	He	IT, Ara
Asteraceae	Carduus transcaspicus	He, Th	IT, Hyr
Cyperaceae	Carex acuta	Ge	IT
Cyperaceae	Carex acutiformis	Ge	Hyr, IT
Cyperaceae	Carex digitata	Ge	Hyr
Cyperaceae	Carex distans	Ge	IT, Zag
Cyperaceae	Carex divisa	Ge	IT, Hyr
Cyperaceae	Carex divulsa	Ge	Hyr, IT
Cyperaceae	Carex grioletii	Ge	Hyr
Cyperaceae	Carex orbicularis	Ge	IT, Hyr
Cyperaceae	Carex oreophila	Ge	IT, Hyr
Cyperaceae	Carex pachystylis	Ge	IT, Hyr
Cyperaceae	Carex pendula	Ge	Hyr
Cyperaceae	Carex physodes	Ge	IT
Cyperaceae	Carex remota	Ge	Hyr
Cyperaceae	Carex riparia	Ge	Hyr, IT
Cyperaceae	Carex songorica	Ge	IT, Hyr
Cyperaceae	Carex sp.	Ge	
Cyperaceae	Carex stenophylla	Ge	IT
Cyperaceae	Carex strigosa	Ge	Hyr
Cyperaceae	Carex sylvatica	Ge	Hyr, IT
Caricaceae	Carica papaya	Ph	KhO
Asteraceae	Carpesium abrotanoides	He	Hyr
Betulaceae	Carpinus betulus	Ph	Hyr, Ara
Betulaceae	Carpinus orientalis	Ph	IT*, Hyr, Ara
Betulaceae	Carpinus schuschaensis	Ph	Hyr, Ara
Aizoaceae	Carpobratus edulis	He	IT
Asteraceae	Carthamus glaucus	Th, He	IT
Asteraceae	Carthamus lanatus	Th, He	IT, Hyr

Family	Plant species	Life form	Floristic region
Asteraceae	Carthamus oxyacantha	Th	IT
Asteraceae	Carthamus tinctorius	Th	Cosm
Caesalpinaceae	Cassia fistula	Ph	KhO
Caesalpinaceae	Cassia italica	Ch	KhO
Caesalpinaceae	Cassia obovata	Ch	KhO
Fagaceae	Castanea sativa	Ph	Hyr
Poaceae	Catabrosa aquatica	Ge	Hyr, IT
Poaceae	Catapodium rigidum	Th	Hyr, IT
Apocynaceae	Catharanthus rosea	He	KhO
Umbelliferae	Caucalis platycarpos	Th	IT, Hyr
Ulmaceae	Celtis australis	Ph	Hyr, Ara
Ulmaceae	Celtis caucasica	Ph	IT*, Hyr, Ara, Zag
Ulmaceae	Celtis glabrata	Ph	Hyr, IT*
Ulmaceae	Celtis tournefortii	Ph	Hyr, Zag
Poaceae	Cenchrus ciliaris	Ge	IT, KhO
Poaceae	Cenchrus pennisetiformis	Th, He	KhO
Asteraceae	Centaurea aggregata	He	IT
Asteraceae	Centaurea aucheri	Ge	IT, Zag
Asteraceae	Centaurea balsamita	Th	IT
Asteraceae	Centaurea behen	He	IT
Asteraceae	Centaurea bruguieriana	Th	IT, KhO
Asteraceae	Centaurea cheiranthifolia	Ge	IT
Asteraceae	Centaurea depressa	Th	IT
Asteraceae	Centaurea gaubae	He	IT
Asteraceae	Centaurea hyalolepis	Th, He	IT
Asteraceae	Centaurea hyrcanica	He	Hyr
Asteraceae	Centaurea iberica	He, Th	IT, Hyr, Zag
Asteraceae	Centaurea intricate	He	IT, KhO
Asteraceae	Centaurea irritans	Th	IT

Family	Plant species	Life form	Floristic region
Asteraceae	Centaurea ispahanica	He	IT
Asteraceae	Centaurea koeieana	He	IT
Asteraceae	Centaurea lachnopus	Ge	IT
Asteraceae	Centaurea leuzeoides	He	IT
Asteraceae	Centaurea luristanica	He	IT
Asteraceae	Centaurea ovina	He	Hyr
Asteraceae	Centaurea pabotii	He	IT
Asteraceae	Centaurea pseudosinaica	Th	KhO
Asteraceae	Centaurea pulchella	Th	IT
Asteraceae	Centaurea sintenisiana	He	IT, Hyr
Asteraceae	Centaurea solstitialis	Th	IT, Hyr, Ara
Asteraceae	Centaurea sosnovskyi	Th	IT, Hyr
Asteraceae	Centaurea virgata	Ch	IT, Hyr
Asteraceae	Centaurea zuvandica	Ge	IT, Hyr, Ara
Gentianaceae	Centaurium minus	Th, He	IT, Hyr
Gentianaceae	Centaurium pulchellum	Th	IT, Hyr, KhO
Gentianaceae	Centaurium spicatum	Th	Hyr, IT
Orchidaceae	Cephalanthera caucasica	Ge	Hyr
Orchidaceae	Cephalanthera damasonium	Ge	Hyr, Ara
Orchidaceae	Cephalanthera rubra	Ge	Hyr
Orchidaceae	Cephalanthera sp.	Ge	
Dipsacaceae	Cephalaria dichaetophora	Th	IT, Zag
Dipsacaceae	Cephalaria kotschyi	He	IT
Dipsacaceae	Cephalaria microcephala	He	IT
Dipsacaceae	Cephalaria procera	He	IT
Dipsacaceae	Cephalaria syriaca	Th	IT
Asteraceae	Cephalorrhynchus brassicifoluis	He	IT, Hyr
Asteraceae	Cephalorrhynchus kossinskyi	Ge	IT
Caryophyllaceae	Cerastium dichotomum	Th	IT

Family	Plant species	Life form	Floristic region
Caryophyllaceae	Cerastium glomeratum	Th	IT, Hyr
Caryophyllaceae	Cerastium inflatum	Th	IT
Rosaceae	Cerasus avium	Ph	Hyr, IT*, Zag, Ara
Rosaceae	Cerasus brachypetala	Ph	IT
Rosaceae	Cerasus chorassanica	Ph	IT, (End)
Rosaceae	Cerasus griffithii	Ph	Zag
Rosaceae	Cerasus incana	Ph	IT
Rosaceae	Cerasus mahaleb	Ph	IT
Rosaceae	Cerasus microcarpa	Ph	IT
Rosaceae	Cerasus vulgaris	Ph	IT*, Hyr
Chenopodiaceae	Ceratocarpus arenarius	Th	IT
Ranunculaceae	Ceratocephala testiculata	Th	IT
Ranunculaceae	Ceratocephalus falcatus	Th	IT, Hyr
Caesalpinaceae	Ceratonia siliqua	Ph	KhO
Ceratophyllaceae	Ceratophyllum demersum	Hyd	IT, Hyr
Caesalpinaceae	Cercis griffithii	Ph	IT, Hyr, Zag
Caesalpinaceae	Cercis siliquastrum	Ph	Hyr
Boraginaceae	Cerinthe minor	He	IT, Hyr
Umbelliferae	Chaerophyllum aureum	He	IT, Hyr
Umbelliferae	Chaerophyllum bulbosum	Ge	IT, Hyr
Umbelliferae	Chaerophyllum khorassanicum	He	IT, Hyr
Umbelliferae	Chaerophyllum macropodum	He	IT, Zag, Hyr
Umbelliferae	Chaerophyllum macrospermum	He	IT
Brassicaceae	Chalcanthus renifolius	Ge	IT, Hyr
Lamiaceae	Chamaesphacos ilicifolius	Th	IT
Asteraceae	Chardinia orientalis	Th	IT
Papaveraceae	Chelidonium majus	He	Hyr, IT
Chenopodiaceae	Chenopodium album	Th	Cosm
Chenopodiaceae	Chenopodium ambrosioides	Th	Hyr

Family	Plant species	Life form	Floristic region
Chenopodiaceae	Chenopodium botrys	Th	IT, Hyr
Chenopodiaceae	Chenopodium foliosum	Th	IT, Hyr
Chenopodiaceae	Chenopodium glaucum	Th	IT, Hyr
Chenopodiaceae	Chenopodium murale	Th	IT, KhO
Chenopodiaceae	Chenopodium novopokrovskyanum	Th	IT, Hyr
Chenopodiaceae	Chenopodium urbicum	Th	IT, Hyr
Chenopodiaceae	Chenopodium vulvaira	Th	IT, Hyr
Fabaceae	Chesneya astragalina	He	IT*
Asteraceae	Chondrilla juncea	He, Th	IT, Hyr, Zag
Brassicaceae	Chorispora tenella	Th	IT
Euphorbiaceae	Chrozophora hierosolymitana	Th	IT
Euphorbiaceae	Chrozophora tinctoria	Th	IT
Asteraceae	Chrysanthemum coronarium	Th	Hyr, IT, KhO
Asteraceae	Chrysanthemum roseum	He	IT
Poaceae	Chrysopogon aucheri	Ge	KhO
Fabaceae	Cicer anatolicum	He	IT
Fabaceae	Cicer arietinum	Th	IT
Fabaceae	Cicer oxyodon	He	IT, Hyr, KhO
Fabaceae	Cicer spiroceras	He	IT, (End)
Asteraceae	Cichorium intybus	He	Cosm
Asteraceae	Cichorium pumilum	Th	KhO, Zag
Onagraceae	Circaea lutetiana	Ge	Hyr, IT
Asteraceae	Cirsium arvense	Ge	IT, Hyr
Asteraceae	Cirsium bornmulleri	He	IT
Asteraceae	Cirsium bracteatum	Th	IT
Asteraceae	Cirsium bracteosum	He	IT
Asteraceae	Cirsium congestum	He	IT
Asteraceae	Cirsium echinus	He	IT, Hyr
Asteraceae	Cirsium haussknechtii	He, Th	IT

Family	Plant species	Life form	Floristic region
Asteraceae	Cirsium hygrophilum	He	IT, Hyr
Asteraceae	Cirsium lappaceum	He	IT
Asteraceae	Cirsium rhizocephalum	He	IT
Asteraceae	Cirsium spectabile	Ge	IT
Asteraceae	Cirsium strigosum	He	IT, Hyr
Asteraceae	Cirsium vulgare	He	IT, Hyr
Orbanchaceae	Cistanche tubulosa	Ge	IT
Cucurbitaceae	Citrullus colocynthis	He	KhO, IT
Cucurbitaceae	Citrullus vulgaris	Th	IT
Rutaceae	Citrus sp.	Ph	
Cyperaceae	Cladium mariscus	Ge	Hyr, IT
Ranunculaceae	Clematis ispahanica	Ch	IT
Ranunculaceae	Clematis orientalis	Ch	IT, Zag
Capparaceae	Cleome chrysantha	He	KhO
Capparaceae	Cleome coluteoides	He	IT
Capparaceae	Cleome dolichostyla	Th, He	KhO, (End)
Capparaceae	Cleome heratensis	He,Th	IT
Capparaceae	Cleome iberica	He, Th	IT, Zag
Capparaceae	Cleome Khorasanica	He	IT
Capparaceae	Cleome noeana	Th, He	IT, KhO
Capparaceae	Cleome oxypetala	He	IT, KhO
Capparaceae	Cleome quinquenervia	Th	IT
Lamiaceae	Clerodendron inerme	Ph	KhO
Amaranthaceae	Climacoptera turcomanica	Th	IT
Lamiaceae	Clinopodium umbrosum	He	IT, Hyr
Lamiaceae	Clinopodium vulgare	He	Hyr, IT
Brassicaceae	Clypeola aspera	Th	IT
Brassicaceae	Clypeola dichotoma	Th	IT
Brassicaceae	Clypeola jonthlaspi	Th	IT
Cruciferae	Clypeola microcarpa	Th	IT, Hyr

Family	Plant species	Life form	Floristic region
Asteraceae	Cnicus benedictus	Th	IT
Menispermaceae	Cocculus pendulus	Ch	KhO
Asteraceae	Codonocephalum peacockianum	He	IT
Colochicaceae	Colchicum persicum	Ge	IT
Colochicaceae	Colchicum steveni	Ge	Hyr, IT
Colochicaceae	Colchicum szovitsii	Ge	IT
Fabaceae	Colutea arborescens	Ph	Ara, Hyr
Fabaceae	Colutea armata	Ph	IT*, KhO
Fabaceae	Colutea buhsei	Ph	IT*, Ara, Hyr
Fabaceae	Colutea gifana	Ph	IT*
Fabaceae	Colutea gracilis	Ph	IT
Fabaceae	Colutea persica	Ph	Zag, IT*
Fabaceae	Colutea porphyrogramma	Ph	IT*
Fabaceae	Colutea triphylla	Ph	IT*, Hyr
Fabaceae	Colutea uniflora	Ph	IT*, Hyr
Caryophyllaceae	Cometes surattensis	Th	KhO
Orchidaceae	Comperia comperiana	Ge	IT
Umbelliferae	Conium maculatum	He	Cosm
Brassicaceae	Conringia clavata	Th	IT
Brassicaceae	Conringia orientalis	He, Th	IT, Hyr
Brassicaceae	Conringia perfoliata	Th	IT, Hyr
Brassicaceae	Conringia persica	Th	IT
Ranunculaceae	Consolida camptocarpa	Th	IT
Ranunculaceae	Consolida orientalis	Th	IT
Ranunculaceae	Consolida rugulosa	Th	IT
Ranunculaceae	Consolida trigonelloides	Th	IT
Convolvulaceae	Convolvulus acanthocladus	Ch	KhO, Zag
Convolvulaceae	Convolvulus argyracanthus	Ch	KhO
Convolvulaceae	Convolvulus arvensis	He	Cosm
Convolvulaceae	Convolvulus buschiricus	He	KhO

Family	Plant species	Life form	Floristic region
Convolvulaceae	Convolvulus calvertii	He	IT
Convolvulaceae	Convolvulus cantabrica	He	IT, Hyr
Convolvulaceae	Convolvulus chondrillioides	Ch	IT
Convolvulaceae	Convolvulus commutatus	He	IT
Convolvulaceae	Convolvulus dorycnium	He	IT
Convolvulaceae	Convolvulus eremophilus	He	IT
Convolvulaceae	Convolvulus erinaceus	Ch	IT
Convolvulaceae	Convolvulus evolvuloides	He	IT
Convolvulaceae	Convolvulus fruticosus	Ch	IT
Convolvulaceae	Convolvulus glomeratus	Ch	KhO
Convolvulaceae	Convolvulus gonocladus	He	IT, KhO, (End)
Convolvulaceae	Convolvulus koeieanus	He	IT, KhO, (End)
Convolvulaceae	Convolvulus leiocalycinus	Ch	IT, Zag, KhO
Convolvulaceae	Convolvulus leptocladus	Ch	KhO
Convolvulaceae	Convolvulus lineatus	He	IT
Convolvulaceae	Convolvulus oxyphyllus	He	KhO
Convolvulaceae	Convolvulus oxysepalus	He	KhO, IT, (End)
Convolvulaceae	Convolvulus pilosellifolius	He	IT, KhO, Zag
Convolvulaceae	Convolvulus pseudocantabrica	He	IT
Convolvulaceae	Convolvulus reticulatus	He	IT
Convolvulaceae	Convolvulus schirazianus	He	IT, (End)
Convolvulaceae	Convolvulus sericeus	He	KhO
Convolvulaceae	Convolvulus spinosus	Ch	IT, KhO
Convolvulaceae	Convolvulus stachydifolius	He	IT
Convolvulaceae	Convolvulus turrillianus	Ch	IT, KhO, (End)
Convolvulaceae	Convolvulus urosepalus	He	IT, KhO
Convolvulaceae	Convolvulus virgatus	Ch	KhO, IT
Asteraceae	Conyza bonariensis	Th	IT, Hyr

Family	Plant species	Life form	Floristic region
Asteraceae	Conyza canadensis	Th	IT
Asteraceae	Conyzanthus squamatus	He	Cosm
Tiliaceae	Corchorus depressus	Ch	KhO
Tiliaceae	Corchorus trilocularis	He, Th	KhO
Boraginaceae	Cordia crenata	Ph	KhO
Boraginaceae	Cordia myxa	Ph	KhO
Umbelliferae	Coriandrum sativum	Th	Cosm
Chenopodiaceae	Corispermum lehmannianum	Th	IT
Chenopodiaceae	Cornulaca amblyacantha	Ch	KhO, IT
Chenopodiaceae	Cornulaca aucheri	Th	IT, KhO
Chenopodiaceae	Cornulaca laucantha	Th, He	IT, KhO
Chenopodiaceae	Cornulaca monacantha	Ch	IT, KhO
Cornaceae	Cornus australis	Ph	IT*, Hyr, Ara
Cornaceae	Cornus mas	Ph	Ara, Hyr
Cornaceae	Cornus sanguinea	Ph	Zag
Fabaceae	Coronilla scorpioides	Th	IT, KhO
Fabaceae	Coronilla varia	He	Hyr, IT
Primulaceae	Cortusa matuioli	He	Hyr, (End)
Fumariaceae	Corydalis chionophila	He	IT
Fumariaceae	Corydalis rupestris	He	IT
Betulaceae	Corylus avellana	Ph	Hyr, Ara
Betulaceae	Corylus colurna	Ph	Hyr
Asteraceae	Cota altissima	Th	Hyr
Anacardiaceae	Cotinus coggygria	Ph	Ara
Rosaceae	Cotoneaster atrosanguinea	Ph	Ara, Zag
Rosaceae	Cotoneaster azarolus	Ph	Zag
Rosaceae	Cotoneaster discolor	Ph	IT*, Hyr
Rosaceae	Cotoneaster esfandiarii	Ph	IT*, (End)
Rosaceae	Cotoneaster heterophylla	Ph	Zag
Rosaceae	Cotoneaster hissarica	Ph	IT*, Zag,

Family	Plant species	Life form	Floristic region
			Hyr
Rosaceae	Cotoneaster insignis	Ph	IT*, Hyr
Rosaceae	Cotoneaster integerrima	Ph	Hyr
Rosaceae	Cotoneaster kotschyi	Ph	IT*
Rosaceae	Cotoneaster luristanica	Ph	IT*, Zag
Rosaceae	Cotoneaster meyeri	Ph	Zag, Ara
Rosaceae	Cotoneaster microphylla	Ph	Zag, Ara
Rosaceae	Cotoneaster morulus	Ph	Zag
Rosaceae	Cotoneaster multiflora	Ph	Hyr
Rosaceae	Cotoneaster nummularia	Ph	IT*, Hyr, Ara
Rosaceae	Cotoneaster ovata	Ph	IT*, Hyr
Rosaceae	Cotoneaster persica	Ph	IT*, Zag, (End)
Rosaceae	Cotoneaster racemiflora	Ph	Ara, Hyr, Zag
Rosaceae	Cotoneaster sp.	Ph	
Rosaceae	Cotoneaster turcomanica	Ph	Hyr
Rosaceae	Cotoneaster tytthocarpa	Ph	IT*, Hyr
Asteraceae	Cousinia amplissima	He	IT
Asteraceae	Cousinia arida	He	IT
Asteraceae	Cousinia assyriaca	He	IT
Asteraceae	Cousinia behboudiana	He	IT
Asteraceae	Cousinia belangeri	He	IT
Asteraceae	Cousinia calcitrapa	He	IT
Asteraceae	Cousinia calolepis	Ch	IT
Asteraceae	Cousinia chrysochlora	Ch	IT
Asteraceae	Cousinia congesta	Ch	IT
Asteraceae	Cousinia cylindracea	He	IT
Asteraceae	Cousinia cymbolepis	He	IT
Asteraceae	Cousinia decipiens	Ch	IT
Asteraceae	Cousinia deserti	He	IT

Family	Plant species	Life form	Floristic region
Asteraceae	Cousinia ecbatanensis	He	IT
Asteraceae	Cousinia elwendensis	He	IT*
Asteraceae	Cousinia eriobasis	He	IT
Asteraceae	Cousinia eryngioides	He	IT
Asteraceae	Cousinia hablitzii	He	IT, Hyr
Asteraceae	Cousinia heliantha	Th, He	IT
Asteraceae	Cousinia khorramabadensis	He	IT
Asteraceae	Cousinia lachnosphaera	He	IT
Asteraceae	Cousinia lactiflora	He	IT
Asteraceae	Cousinia lasiandra	He	IT
Asteraceae	Cousinia macrocarpa	He	IT
Asteraceae	Cousinia meshhedensis	He	IT
Asteraceae	Cousinia microcarpa	He	IT
Asteraceae	Cousinia microcephala	He	IT
Asteraceae	Cousinia millefontana	He	IT
Asteraceae	Cousinia multiloba	He	IT
Asteraceae	Cousinia neurocentra	He	IT
Asteraceae	Cousinia onopordioides	He	IT, Hyr
Asteraceae	Cousinia pichleriana	He	IT
Asteraceae	Cousinia piptocephala	He	IT
Asteraceae	Cousinia prolifera	Th	IT, KhO
Asteraceae	Cousinia sicigera	He	IT
Asteraceae	Cousinia smirnowii	Ch	IT
Asteraceae	Cousinia stocksii	He	IT, KhO
Asteraceae	Cousinia tenuifolia	He	IT
Asteraceae	Cousinia turcomanica	He	IT
Asteraceae	Cousinia turkmenorum	He	IT
Asteraceae	Cousinia umbrosa	He	IT
Asteraceae	Cousinia urumiensis	Ch	IT
Brassicaceae	Crambe kotschyana	He	IT

Family	Plant species	Life form	Floristic region
Brassicaceae	Crambe orientalis	He	IT
Crussulaceae	Crassula alata	Th	IT, KhO
Rosaceae	Crataegus ambigua	Ph	IT, Hyr
Rosaceae	Crataegus atrosanguinea	Ph	IT, Hyr
Rosaceae	Crataegus azarolus	Ph	IT, Hyr, Zag
Rosaceae	Crataegus caucasica	Ph	Hyr
Rosaceae	Crataegus elbursensis	Ph	Hyr
Rosaceae	Crataegus melanocarpa	Ph	Hyr, IT
Rosaceae	Crataegus meyeri	Ph	IT, Hyr
Rosaceae	Crataegus microphylla	Ph	Hyr, IT, Zag
Rosaceae	Crataegus monogyna	Ph	IT, Hyr
Rosaceae	Crataegus persica	Ph	Zag, (End)
Rosaceae	Crataegus pinnatifida	Ph	IT
Rosaceae	Crataegus pontica	Ph	IT, Zag, Hyr
Rosaceae	Crataegus pseudoheterophylla	Ph	IT, Hyr, Zag
Rosaceae	Crataegus pseudomelanocarpa	Ph	Hyr
Rosaceae	Crataegus sinaica		IT, Zag
Rosaceae	Crataegus songarica	Ph	IT, Hyr
Rosaceae	Crataegus sp.	Ph	
Rosaceae	Crataegus szovitsii	Ph	IT
Rosaceae	Crataegus turcomanica	Ph	IT
Asteraceae	Crepis elbursensis	Ge	IT
Asteraceae	Crepis kotschyana	Th	IT, KhO
Asteraceae	Crepis micrantha	Th	IT, KhO
Asteraceae	Crepis pulchra	Th, He	IT, KhO
Asteraceae	Crepis quercifolia	Th, He	IT
Asteraceae	Crepis sancta	Th, He	IT, Hyr, Zag, KhO
Asteraceae	Crepis turcomanica	He	IT

Family	Plant species	Life form	Floristic region
Convolvulaceae	Cressa cretica	He	IT, KhO
Iridaceae	Crocus cancellatus	Ge	IT, Zag
Iridaceae	Crocus caspius	Ge	Hyr
Iridaceae	Crocus haussknechtii	Ge	IT, zag
Iridaceae	Crocus sativus	Ge	IT
Fabaceae	Crotalaria aegyptiaca	Ch	KhO
Fabaceae	Crotalaria burhia	Ch	KhO
Fabaceae	Crotalaria furfuracea	Ch	KhO
Fabaceae	Crotalaria persica	He	KhO
Fabaceae	Crotalaria retusa	He	KhO
Rubiaceae	Crucianella ciliata	Th	IT
Rubiaceae	Crucianella gilanica	He	IT
Rubiaceae	Crucianella sintenisii	He	IT
Rubiaceae	Cruciata laevipes	Ge	Hyr
Asteraceae	Crupina crupinastrum	Th	IT
Poaceae	Crypsis schoenoides	Th	IT, Hyr
Cucurbitaceae	Cucumis melo	Th	KhO, Hyr
Umbelliferae	Cuminum cyminum	Th	IT
Cupressaceae	Cupressus horizontalis	Ph	Hyr, Zag, IT
Cupressaceae	Cupressus sempervirens	Ph	Hyr
Convolvulaceae	Cuscuta approximata	Th	IT, Hyr, KhO
Convolvulaceae	Cuscuta campestris	Th	Cosm
Convolvulaceae	Cuscuta epithymum	Th	IT, KhO
Convolvulaceae	Cuscuta monogyna	Th	IT, Hyr
Poaceae	Cutandia memphitica	Th	KhO, Hyr
Primulaceae	Cyclamen coum	Ge	Hyr
Rosaceae	Cydonia oblonga	Ph	IT, Hyr
Rosaceae	Cydonia vulgaris	Ph	IT, Hyr
Brassicaceae	Cymatocarpus pilosissimus	Th	IT

Family	Plant species	Life form	Floristic region
Umbelliferae	Cymbocarpum anethoides	Th	IT, Hyr
Asteraceae	Cymbolaena griffithii	Th	IT
Poaceae	Cymbopogon olivieri	He	IT, KhO
Asclepiadaceae	Cynanchum acutum	He	IT, Hyr
Poaceae	Cynodon dactylon	Ge	Cosm
Boraginaceae	Cynoglossum creticum	He	Hyr, Zag
Boraginaceae	Cynoglossum officinale	He	Hyr
Cynomoriaceae	Cynomorium songaricum	Th	IT
Poaceae	Cynosurus echinatus	Th	IT, Hyr
Cyperaceae	Cyperus arenarius	Ge	KhO
Cyperaceae	Cyperus conglomeratus	Ge	KhO
Cyperaceae	Cyperus difformis	Th	IT, Hyr
Cyperaceae	Cyperus distachyos	Ge	IT, KhO, Hyr
Cyperaceae	Cyperus eremicus	Ge	IT, KhO
Cyperaceae	Cyperus fuscus	Th	IT, Hyr
Cyperaceae	Cyperus longus	Ge	Hyr, IT, Zag
Cyperaceae	Cyperus rotundus	Ge	Cosm
Athyriaceae	Cystopteris fragilis	Ge	IT, Hyr
Poaceae	Dactylis glomerata	He	IT, Hyr
Poaceae	Dactyloctenium aegyptium	Ge	KhO
Orchidaceae	Dactylorrhiza iberica	Ge	Hyr
Orchidaceae	Dactylorrhiza umbrosa	Ge	IT
Fabaceae	Dalbergia sissoo	Ph	KhO
Ruscaceae	Danae racemosa	Ph	Hyr
Thymelaeaceae	Daphne laureola	Ph	Hyr
Thymelaeaceae	Daphne mezereum	Ph	Hyr
Thymelaeaceae	Daphne mucronata	Ph	IT, Ara, Zag, KhO
Thymelaeaceae	Daphne oleoides	Ph	IT, Zag, KhO
Thymelaeaceae	Daphne pontica	Ph	Hyr

Family	Plant species	Life form	Floristic region
Thymelaeaceae	Daphne rechingeri	Ph	Hyr
Thymelaeaceae	Daphne stapfii	Ph	IT, KhO
Datiscaceae	Datisca cannabina	He	IT, Hyr
Solanaceae	Datura innoxia	Th	KhO
Solanaceae	Datura stramonium	Th	Cosm
Umbelliferae	Daucus carota	Th, He	IT, Hyr
Ranunculaceae	Delphinium cyphoplectrum	He	IT
Ranunculaceae	Delphinium semibarbatum	He	IT
Thymelaeaceae	Dendrostellera lessrtii	Ch	IT
Poaceae	Deschampsia caespitosa	Ge	IT, Hyr
Brassicaceae	Descurainia Sophia	Th, He	IT, Hyr
Poaceae	Desmostachya bipinnata	Ge	KhO, IT
Poaceae	Deyeuxia parsana	He	Hyr
Caryophyllaceae	Dianthus crinitus	He	IT
Caryophyllaceae	Dianthus libunotis	Th, He	IT, Hyr
Caryophyllaceae	Dianthus macranthoides	He	IT, KhO
Caryophillaceae	Dianthus orientalis	Ch	IT
Caryophyllaceae	Dianthus pachypetalus	He	IT
Caryophyllaceae	Dianthus szowitsianus	He	IT
Caryophyllaceae	Dianthus tabrisianus	He	IT
Thymelaeaceae	Diarthron antoniniae	Ch	IT
Thymelaeaceae	Diarthron vesiculosum	Th	IT, Hyr
Poaceae	Dichanthium annulatum	Ge	IT, KhO, Hyr
Umbelliferae	Dicyclophora persica	Th	IT, KhO
Brassicaceae	Dielsiocharis kotschyi	Ch	IT
Plantaginaceae	Digitalis nervosa	He	IT, Hyr
Poaceae	Digitaria nodosa	He	IT
Poaceae	Digitaria sanguinalis	Th	IT
Poaceae	Dinebra retroflexa	Th	KhO
Primulaceae	Dionysia aubrietioides	He	IT, (End)

Family	Plant species	Life form	Floristic region
Primulaceae	Dionysia curviflora	He	IT, (End)
Primulaceae	Dionysia janthina	He	IT, (End)
Primulaceae	Dionysia khuzistanica	He	IT, (End)
Primulaceae	Dionysia rhaptodes	He	IT, (End)
Ebenaceae	Diospyros lotus	Ph	Hyr
Brassicaceae	Diplotaxis erucoides	Th	KhO
Brassicaceae	Diplotaxis harra	He, Th	KhO, IT
Dipsacaceae	Dipsacus laciniatus	He	IT
Dipsacaceae	Dipsacus pilosus	He	Hyr, IT
Dipsacaceae	Dipsacus strigosus	He	Hyr, Ara
Asteraceae	Dipterocome pusilla	Th	IT
Asteraceae	Dittrichia graveolens	Th	IT, KhO
Scrophulariaceae	Dodartia orientalis	He	IT
Sapindaceae	Dodonea viscose	Ph	KhO
Umbelliferae	Dorema ammoniacum	Th, He	IT
Umbelliferae	Dorema hyrcanum	He, Th	IT
Brassicaceae	Draba aucheri	He	IT
Brassicaceae	Draba nemorosa	Th	Hyr, IT
Brassicaceae	Drabopsis verna	Th	IT
Lamiaceae	Dracocephalum kotschyi	He	IT
Lamiaceae	Dracocephalum moldavica	Th	IT
Dryopteridaceae	Dryopteris borreri	He	Hyr
Dryopteridaceae	Dryopteris caucasica	Ge	Hyr
Dryopteridaceae	Dryopteris filix-mas	Ge	Hyr
Umbelliferae	Ducrosia anethifolia	He	IT, KhO
Umbelliferae	Ducrosia flabellifolia	He	IT
Fabaceae	Ebenus stellata	Ch	IT, KhO, Zag
Poaceae	Echinochloa crus-galli	Th	Hyr, IT
Umbelliferae	Echinophora cinerea	He	IT
Umbelliferae	Echinophora paltyloba	He	IT

Family	Plant species	Life form	Floristic region
Asteraceae	Echinops aucheri	He	IT, KhO, (End)
Asteraceae	Echinops cephalotes	He	IT, (End)
Asteraceae	Echinops ceratophorus	He	IT, (End)
Asteraceae	Echinops dichorus	He	KhO, (End)
Asteraceae	Echinops erioceras	He	IT, (End)
Asteraceae	Echinops gedrosiacus	He	KhO
Asteraceae	Echinops heteromorphus	He	IT, (End)
Asteraceae	Echinops ilicifolius	Ch	IT, (End)
Asteraceae	Echinops jezdianus	He	IT, (End)
Asteraceae	Echinops lalesarensis	Ch	IT, (End)
Asteraceae	Echinops leiopolyceroides	He	IT, (End)
Asteraceae	Echinops longipenicillatus	He	KhO, (End)
Asteraceae	Echinops macrophyllus	He	IT, KhO
Asteraceae	Echinops mosulensis	He	IT
Asteraceae	Echinops orientalis	He	IT
Asteraceae	Echinops polygamus	He	IT
Asteraceae	Echinops pungens	He	IT, Hyr
Asteraceae	Echinops ritrodes	He	IT
Asteraceae	Echinops robusta	He	IT, (End)
Asteraceae	Echinops tournefortii	He	IT
Boraginceae	Echium amoenum	He	Hyr
Boraginaceae	Echium italicum	He	IT
Boraginaceae	Echium khuzistanicum	Th, He	KhO
Asteraceae	Eclipta prostrata	Th	Hyr
Boraginaceae	Ehretia laevis	Ph	KhO
Boraginaceae	Ehretia obtusifolia	Ph	KhO
Elaeagnaceae	Elaeagnus angustifolia	Ph	IT
Cyperaceae	Eleocharis acicularis	Ge	IT
Cyperaceae	Eleocharis palustris	Ge	IT, Hyr

Family	Plant species	Life form	Floristic region
Poaceae	Eleusine indica	Th	Hyr
Poaceae	Elymus hispidus	Ge	IT, Hyr
Poaceae	Elymus zagricus	Ge	IT
Polygonaceae	Emex spinosa	Th	IT, KhO
Poaceae	Enneapogon persicus	He	IT, KhO
Ephedraceae	Ephedra brevifoliata	Ph, Ch	IT, KhO
Ephedraceae	Ephedra ciliata	Ph, Ch	IT, KhO
Ephedraceae	Ephedra distachya	Ph, Ch	IT
Ephedraceae	Ephedra foliata	Ph, Ch	IT, KhO
Ephedraceae	Ephedra glauca	Ph, Ch	IT
Ephedraceae	Ephedra holoptera	Ph, Ch	IT
Ephedraceae	Ephedra intermedia	Ph, Ch	IT, Zag
Ephedraceae	Ephedra major	Ph, Ch	IT, Hyr, KhO
Ephedraceae	Ephedra microbracteata	Ph, Ch	KhO
Ephedraceae	Ephedra pachyclada	Ph, Ch	IT, KhO
Ephedraceae	Ephedra persica	Ph, Ch	IT, KhO, Zag
Ephedraceae	Ephedra procera	Ph, Ch	IT, Hyr, Ara, Zag
Ephedraceae	Ephedra sarcocarpa	Ph, Ch	IT, Zag
Ephedraceae	Ephedra strobilacea	Ph, Ch	IT
Asteraceae	Epilasia hemilasia	Th	IT
Onagraceae	Epilobium dodonaei	Ge	Hyr
Onagraceae	Epilobium hirsutum	Ge	IT, Hyr
Onagraceae	Epilobium minutiflorum	Ge	IT
Onagraceae	Epilobium palustre	Ge	IT, Hyr
Podophyllaceae	Epimedium pinnatum	Ge	Hyr
Orchidaceae	Epipactis helleborine	Ge	Hyr, IT
Orchidaceae	Epipactis latifolia	Ge	Hyr, IT
Orchidaceae	Epipactis microphylla	Ge	Hyr
Orchidaceae	Epipactis palustris	Ge	IT

Family	Plant species	Life form	Floristic region
Orchidaceae	Epipactis rechingeri	Ge	Hyr
Orchidaceae	Epipactis veratrifolia	Ge	IT, KhO
Equisetaceae	Equisetum arvense	Ge	IT, Hyr
Equisetaceae	Equisetum maximum	Ge	Hyr
Equisetaceae	Equisetum palustre	Ge	Hyr, IT
Equisetaceae	Equisetum ramosissimum	Ge	IT, Hyr
Equisetaceae	Equisetum sp.	Ge	
Equisetaceae	Equisetum telmateia	Ge	IT, Hyr
Poaceae	Eragrostis poaeoides	Th	IT
Brassicaceae	Eremobium aegyptiacum	Th	KhO
Umbelliferae	Eremodaucus lehmannii	He	IT
Poaceae	Eremopoa persica	Th	IT
Poaceae	Eremopogon foveolatus	Ge	KhO
Poaceae	Eremopyrum bonaepartis	Th	IT
Poaceae	Eremopyrum confusum	Th	IT
Poaceae	Eremopyrum distans	Th	IT
Lamiaceae	Eremostachys labiosa	Ge	IT
Lamiaceae	Eremostachys laevigata	He	IT, Zag
Lamiaceae	Eremostachys macrophylla	He	IT
Lamiaceae	Eremostachys pulvinaris	He	IT
Liliaceae	Eremurus inderiensis	Ge	IT
Liliaceae	Eremurus kopetdaghensis	Ge	IT
Liliaceae	Eremurus olgae	Ge	IT
Liliaceae	Eremurus persicus	Ge	IT
Liliaceae	Eremurus spectabilis	Ge	IT
Liliaceae	Eremurus stenophyllus	Ge	IT
Asteraceae	Erigeron acer	He	IT, Hyr
Rosaceae	Eriobotrya japonica	Ph	Hyr
Geraniaceae	Erodium ciconium	Th	IT, Hyr
Geraniaceae	Erodium cicutarium	Th	Cosm

Family	Plant species	Life form	Floristic region
Geraniaceae	Erodium glaucophyllum	He	IT, KhO
Geraniaceae	Erodium gruinum	Th, He	IT, Zag, KhO
Geraniaceae	Erodium malacoides	Th, He	IT, KhO
Geraniaceae	Erodium moschatum	Th, He	KhO, Zag, IT
Geraniaceae	Erodium oxyrrhynchum	Th, He	IT, KhO
Geraniaceae	Erodium pulverulentum	Th, He	IT, KhO
Brassicaceae	Eruca sativa	Th	IT, Hyr, KhO
Brassicaceae	Erucaria hispanica	Th	KhO, IT
Umbelliferae	Eryngium billardieri	He	Cosm
Umbelliferae	Eryngium bungei	He	IT
Umbelliferae	Eryngium caeruleum	He	Hyr, IT
Umbelliferae	Eryngium caucasicum	He	IT
Umbelliferae	Eryngium noeanum	He	IT
Umbelliferae	Eryngium thyrsoideum	He	IT
Brassicaceae	Erysimum aitchisonii	He	IT
Brassicaceae	Erysimum crassicaule	He	IT
Brassicaceae	Erysimum griffithianum	Th	IT
Brassicaceae	Erysimum oleifolium	He	IT, KhO
Brassicaceae	Erysimum repandum	Th	IT, Hyr
Brassicaceae	Euclidium syriacum	Th	IT
Myrtaceae	Eugenia jambolana	Ph	KhO
Myrtaceae	Eugenia jambos	Ph	KhO
Asteraceae	Eupatorium cannabinum	Ch	Hyr, IT
Euphorbiaceae	Euphorbia aellenii	He	IT
Euphorbiaceae	Euphorbia aleppica	Th, He	IT
Euphorbiaceae	Euphorbia amygdaloides	Ge	Hyr
Euphorbiaceae	Euphorbia aucheri	He	IT, Hyr
Euphorbiaceae	Euphorbia Boissieriana	He	IT, Hyr
Euphorbiaceae	Euphorbia buhsei	He	IT, Hyr

Family	Plant species	Life form	Floristic region
Euphorbiaceae	Euphorbia bungei	He	IT
Euphorbiaceae	Euphorbia cheiradenia	He	IT, Hyr
Euphorbiaceae	Euphorbia connata	He	IT
Euphorbiaceae	Euphorbia decipiens	He	IT
Euphorbiaceae	Euphorbia densa	Th	IT, KhO
Euphorbiaceae	Euphorbia denticolata	He	IT
Euphorbiaceae	Euphorbia erythradenia	He	IT
Euphorbiaceae	Euphorbia falcata	Th	IT, Hyr, KhO
Euphorbiaceae	Euphorbia gedrosiaca	He	IT, KhO
Euphorbiaceae	Euphorbia granulata	Th	KhO
Euphorbiaceae	Euphorbia helioscopia	Th	Hyr, IT
Euphorbiaceae	Euphorbia heteradena	He	IT, Hyr
Euphorbiaceae	Euphorbia humilis	He	IT
Euphorbiaceae	Euphorbia larica	Ch	KhO
Euphorbiaceae	Euphorbia macroclada	He	IT
Euphorbiaceae	Euphorbia macrostegia	He	IT
Euphorbiaceae	Euphorbia microsciadia	He	IT
Euphorbiaceae	Euphorbia neriifolia	Ph	KhO
Euphorbiaceae	Euphorbia osyridea	He	KhO
Euphorbiaceae	Euphorbia petiolata	Th	IT
Euphorbiaceae	Euphorbia sororia	Th	IT
Euphorbiaceae	Euphorbia splendida	He	IT
Euphorbiaceae	Euphorbia stricta	Th	Hyr, IT
Euphorbiaceae	Euphorbia szovitsii	Th	IT, Hyr
Euphorbiaceae	Euphorbia teheranica	He	IT
Euphorbiaceae	Euphorbia tirucalli	Ph	KhO
Euphorbiaceae	Euphorbia turcomanica	Th	IT, KhO
Euphorbiaceae	Euphorbia virgata	He	IT, Hyr
Scrophulariaceae	Euphrasia juzepczukii	Th	IT
Chenopodiaceae	Eurotia ceratoides	Ch	IT

Family	Plant species	Life form	Floristic region
Celastraceae	Evonymus europaeus	Ph	Ara, Hyr
Celastraceae	Evonymus latifolia	Ph	Hyr, Ara
Celastraceae	Evonymus velutina	Ph	Hyr
Celastraceae	Evonymus verrucosa	Ph	Ara
Zygophyllaceae	Fagonia acerosa	He	KhO
Zygophyllaceae	Fagonia bruguieri	He	IT, KhO
Zygophyllaceae	Fagonia indica	He	KhO
Zygophyllaceae	Fagonia olivieri	He	KhO
Zygophyllaceae	Fagonia subinermis	He	KhO
Fagaceae	Fagus orientalis	Ph	Hyr
Umbelliferae	Falcaria vulgaris	He	IT, Hyr
Brassicaceae	Farsetia heliophila	He	IT, KhO
Umbelliferae	Ferula assa-foetida	He	IT
Umbelliferae	Ferula gabriellii	He	IT
Umbelliferae	Ferula galbanifua	He	Hyr
Umbelliferae	Ferula gummosa	He	IT
Umbelliferae	Ferula haussknechtii	He	IT, Zag
Umbelliferae	Ferula hirtella	He	IT
Umbelliferae	Ferula latisecta	He	IT
Umbelliferae	Ferula macrocolea	He	IT
Umbelliferae	Ferula oopoda	He	IT
Umbelliferae	Ferula orientalis	He	IT
Umbelliferae	Ferula ovina	He	IT
Umbelliferae	Ferula stenocarpa	Th	IT, KhO
Umbelliferae	Ferula szowitsiana	He	IT
Umbelliferae	Ferula tabasensis	He	IT
Umbelliferae	Ferulago angulata	He	IT
Umbelliferae	Ferulago contracta	He	IT
Umbelliferae	Ferulago macrocarpa	He	IT
Umbelliferae	Ferulago stellata	He	IT

Family	Plant species	Life form	Floristic region
Poaceae	Festuca arundinacea	He	IT
Poaceae	Festuca ovina	He	IT, Hyr
Poaceae	Festuca rubra	Ge	IT, Hyr
Brassicaceae	Fibigia macrocarpa	He	IT
Brassicaceae	Fibigia suffruticosa	He	IT
Brassicaceae	Fibigia umbellata	He	IT
Ranunculaceae	Ficaria kochii	Ge	IT
Moraceae	Ficus bengalensis	Ph	KhO
Moraceae	Ficus carica	Ph	IT, Hyr, Ara, Zag
Moraceae	Ficus johannis	Ph	IT, KhO
Moraceae	Ficus laccifera	Ph	KhO
Moraceae	Ficus palmata	Ph	KhO
Moraceae	Ficus religiosa	Ph	KhO
Moraceae	Ficus rubunigosa	Ph	KhO
Moraceae	Ficus rupestris	Ph	IT
Asteraceae	Filago hurdwarica	Th	IT, KhO
Rosaceae	Filipendula vulgaris	Ge	Ara
Umbelliferae	Foeniculum vulgare	He	IT, KhO
Urticaceae	Forsskaolea tenacissima	Th, He	KhO
Brassicaceae	Fortuynia bungei	He	IT, KhO
Brassicaceae	Fortuynia garcinii	He	KhO
Rosaceae	Fragaria sp.	Ge	
Rosaceae	Fragaria vesca	Ge	Hyr
Asteraceae	Francoeuria undulata	He	IT, KhO
Rhamnaceae	Frangula alnus	Ph	Hyr
Frankeniaceae	Frankenia hirsuta	Ch	Hyr, IT
Frankeniaceae	Frankenia pulverulenta	Th, He	IT, KhO
Oleaceae	Fraxinus coriariifolia	Ph	Ara, Hyr
Oleaceae	Fraxinus excelsior	Ph	Hyr
Oleaceae	Fraxinus persica	Ph	Zag, (End)

Family	Plant species	Life form	Floristic region
Oleaceae	Fraxinus rotuidfolia	Ph	IT*, Hyr, Zag, Ara
Oleaceae	Fraxinus sp.	Ph	
Oleaceae	Fraxinus syriaca	Ph	Zag
Liliaceae	Fritillaria crassifolia	Ge	IT
Liliaceae	Fritillaria gibbosa	Ge	IT
Liliaceae	Fritillaria imperialis	Ge	IT
Liliaceae	Fritillaria persica	Ge	IT
Liliaceae	Fritillaria raddeana	Ge	IT
Liliaceae	Fritillaria sp.	Ge	
Liliaceae	Fritillaria zagrica	Ge	IT
Umbelliferae	Froriepia subpinnata	Th	Hyr
Cyperaceae	Fuirena pubescens	Ge	IT
Cistaceae	Fumana procumbens	Ch	IT, Hyr
Fumariaceae	Fumaria asepala	Th	IT
Fumariaceae	Fumaria parviflora	Th	Cosm
Fumariaceae	Fumaria vaillantii	Th	IT, Hyr
Liliaceae	Gagea alexeenkoana	Ge	IT
Liliaceae	Gagea anonyma	Ge	IT
Liliaceae	Gagea chlorantha	Ge	Zag, IT, KhO
Liliaceae	Gagea chomutowae	Ge	IT
Liliaceae	Gagea gageoides	Ge	IT, Hyr
Liliaceae	Gagea olgae	Ge	IT
Liliaceae	Gagea reticulata	Ge	IT
Liliaceae	Gagea setifolia	Ge	IT
Liliaceae	Gagea sp.	Ge	IT
Liliaceae	Gagea stipitata	Ge	IT, Hyr
Liliaceae	Gagea tenera	Ge	IT
Liliaceae	Gagea vegeta	Ge	IT
Rubiaceae	Gaillonia aucheri	Ch	KhO

Family	Plant species	Life form	Floristic region
Rubiaceae	Gaillonia bruguieri	He	IT
Asteraceae	Galinsoga parviflora	Th	Cosm
Rubiaceae	Galium aparine	Th	Hyr, IT
Rubiaceae	Galium humifusum	He	IT
Rubiaceae	Galium mite	Ch	IT
Rubiaceae	Galium odaratum	He	Hyr
Rubiaceae	Galium setaceum	Th	IT
Rubiaceae	Galium spurium	Th	IT
Rubiaceae	Galium verum	He	IT, Zag
Chenopodiaceae	Gamanthus gamocarpus	Th	IT
Asteraceae	Garhadiolus angulosus	Th	Cosm
Boraginaceae	Gastrocotyle hispida	Th	IT
Fabaceae	Genista tinctoria	Ch	Ara
Gentianaceae	Gentiana olivieri	He	IT, KhO
Geraniaceae	Geranium albanum	Ge	Hyr, IT
Geraniaceae	Geranium collinum	Ge	IT, Hyr, Zag
Geraniaceae	Geranium columbinum	Th, He	Hyr
Geraniaceae	Geranium dissectum	He, Th	IT, Hyr
Geraniaceae	Geranium divaricatum	Th	Hyr, IT
Geraniaceae	Geranium kotschyi	Ge	IT
Geraniaceae	Geranium lucidum	Th	IT, Hyr
Geraniaceae	Geranium molle	Th, He	Hyr, IT
Geraniaceae	Geranium montanum	Ge	Hyr
Geraniaceae	Geranium persicum	Ge	IT, Hyr, Zag
Geraniaceae	Geranium pyrenaicum	Ge	Hyr, IT
Geraniaceae	Geranium robertianum	He, Th	Hyr, IT
Geraniaceae	Geranium rotundifolium	Th	Cosm
Geraniaceae	Geranium sylvaticum	Ge	Ara
Geraniaceae	Geranium tuberosum	Ge	Hyr, IT, Zag

Family	Plant species	Life form	Floristic region
Rosaceae	Geum heterocarpum	He	IT
Rosaceae	Geum kokanicum	He	IT
Rosaceae	Geum rivale	Ge	IT, Hyr
Rosaceae	Geum urbanum	He	Hyr, IT*
Chenopodiaceae	Girgensohnia imbricata	Th	IT
Chenopodiaceae	Girgensohnia oppositiflora	Th	IT
Iridaceae	Gladiolus atroviolaceus	Ge	IT
Iridaceae	Gladiolus halophilus	Ge	IT
Iridaceae	Gladiolus italicus	Ge	IT, KhO
Iridaceae	Gladiolus segetum	Ge	IT, KhO
Papaveaceae	Glaucium calycinum	He	IT
Papaveaceae	Glaucium elegans	Th	IT
Papaveaceae	Glaucium grandiflorum	He	IT
Papaveaceae	Glaucium oxylobum	He	IT
Primulaceae	Glaux maritima	Ge	IT
Caesalpiniaceae	Gleditsia caspica	Ph	Hyr
Asclepiadaceae	Glossonema varians	He	KhO
Poaceae	Glyceria plicata	He	IT, Hyr
Fabaceae	Glycyrrhiza echinata	He	Hyr
Fabaceae	Glycyrrhiza glabra	Ge	IT, KhO, Hyr
Asteraceae	Gnaphalium luteo-album	Th	Cosm
Brassicaceae	Goldbachia laevigata	Th	IT
Brassicaceae	Graelsia saxifragifolia	He	IT
Malvaceae	Grewia asiatica	Ph	KhO
Malvaceae	Grewia bicolor	Ph	KhO
Malvaceae	Grewia makranica	Ph	KhO
Malvaceae	Grewia populifolia	Ph	KhO
Asteraceae	Gundelia tournefortii	He	IT
Asteraceae	Gymnarrhena micrantha	Th	IT, KhO
Caryophyllaceae	Gymnocarpos decander	Ch	IT, KhO

Family	Plant species	Life form	Floristic region
Iridaceae	Gynandriris sisyrinchium	Ge	IT
Caryophyllaceae	Gypsophila abconica	Th	KhO
Caryophyllaceae	Gypsophila caricifolia	He	IT
Caryophyllaceae	Gypsophila elegans	Th, He	IT, Hyr
Caryophyllaceae	Gypsophila pilosa	Th	IT
Caryophyllaceae	Gypsophila platyphylla	He	IT
Chenopodiaceae	Halanthium rarifolium	Th	IT
Amaranthaceae	Halimione vertucifera	He	IT
Chenopodiaceae	Halimocnemis mollissima	Th	IT
Chenopodiaceae	Halimocnemis pilifera	Th	IT
Fabaceae	Halimodendron halodendron	Ph	IT
Chenopodiaceae	Halocharis hispida	Th	IT
Chenopodiaceae	Halocharis sp.	Th	
Chenopodiaceae	Halocharis sulphurea	Th	IT, KhO
Chenopodiaceae	Halocmemum strobilaceum	Ch	IT, KhO
Chenopodiaceae	Halostachys belangeriana	Ph	IT
Chenopodiaceae	Halostachys caspica	Ch	Hyr
Chenopodiaceae	Halothamnus acutifolius	Ch	IT
Chenopodiaceae	Halothamnus auriculus	Ch	IT
Chenopodiaceae	Halothamnus glaucus	Ch	IT
Chenopodiaceae	Halothamnus iranicus	Ch	KhO
Chenopodiaceae	Halothamnus kermanensis	Ch	IT, (End)
Chenopodiaceae	Halothamnus subaphyllus	Ch	IT
Chenopodiaceae	Haloxylon ammodendern	Ph	IT, KhO
Chenopodiaceae	Haloxylon aphyllum	Ph	IT
Chenopodiaceae	Haloxylon articulatum	Ph	IT
Chenopodiaceae	Haloxylon multiflorum	Ph	IT, KhO
Chenopodiaceae	Haloxylon persicum	Ph	IT
Chenopodiaceae	Haloxylon recurvum	Ph	IT, KhO
Chenopodiaceae	Haloxylon salicornicum	Ph	IT, KhO

Family	Plant species	Life form	Floristic region
Chenopodiaceae	Hammada salicornia	Ch	IT, KhO
Rutaceae	Haplophyllum buhsei	He	IT, (End)
Rutaceae	Haplophyllum canaliculatum	He	IT, KhO, (End)
Rutaceae	Haplophyllum glaberrimum	He	IT, (End)
Rutaceae	Haplophyllum pedicellatum	He	IT
Rutaceae	Haplophyllum perforatum	Ch	IT*
Rutaceae	Haplophyllum pilosum	He	IT
Rutaceae	Haplophyllum robustum	He	IT
Rutaceae	Haplophyllum tuberculatum	He	IT, KhO
Umbelliferae	Haussknechtia elymaitica	He	IT
Araliaceae	Hedera colchica	Ph	Hyr
Araliaceae	Hedera helix	Ph	Zag
Araliaceae	Hedera pastuchovii	Ph	Hyr
Asteraceae	Hedypnois rhagadioloides	Th	Hyr, KhO
Fabaceae	Hedysarum criniferum	He	IT
Fabaceae	Hedysarum kopetdaghi	He	IT
Fabaceae	Hedysarum wrightianum	He	IT
Cistaceae	Helianthemum chamaecistus	He	IT, Hyr
Cistaceae	Helianthemum ledifolium	Th, He	IT, KhO, Hyr, Zag
Cistaceae	Helianthemum lippii	Ch	KhO
Cistaceae	Helianthemum nummularium	He	IT, Hyr
Cistaceae	Helianthemum salicifolium	Th	IT, Hyr, KhO, Zag
Asteraceae	Helianthus annus	Th	IT
Asteraceae	Helianthus tuberosus	Ge	Cosm
Asteraceae	Helichrysum armenium	He	IT
Asteraceae	Helichrysum davisianum	He	IT
Asteraceae	Helichrysum leucocephalum	He	KhO, IT
Asteraceae	Helichrysum oligocephalum	He	IT
Asteraceae	Helichrysum oocephalum	He	IT

Family	Plant species	Life form	Floristic region
Asteraceae	Helichrysum psychrophilum	He	IT, Hyr
Asteraceae	Helichrysum rubicundum	He	IT
Boraginaceae	Heliotropium agdense	Th	IT
Boraginaceae	Heliotropium arguzioides	Ge	IT
Boraginaceae	Heliotropium aucheri	He	IT
Boraginaceae	Heliotropium bacciferum	Ch	IT, KhO
Boraginaceae	Heliotropium brevilimbe	He	KhO, IT
Boraginaceae	Heliotropium chorassanicum	Th	IT
Boraginaceae	Heliotropium crispum	He	IT, KhO
Boraginaceae	Heliotropium dasycarpum	He	IT
Boraginaceae	Heliotropium digynum	Ch	KhO
Boraginaceae	Heliotropium dissitiflorum	Th	IT
Boraginaceae	Heliotropium elipticum	Th	IT, Hyr
Boraginaceae	Heliotropium esfandiarii	Th	IT, (End)
Boraginaceae	Heliotropium europaeum	Th	Hyr, IT
Boraginaceae	Heliotropium lasiocarpum	Th	IT
Boraginaceae	Heliotropium mesinanum	Th	IT
Boraginaceae	Heliotropium noeanum	Th	IT
Boraginaceae	Heliotropium ramosissimum	He	IT
Boraginaceae	Heliotropium samolifolium	Th	IT, (End)
Boraginaceae	Heliotropium supinum	Th	IT
Boraginaceae	Heliotropium szovitsianum	Th	IT
Boraginaceae	Heliotropium transoxanum	He	IT
Asteraceae	Helminthotheca echioides	Th, He	IT, KhO
Poaceae	Henrardia persica	Th	IT
Umbelliferae	Heracleum persicum	He	IT
Caryaphyllaceae	Herniaria cinerea	Th	KhO, Hyr, Zag, IT
Caryaphyllaceae	Herniaria glabra	Th, He	IT, Hyr
Caryaphyllaceae	Herniaria hirsuta	Th	IT, KhO, Hyr, Zag

Family	Plant species	Life form	Floristic region
Caryaphyllaceae	Herniaria incana	He	Hyr, IT
Asteraceae	Hertia angustifolia	Ch	IT, KhO
Asteraceae	Hertia intermedia	Ch	IT, KhO
Brassicaceae	Hesperis hyrcana	He	Hyr
Brassicaceae	Hesperis kurdica	He	IT
Brassicaceae	Hesperis leucoclada	He	IT
Brassicaceae	Hesperis persica	He	IT, Hyr
Poaceae	Heteranthelium piliferum	Th	IT
Boraginaceae	Heterocaryum laevigatum	Th	IT
Boraginaceae	Heterocaryum macrocarpum	Th	IT
Boraginaceae	Heterocaryum subsessile	Th	IT, Hyr
Boraginaceae	Heterocaryum szovitsianum	Th	IT
Asteraceae	Heteroderis pusilla	Th	IT
Asteraceae	Heteropappus altaicus	He	IT
Malvaceae	Hibiscus trionum	Th	IT, Hyr
Asteraceae	Hieracium procerum	He	IT, Hyr
Fabaceae	Hippocrepis bicontorta	Th	KhO
Fabaceae	Hippocrepis bisiliqua	Th	IT
Elaeagnaceae	Hippophae rhamnoides	Ph	IT*, Hyr
Hippuridaceae	Hippuris vulgaris	Hel	IT
Brassicaceae	Hirschfeldia incana	Th, He	IT, Hyr, KhO
Caryaphyllaceae	Holosteum glutinosum	Th	IT
Caryaphyllaceae	Holosteum umbellatum	Th	IT
Chenopodiaceae	Horaninovia anomala	Th	IT
Chenopodiaceae	Horaninovia ulicina	Th	IT, (End)
Poaceae	Hordeum bulbosum	Ge	IT, Hyr
Poaceae	Hordeum glaucum	Th	IT, Hyr, KhO
Poaceae	Hordeum murinum	Th	IT
Poaceae	Hordeum spontaneum	Th	IT

Family	Plant species	Life form	Floristic region
Poaceae	Hordeum violaceum	He	IT, Hyr
Poaceae	Hordeum vulgar	Th	IT
Rosaceae	Hulthemia persica	Ch	IT
Fabaceae	Hymenocarpus circinatus	Th	IT, KhO
Lamiaceae	Hymenocrater argutidens	Ch	IT*
Lamiaceae	Hymenocrater butiminosus	Ch	IT*
Lamiaceae	Hymenocrater calycinus	Ch	IT*
Lamiaceae	Hymenocrater elegans	Ch	IT*
Lamiaceae	Hymenocrater yazdianus	He	IT
Brassicaceae	Hymenolobus procumbens	Th	Cosm
Solanaceae	Hyoscyamus arachnoideus	He	IT
Solanaceae	Hyoscyamus insanus	Ge	KhO, IT
Solanaceae	Hyoscyamus kotschyanus	Ge	IT
Solanaceae	Hyoscyamus muticus	Ge	IT, KhO, (End)
Solanaceae	Hyoscyamus niger	Th, He	IT, Hyr
Solanaceae	Hyoscyamus nutans	Ge	IT, KhO
Solanaceae	Hyoscyamus orthocarpus	Ge	IT, KhO
Solanaceae	Hyoscyamus pusillus	Th	IT
Solanaceae	Hyoscyamus reticulatus	He	IT, Hyr
Solanaceae	Hyoscyamus rosularis	Ge	IT, KhO
Solanaceae	Hyoscyamus senecionis	Ge	IT
Solanaceae	Hyoscyamus squarrosus	Ge	IT
Solanaceae	Hyoscyamus tenuicaulis	Ge	KhO, IT
Poaceae	Hyparrhenia hirta	He	KhO
Papaveraceae	Hypecoum pendulum	Th	IT
Hypericaceae	Hypericum androsaemum	Ph	Hyr
Hypericaceae	Hypericum asperulum	He	Zag, IT*
Hypericaceae	Hypericum helianthemoides	He	IT
Hypericaceae	Hypericum hirsutum	He	Hyr
Hypericaceae	Hypericum hirtellum	He	IT

Family	Plant species	Life form	Floristic region
Hypericaceae	Hypericum hyssopifolium	He	IT*
Hypericaceae	Hypericum perforatum	He	IT, Hyr
Hypericaceae	Hypericum scabrum	He	IT*
Hypericaceae	Hypericum triquetrifolium	He	IT
Lamiaceae	Hyssopus angustifolius	He	IT, Hyr
Asteraceae	Ifloga spicata	Th	KhO
Aquilofoliaceae	Ilex spinigera	Ph	Hyr
Poaceae	Imperata cylindrica	Ge	IT, KhO
Fabaceae	Indigofera argentea	Ch	KhO
Fabaceae	Indigofera intricata	Ch	KhO
Fabaceae	Indigofera paucifolia	Ch	KhO
Asteraceae	Inula beritannica	He	IT
Asteraceae	Inula oculus-christi	Ge	IT, Hyr
Asteraceae	Inula salicina	Ge	IT, Hyr
Asteraceae	Inula thapsoides	Ge	IT
Iridaceae	Iris acutiloba	Ge	IT
Iridaceae	Iris caucasica	Ge	IT
Iridaceae	Iris drepanophylla	Ge	IT
Iridaceae	Iris fosterana	Ge	IT
Iridaceae	Iris hymenospatha	Ge	IT, KhO, (End)
Iridaceae	Iris kopetdagensis	Ge	IT, Hyr
Iridaceae	Iris persica	Ge	IT, KhO, (End)
Iridaceae	Iris pseudacorus	Ge	Hyr
Iridaceae	Iris pseudocaucasica	Ge	Hyr, IT
Iridaceae	Iris reticulata	Ge	IT, Hyr
Iridaceae	Iris sisyrinchium	Ge	IT, KhO
Iridaceae	Iris songarica	Ge	IT
Iridaceae	Iris squria	Ge	IT, Hyr
Brassicaceae	Isatis buschiana	He	IT

Family	Plant species	Life form	Floristic region
Brassicaceae	Isatis cappadocica	He	IT, Hyr
Brassicaceae	Isatis minima	Th	KhO
Brassicaceae	Isatis raphanifolia	Th	IT
Brassicaceae	Isatis regulosa	Th	IT
Amaryllidaceae	Ixiolirion tataricum	Ge	IT
Oleaceae	Jasminum fruticans	Ph	IT*, Hyr, Ara
Oleaceae	Jasminum officinale	Ph	IT*, Hyr
Juglandaceae	Juglans fallax	Ph	Hyr, Ara
Juglandaceae	Juglans regia	Ph	Hyr, IT, Ara, Zag
Juncaceaea	Juncus acutus	Ge	Cosm
Juncaceaea	Juncus articulatus	Ge	Cosm
Juncaceaea	Juncus bufonius	Th	IT, Hyr, KhO
Juncaceaea	Juncus effusus	Ge	IT, Hyr
Juncaceaea	Juncus fontanesii	Ge	IT
Juncaceaea	Juncus gerardi	Ge	IT
Juncaceaea	Juncus infelxus	Ge	IT, Hyr
Juncaceaea	Juncus Littoralis	Ge	Hyr
Juncaceaea	Juncus maritimus	Ge	IT
Juncaceaea	Juncus punctorius	Ge	IT
Juncaceaea	Juncus rigidus	Ge	IT, KhO
Juncaceaea	Juncus socotranus	Ge	KhO
Cupressaceae	Juniperus communis	Ph	Ara, Hyr
Cupressaceae	Juniperus excelsa	Ph	IT*, Zag, Hyr
Cupressaceae	Juniperus foetidissima	Ph	IT*, Ara
Cupressaceae	Juniperus polycarpus	Ph	IT*, Ara, Zag
Cupressaceae	Juniperus sabina	Ph	Hyr
Asteraceae	Jurinea dumolosa	He	IT
Asteraceae	Jurinea leptoloba	He	IT

Family	Plant species	Life form	Floristic region
Asteraceae	Jurinea macrocephala	He	IT
Asteraceae	Jurinea radians	He	IT
Asteraceae	Jurinea ramosissima	He	IT
Asteraceae	Jurinea stenocalathia	He	IT
Asteraceae	Jurinea viciosoi	He	IT
Chenopodiaceae	Kalidium caspicum	Ch	IT
Scrophulariaceae	Kickxia elatine	Th	IT, Zag, KhO, Hyr
Chenopodiaceae	Kochia prostrata	He	IT, Hyr
Chenopodiaceae	Kochia scoparia	Th	Cosm
Chenopodiaceae	Kochia stellaris	Th	IT
Poaceae	Koeleria cristata	He	IT, Hyr
Asteraceae	Koelpinia linearis	Th	Cosm
Asteraceae	Koelpinia macrantha	Th	IT
Asteraceae	Koelpinia tenuissima	Th	IT, KhO
Chenopodiaceae	Krascheninnikovia ceratoides	Ch	IT
Brassicaceae	Lachnoloma lehmannii	Th	IT
Asteraceae	Lactuca glauciifolia	He	IT
Asteraceae	Lactuca microcephala	Ge	IT, (End)
Asteraceae	Lactuca orientalis	Ch	IT, Hyr, KhO
Asteraceae	Lactuca persica	He	IT, KhO
Asteraceae	Lactuca scarioloides	Th, He	IT
Asteraceae	Lactuca serriola	Th, He	Hyr, IT, KhO, Zag
Asteraceae	Lactuca tuberosa	He	IT, Hyr, KhO
Asteraceae	Lactuca undulata	Th	IT
Lamiaceae	Lagochillus kotschyanus	Ch	IT
Lamiaceae	Lagochilus cabulicus	Ch	IT
Umbelliferae	Lagoecia cuminoides	Th	IT, KhO
Lamiaceae	Lallemantia iberica	Th	IT
Lamiaceae	Lallemantia royleana	Th	IT

Family	Plant species	Life form	Floristic region
Poaceae	Lamarckia aurea	Th	KhO
Lamiaceae	Lamium album	He	Hyr, IT
Lamiaceae	Lamium amplexicaule	Th	Hyr, IT
Lamiaceae	Lamium galeobdelon	Ge	Hyr
Lamiaceae	Lamium purpureum	Th	Hyr
Verbenaceae	Lantana camara	Ph	KhO
Boraginaceae	Lappula barbata	He, Th	IT, Hyr, Zag
Boraginaceae	Lappula ceratophora	Th	IT
Boraginaceae	Lappula drabovii	Th, He	IT
Boraginaceae	Lappula microcarpa	Th, He	IT, Hyr, Zag
Boraginaceae	Lappula myosotis	Th	IT
Boraginaceae	Lappula patula	Th	IT
Boraginaceae	Lappula semiglabra	Th	IT
Boraginaceae	Lappula sessiliflora	Th	IT, Hyr
Boraginaceae	Lappula sinaica	Th	IT
Boraginaceae	Lappula spinocarpos	Th	IT, KhO
Asteraceae	Lapsana communis	He, Th	IT, Hyr
Asteraceae	Lapsana intermedia	He	IT
Umbelliferae	Laser trilobum	He	Hyr
Asteraceae	Lasiopogon moscoides	Th	IT
Fabaceae	Lathyrus aphaca	Th	Hyr, IT
Fabaceae	Lathyrus cicera	Th	IT, Hyr, KhO
Fabaceae	Lathyrus inconspicuus	Th	IT, Hyr
Fabaceae	Lathyrus incurvus	He	IT
Fabaceae	Lathyrus laxiforus	He	Hyr, IT
Fabaceae	Lathyrus pratensis	He	Hyr, IT
Fabaceae	Lathyrus rotundifolius	He	Hyr, IT
Fabaceae	Lathyrus sativus	Th	IT, Hyr
Fabaceae	Lathyrus vernus	He	Hyr

Family	Plant species	Life form	Floristic region
Fabaceae	Lathyrus vinealis	Th	IT
Asteraceae	Launaea acanthodes	Ch	IT
Asteraceae	Launaea capitata	Th	KhO, IT
Asteraceae	Launaea fallax	He	KhO
Asteraceae	Launaea glomerata	Th	IT, KhO
Asteraceae	Launaea mucronata	He	IT, KhO
Asteraceae	Launaea oligocephala	He	IT, KhO
Asteraceae	Launaea procumbens	He	IT, KhO
Asteraceae	Launaea spinosa	Ch	IT
Rosaceae	Laurocerasus officinalis	Ph	Hyr
Lauraceae	Laurus nobilis	Ph	IT
Lythraceae	Lawsonia intermis	Ph	KhO
Campanulaceae	Legousia falcata	Th	IT, Hyr
Lemnaceae	Lemna trisulca	Hyd	Hyr
Fabaceae	Lens culinaris	Th	IT
Fabaceae	Lens orientalis	Th	IT
Podophyllaceae	Leontice leontopetalum	Ge	IT, Zag
Asteraceae	Leontodon asperrimus	He	IT, Hyr
Asteraceae	Leontodon hispidus	He	Hyr, IT
Lamiaceae	Leonurus cardica	Ge	IT, Hyr
Brassicaceae	Lepidium draba	Ge	IT, Hyr
Brassicaceae	Lepidium latifolium	Ge	Hyr, IT
Brassicaceae	Lepidium perfoliatum	Th, He	IT , Hyr
Brassicaceae	Lepidium persicum	He	IT
Brassicaceae	Lepidium sativum	Th	Cosm
Brassicaceae	Lepidium vesicarium	Th, He	IT
Asclepiadaceae	Leptadenia pyrotechnica	Ph	KhO
Brassicaceae	Leptaleum filifolium	Th	IT
Scrophulariaceae	Leptorhabdos parviflora	Th	IT, Hyr
Rubiaceae	Leptunis trichoides	Th	IT

Family	Plant species	Life form	Floristic region
Caryophyllaceae	Lepyrodiclis holosteoides	Th	IT, KhO
Caryophyllaceae	Lepyrodiclis stellarioides	Th	IT
Fabaceae	Leucaena glauca	Ph	KhO
Poaceae	Leucopoa pseudosclerophylla	Ge	IT
Poaceae	Leucopoa sclerophylla	He	IT
Umbelliferae	Leutea petiolaris	He	IT, Hyr
Umbelliferae	Libanotis transcaucasica	He	Hyr, IT
Oleaceae	Ligustrum vulgare	Ph	Ara, Hyr
Orchidaceae	Limodorun abortivum	Ge	Hyr, IT
Plumbaginaceae	Limonium gmelini	He	IT
Plumbaginaceae	Limonium iranicum	Ch	IT, KhO
Plumbaginaceae	Limonium meyeri	He	IT
Plumbaginaceae	Limonium reniforme	He	IT
Scrophulariaceae	Linaria dalmatica	He	IT, Hyr
Scrophulariaceae	Linaria grandiflora	He	IT
Scrophulariaceae	Linaria kavirensis	Th	IT, (End)
Scrophulariaceae	Linaria kopetdaghensis	He	IT
Scrophulariaceae	Linaria kurdica	He	IT
Scrophulariaceae	Linaria lineolata	Ch	IT, (End)
Scrophulariaceae	Linaria michauxii	He	IT, (End)
Scrophulariaceae	Linaria pyramidata	He	IT
Scrophulariaceae	Linaria simplex	Th	IT, Hyr
Boraginaceae	Lindelofia kandavanensis	He	Hyr, (End)
Linderniaceae	Lindernia procumbens	Th	Cosm
Linaceae	Linum album	He	IT, (End)
Linaceae	Linum austriacum	Ch	IT, Hyr
Linaceae	Linum bienne	Th, He	KhO, Hyr
Linaceae	Linum catharticum	Th	IT, Hyr
Linaceae	Linum corymbulosum	Th	IT, Hyr
Linaceae	Linum glaucum	He	IT

Family	Plant species	Life form	Floristic region
Linaceae	Linum strictum	Th	IT
Umbelliferae	Lisaea heterocarpa	Th	IT, Zag
Orchidaceae	Listera ovata	Ge	Hyr
Boraginaceae	Lithospermum arvensis	Th	IT, Hyr
Boraginaceae	Lithospermum officinale	Ge	Hyr, IT
Boraginaceae	Lithospermum purpureo-coeruleum	Ge	Hyr
Poaceae	Lolium perenne	He	IT, Hyr
Poaceae	Lolium persicum	Th	IT, Hyr
Poaceae	Lolium rigidum	Th	IT, Hyr
Chenopodiaceae	Londesia eriantha	Th	IT
Caprifoliaceae	Lonicera bracteolaris	Ph	IT*, Hyr, Ara
Caprifoliaceae	Lonicera caprifolium	Ph	Hyr
Caprifoliaceae	Lonicera caucasica	Ph	Hyr, Ara
Caprifoliaceae	Lonicera floribunda	Ph	IT*, Hyr
Caprifoliaceae	Lonicera hypoleuca	Ph	Zag
Caprifoliaceae	Lonicera iberica	Ph	IT*, Hyr, Ara
Caprifoliaceae	Lonicera nummulariifolia		IT*, Zag
Poaceae	Lophochloa abtusiflora	Th	KhO
Poaceae	Lophochloa phleoides	Th	Cosm
Loranthaceae	Loranthus europaeus	Ph	Zag
Loranthaceae	Loranthus grewinkii	Ph	Zag, Hyr
Fabaceae	Lotus angustissimus	Th	Hyr, KhO
Fabaceae	Lotus corniculatus	He	IT
Fabaceae	Lotus gebelia	He	IT
Fabaceae	Lotus halophilus	Th	KhO
Onagraceaea	Ludwigia palustris	Hyd	Hyr
Cucurbitaceae	Luffa cylindrica	Th	KhO
Juncaceae	Luzula forsteri	Ge	Hyr
Solanaceae	Lycium depressum	Ph	IT, KhO, Zag, Ara

Family	Plant species	Life form	Floristic region
Solanaceae	Lycium edgewortii	Ph	KhO
Solanaceae	Lycium kopetdaghi	Ph	IT
Solanaceae	Lycium makranicum	Ph	KhO
Solanaceae	Lycium ruthenicum	Ph	IT, Ara
Solanaceae	Lycium shawii	Ph	KhO
Solanaceae	Lycopersiclum esculentum	Th	Cosm
Lamiaceae	Lycopus europaeus	Ge	Hyr, IT
Lythraceae	Lythrum hyssopifolia	Th	IT, Hyr, KhO
Lythraceae	Lythrum salicaria	He	Hyr, IT, Zag
Umbelliferae	Malabaila secacul	He	IT
Umbelliferae	Malablia porphyrodiscus	Ge	IT
Brassicaceae	Malcolmia africana	Th	IT
Brassicaceae	Malcolmia behboudiana	Th	KhO
Brassicaceae	Malcolmia strigosa	Th	IT
Brassicaceae	Malcolmia turkestanica	Th	IT
Rosaceae	Malus communis	Ph	IT, Hyr
Rosaceae	Malus domestica	Ph	IT
Rosaceae	Malus orientalis	Ph	IT*, Hyr, Ara, Zag
Malvaceae	Malva aegyptica	Th	IT, KhO
Malvaceae	Malva neglecta	He, Th	Hyr, IT
Malvaceae	Malva nicaeensis	Th	KhO, Hyr
Malvaceae	Malva parviflora	Th	KhO, IT
Malvaceae	Malva sylvestris	He, Th	IT
Anacardiaceae	Mangifera indica	Ph	KhO
Lamiaceae	Marrubium anisodon	Ge	IT, Hyr
Lamiaceae	Marrubium astracanicum	He	IT, Hyr
Lamiaceae	Marrubium crassidens	He	IT
Lamiaceae	Marrubium cuneatum	He	IT
Lamiaceae	Marrubium parviflorum	Ge	Hyr, IT

Family	Plant species	Life form	Floristic region
Lamiaceae	Marrubium vulgare	Ge	Hyr, IT
Apocynaceae	Marsdenia erecta	Ph	IT*, Zag, KhO
Asteraceae	Matricaria aurea	Th	IT, KhO
Asteraceae	Matricaria recutita	Th	IT, KhO
Brassicaceae	Matthiola alyssifolia	He	IT
Brassicaceae	Matthiola chenopodiifolia	Th	IT
Brassicaceae	Matthiola flavida	He	IT
Brassicaceae	Matthiola longipetala	Th	IT, KhO
Brassicaceae	Matthiola ovatifolia	He	IT
Fabaceae	Medicago coronata	Th	IT, Hyr, KhO
Fabaceae	Medicago laciniata	Th, He	KhO
Fabaceae	Medicago lupulina	He	IT, Hyr
Fabaceae	Medicago minima	Th	IT, KhO, Hyr
Fabaceae	Medicago orbicularis	Th	IT, Hyr
Fabaceae	Medicago polymorpha	Th	IT, Hyr, KhO
Fabaceae	Medicago radiata	Th	IT
Fabaceae	Medicago rigidula	Th	IT
Fabaceae	Medicago sativa	He	Cosm
Fabaceae	Medicago scutellata	Th	IT
Meliaceae	Melia azedarach	Ph	Hyr, KhO
Poaceae	Melica ciliata	He	IT, Hyr
Poaceae	Melica jacquemontii	Ge	IT
Poaceae	Melica persica	Ge	IT
Poaceae	Melica uniflora	Ge	Hyr, IT, Ara
Fabaceae	Melilotus albus	He	IT, Hyr
Fabaceae	Melilotus indicus	Th	IT, KhO
Fabaceae	Melilotus officinalis	He	IT
Lamiaceae	Mentha aquatica	Ge	Hyr

Family	Plant species	Life form	Floristic region
Lamiaceae	Mentha longifolia	Ge	IT
Lamiaceae	Mentha pulegium	He	Hyr
Lamiaceae	Mentha spicata	Ge	Hyr, IT
Euphorbiaceae	Mercurialis perennis	Ge	Hyr
Fabaceae	Meristotropis xanthioides	He	IT
Aizoaceae	Mesembryanthemum nodiflorum	Th	KhO
Caryophyllaceae	Mesostemma kotschyanum	He	IT
Poaceae	Mespilus germanica	Ph	Hyr, IT*, Zag, Ara
Campanulaceae	Michauxia koeiana	He	IT, (End)
Campanulaceae	Michauxia laevigata	He	IT, Hyr
Asteraceae	Microcephala lamellata	Th	IT
Boraginaceae	Microparacaryum bungei	Th	IT
Boraginaceae	Microparacaryum intermedium	Th	IT
Boraginaceae	Microparacaryum salsum	Th	IT, (End)
Poaceae	Microtegium vimienum	Th	Hyr
Poaceae	Milium pedicellare	Th	IT
Poaceae	Milium vernale	Th	Hyr, IT
Mimosaceae	Mimosa hamata	Ph	KhO
Mimosaceae	Mimosa pudica	Ph	KhO
Caryophyllaceae	Minuartia hamata	Th	IT
Caryophyllaceae	Minuartia hybrida	Th	IT
Caryophyllaceae	Minuartia lineata	He	Hyr, IT
Caryophyllaceae	Minuartia meyeri	Th	IT
Caryophyllaceae	Minuartia picta	Th	IT, KhO
Caryophyllaceae	Minuartia subtilis	Th	IT
Scrophulariaceae	Misopates orontium	Th	IT, KhO, Zag
Boraginaceae	Moltkia coerulea	Ge	IT
Boraginaceae	Moltkiopsis ciliata	He	KhO
Brassicaceae	Moricandia sinaica	Th, He	KhO

Family	Plant species	Life form	Floristic region
Brassicaceae	Moriera spinosa	Ch	IT
Morinaceae	Morina persica	He	IT, Zag
Moraceae	Morus alba	Ph	IT, Hyr, Ara
Moraceae	Morus nigra	Ph	Hyr, Ara
Umbelliferae	Muretia amplifolia	Ge	KhO
Liliaceae	Muscari caucasicum	Ge	IT
Liliaceae	Muscari neglectum	Ge	IT
Liliaceae	Muscari tenuiflorum	Ge	IT
Boraginaceae	Myosotis asiatica	He	IT, Hyr
Boraginaceae	Myosotis koelzii	Th	IT, (End)
Boraginaceae	Myosotis olympica	He	IT*, (End)
Boraginaceae	Myosotis propinqua	Th	IT, Hyr
Boraginaceae	Myosotis refracta	Th	IT
Boraginaceae	Myosotis sparsiflora	Th	IT, Hyr
Boraginaceae	Myosotis stricta	Th	IT
Boraginaceae	Myosotis sylvatica	Ge	IT, Hyr
Tamaricaceae	Myricaria germanica	Ph	IT*, Hyr
Tamaricaceae	Myricaria squamosa	Ph	Zag
Halogaraceae	Myriophyllum verticillatum	Hyd	Cosm
Myrtaceae	Myrtus communis	Ph	IT*, Zag, KhO
Arecaceae	Nannorrhops ritchiana	Ge	KhO
Amaryllidaceae	Narcissus tazetta	Ge	IT, Hyr
Poaceae	Nardurus subulatus	Th	IT
Brassicaceae	Nasturtium officinale	Hel	Hyr, IT
Rubiaceae	Neogaillonia eriantha	Ch	IT
Orchidaceae	Neottia nidus-avis	Ge	Hyr
Lamiaceae	Nepeta bracteata	Th	IT
Lamiaceae	Nepeta cataria	He	IT
Lamiaceae	Nepeta crassifolia	He	IT, Hyr

Family	Plant species	Life form	Floristic region
Lamiaceae	Nepeta fissa	He	IT
Lamiaceae	Nepeta gloeocephala	He	IT
Lamiaceae	Nepeta glomerulosa	He	IT
Lamiaceae	Nepeta heliotropifolia	He	IT
Lamiaceae	Nepeta hymenodonta	Th	IT
Lamiaceae	Nepeta ispahanica	Th	IT
Lamiaceae	Nepeta kotschyi	He	IT
Lamiaceae	Nepeta oxyodonta	He	IT
Lamiaceae	Nepeta persica	He	IT
Lamiaceae	Nepeta pungens	Th	IT
Lamiaceae	Nepeta saccharata	Th	IT
Lamiaceae	Nepeta satureioides	Th	IT
Lamiaceae	Nepeta sintenisii	He	IT, Hyr
Apocynaceae	Nerium indicum	Ph	IT, Zag, KhO
Apocynaceae	Nerium oleander	Ph	KhO
Brassicaceae	Neslia apiculata	Th	IT, Hyr
Rosaceae	Neurada procumbens	Th	KhO
Solanaceae	Nicotina tabacum	Th	Cosm
Ranunculaceae	Nigella arvensis	Th	IT, Hyr
Ranunculaceae	Nigella integrifolia	Th	IT
Ranunculaceae	Nigella sativa	Th	IT
Asteraceae	Nikitinia leptoclada	Ch	IT
Zygophyllaceae	Nitraria komarovii	Ph	IT
Zygophyllaceae	Nitraria roborowskii	Ph	IT
Zygophyllaceae	Nitraria schoberi	Ph	IT
Zygophyllaceae	Nitraria sibirica	Ph	IT
Chenopodiaceae	Noaea mucronata	Ch	IT
Chenopodiaceae	Noea tournefortii	Ch	IT
Boraginaceae	Nonnea caspica	Th	Hyr, IT
Boraginaceae	Nonnea Lutea	Th	Hyr

Family	Plant species	Life form	Floristic region
Boraginaceae	Nonnea persica	He	IT
Boraginaceae	Nonnea pulla	He	IT, Hyr
Boraginaceae	Nonnea rosea	Th	Hyr
Boraginaceae	Nonnea turcomanica	Th	IT
Asteraceae	Notobasis syriaca	Th	IT, KhO
Brassicaceae	Notoceras bicorne	Th	KhO
Resedaceae	Ochradenus aucheri	Ch	KhO
Resedaceae	Ochradenus baccatus	Ph	KhO
Resedaceae	Ochradenus ochradeni	Ch	IT
Lamiaceae	Ocimum basilicum	Th	IT, Hyr
Oleaceae	Olea aucheri	Ph	IT, KhO
Oleaceae	Olea europaea	Ph	Hyr
Oleaceae	Olea ferruginea	Ph	KhO
Asteraceae	Oligochaeta divaricata	Th	IT, Hyr
Asteraceae	Oligochaeta minima	Th	IT
Resedaceae	Oligomeris linifolia	Th	KhO
Umbelliferae	Oliveria decumbens	Th	IT, KhO
Fabaceae	Onobrychis altissima	He	IT
Fabaceae	Onobrychis aucheri	Th	IT, KhO
Fabaceae	Onobrychis bungei	He	IT, Hyr
Fabaceae	Onobrychis cornuta	Ch	IT*
Fabaceae	Onobrychis crista-galli	Th	IT, KhO
Fabaceae	Onobrychis gypsicola	He	IT
Fabaceae	Onobrychis khorassanica	He	IT
Fabaceae	Onobrychis mazanderanica	He	Hyr
Fabaceae	Onobrychis melanotricha	He	IT
Fabaceae	Onobrychis micrantha	Th	IT
Fabaceae	Onobrychis plantago	Ge	IT
Fabaceae	Onobrychis ptolemaica	He	IT
Fabaceae	Onobrychis sintenisii	Ch	IT

Family	Plant species	Life form	Floristic region
Fabaceae	Onobrychis transcaspica	Ch	IT
Fabaceae	Ononis reclinata	Th	IT, Hyr, KhO
Fabaceae	Ononis spinosa	Ch	IT
Asteraceae	Onopordon acanthium	He	IT, Hyr
Asteraceae	Onopordon carmanicum	He	IT, KhO
Asteraceae	Onopordon heteracanthum	He	IT
Asteraceae	Onopordon leptolepis	He	IT
Boraginaceae	Onosma bodeanum	He	IT
Boraginaceae	Onosma bulbotrichum	He	IT
Boraginaceae	Onosma dasytrichum	Ch	IT
Boraginaceae	Onosma demawendicum	Ge	IT, (End)
Boraginaceae	Onosma dichroanthum	He	IT
Boraginaceae	Onosma elwendicum	He	IT
Boraginaceae	Onosma kotschyi	He	IT, (End)
Boraginaceae	Onosma longilobum	He	IT
Boraginaceae	Onosma microcarpum	He	IT
Boraginaceae	Onosma orientale	He	IT, KhO
Boraginaceae	Onosma rostellatum	He	IT, KhO
Boraginaceae	Onosma sericeum	He	IT
Boraginaceae	Onosma stenosiphon	He	IT
Boraginaceae	Onosma trachytrichum	He	IT
Cryptogrammaceae	Onychium melanolepis	Ge	KhO
Ophioglossaceae	Ophioglossum lusitanicum	Ge	Hyr
Ophioglossaceae	Ophioglossum vulgatum	Ge	Hyr
Orchidaceae	Ophrys apifera	Ge	Hyr
Orchidaceae	Ophrys sphegodes	Ge	Hyr, IT
Poaceae	Oplismenus undulatifolius	He	Hyr
Orchidaceae	Orchis caspia	Ge	Hyr
Orchidaceae	Orchis latifolia	Ge	Hyr, IT
Orchidaceae	Orchis mascula	Ge	Hyr, IT

Family	Plant species	Life form	Floristic region
Orchidaceae	Orchis palustris	Ge	IT, Hyr
Lamiaceae	Origanum vulgare	He	Hyr, IT
Liliaceae	Ornithogalum arcuatum	Ge	IT, Zag
Liliaceae	Ornithogalum brachystachys	Ge	IT, KhO
Liliaceae	Ornithogalum cuspidatum	Ge	IT
Liliaceae	Ornithogalum persicum	Ge	IT
Liliaceae	Ornithogalum sintenisii	Ge	Hyr
Liliaceae	Ornithogalum tenuifolium	Ge	IT, Hyr
Orobanchaceae	Orobanche alba	Th, He	Hyr, IT
Orobanchaceae	Orobanche hirtiflora	He	IT
Orobanchaceae	Orobanche vulgaris	He	IT, Hyr
Poaceae	Oryzopsis holciformis	He	IT
Poaceae	Oryzopsis lateralis	Ge	IT
Poaceae	Oryzopsis molinioides	He	IT
Lamiaceae	Otostegia persica	Ch	IT, KhO
Asteraceae	Outreya carduiformis	He	IT, Hyr
Oxalidaceae	Oxalis corniculata	Ge	IT, Hyr, KhO
Oxalidaceae	Oxalis sp.	Ge	
Fabaceae	Oxytropis heratensis	He	IT
Fabaceae	Oxytropis hirsutiuscula	He	IT
Brassicaceae	Pachypterygium multicaule	Th	IT
Rhamnaceae	Paliurus spina-christi	Ph	Hyr, Zag, Ara
Asteraceae	Pallenis spinosa	Th	IT, Hyr
Chenopodiaceae	Panderia turkestanica	Th	IT
Poaceae	Panicum antidotale	Ge	KhO
Poaceae	Panicum repens	Ge	KhO
Poaceae	Panicum turgidum	He	KhO
Papaveraceae	Papaver arenarium	Th	IT, Hyr
Papaveraceae	Papaver argemone	Th	IT

Family	Plant species	Life form	Floristic region
Papaveraceae	Papaver decaisnei	Th	IT, KhO
Papaveraceae	Papaver dubium	Th	Cosm
Papaveraceae	Papaver fugax	Th, He	IT
Papaveraceae	Papaver macrostomum	Th	IT
Papaveraceae	Papaver orientale	He	IT
Papaveraceae	Papaver pavoninum	Th	IT, Hyr
Papaveraceae	Papaver rhoeas	Th	IT
Boraginaceae	Paracaryum crista-galli	He	IT
Boraginaceae	Paracaryum intermedium	Th	IT
Boraginaceae	Paracaryum persicum	He	IT
Boraginaceae	Paracaryum rugulosum	He	IT
Boraginaceae	Paracaryum salsum	Th	IT
Boraginaceae	Paracaryum strictum	He	IT
Boraginaceae	Paracaryum turcomanicum	He	IT
Poaceae	Parapholis incurva	Th	IT, KhO
Urticaceae	Parietaria alsinifolia	Th	IT, KhO
Urticaceae	Parietaria judaica	Ge	Hyr, IT, Zag, KhO
Urticaceae	Parietaria lusitanica	Th	IT
Urticaceae	Parietaria officicalis	Ge	IT
Caesalpiniaceae	Parkinsonia aculeata	Ph	KhO
Caryophyllaceae	Paronychia arabica	He, Th	KhO
Caryophyllaceae	Paronychia bungei	He	IT, KhO, (End)
Caryophyllaceae	Paronychia caespitosa	He	IT, Zag, (End)
Caryophyllaceae	Paronychia kurdica	He	IT, Zag, KhO
Hamamelidaceae	Parrotia persica	Ph	Hyr
Poaceae	Paspalum dilatatum	Ge	Hyr
Poaceae	paspalum paspaloides	Ge	KhO
Scrophulariaceae	Pedicularis pycnantha	He	IT, Hyr
Scrophulariaceae	Pedicularis rechingeri	He	IT, (End)

Family	Plant species	Life form	Floristic region
Scrophulariaceae	Pedicularis sibthorpii	He	Hyr, IT
Scrophulariaceae	Pedicularis wilhelmsiana	He	IT
Zygophyllaceae	Peganum harmala	He	IT, KhO
Brassicaceae	Peltaria angustifolia	Th	IT, Zag
Poaceae	Pennisetum divisum	Ge	KhO
Poaceae	Pennisetum orientale	Ge	IT
Asteraceae	Pentanema divaricatum	Th	IT, KhO
Asteraceae	Pentanema multicaule	He	IT
Asteraceae	Pentanema pulicariifotme	He	IT
Asclepiadaceae	Pergularia tomentosa	Ch	KhO
Asclepiadaceae	Periploca aphylla	Ch	KhO
Asclepiadaceae	Periploca graeca	Ph	Hyr
Lamiaceae	Perovskia abrotanoides	Ch	Hyr, IT
Lamiaceae	Perovskia artemisioides	Ch	KhO, IT
Lamiaceae	Perovskia atriplicifolia	Ch	KhO
Rosaceae	Persica vulgaris	Ph	IT, Hyr
Asteraceae	Petasites hybridus	Ge	Hyr, IT
Caryophyllaceae	Petrorhagia cretica	Th	IT
Caryophyllaceae	Petrorhagia saxifrage	He	IT, Hyr
Chenopodiaceae	Petroselinum crispum	He	IT
Chenopodiaceae	Petrosimonia brachiata	Th	IT
Asteraceae	Phagnalon nitidum	He	IT, KhO
Poaceae	Phalaris arundinacae	Ge	IT, Hyr
Poaceae	Phalaris minor	Th	IT
Poaceae	Phalaris paradoxa	Th	IT
Fabaceae	Phaseolus vulgaris	Th	IT
Poaceae	Phleum iranicum	Ge	IT, Hyr
Poaceae	Phleum paniculatum	Th	IT, Hyr
Poaceae	Phleum phleoides	He	Hyr, IT
Poaceae	Phleum pratense	He	IT, Hyr

Family	Plant species	Life form	Floristic region
Lamiaceae	Phlomis anisodonta	He	IT, KhO, Zag
Lamiaceae	Phlomis aucheri	He	IT
Lamiaceae	Phlomis bruguieri	He	IT
Lamiaceae	Phlomis cancellata	He	IT
Lamiaceae	Phlomis herba-venti	He	IT, Hyr
Lamiaceae	Phlomis olivieri	He	IT, Hyr
Lamiaceae	Phlomis persica	He	IT
Lamiaceae	Phlomis tuberosa	He	IT
Palmaceae	Phoenix dactylifera	Ph	KhO
Poaceae	Phragmites australis	Ge	IT
Rubiaceae	Phuopsis stylosa	He	Hyr
Verbenaceae	Phyla nodiflora	Ge	IT, KhO
Aspleniaceae	Phylitis scolopendrium	Ge	IT, Hyr
Solanaceae	Physalis alkekengi	Ge	Hyr
Solanaceae	Physalis divaricata	Th	KhO, IT
Chenopodiaceae	Physogeton occultus	Th	IT, (End)
Brassicaceae	Physoptychis gnaphalodes	He	IT
Brassicaceae	Physorhynchus chamaerapistrum	Ch	KhO
Umbelliferae	Physospermun cornubiense	He	IT
Phytolaccaceae	Phytolacca americana	He	Cosm
Asteraceae	Picnomon acarna	Th, He	IT, Hyr
Asteraceae	Picris strigosa	He	Cosm
Umbelliferae	Pimpinella affinis	He	Hyr, IT
Umbelliferae	Pimpinella aurea	He	IT
Umbelliferae	Pimpinella barbata	Th	IT, KhO
Umbelliferae	Pimpinella dichotoma	Ge	IT
Umbelliferae	Pimpinella eriocarpa	Th	IT, KhO
Umbelliferae	Pimpinella tragium	Ge	IT, Hyr
Pinaceae	Pinus eldarica	Ph	IT
Pinaceae	Pinus taeda	Ph	Hyr

Family	Plant species	Life form	Floristic region
Anacardiaceae	Pistacia atlantica	Ph	IT*
Anacardiaceae	Pistacia cabulica	Ph	IT*, KhO, Zag
Anacardiaceae	Pistacia khinjuk	Ph	IT*, Zag, KhO
Anacardiaceae	Pistacia mutica	Ph	IT*, Zag, KhO, Ara
Anacardiaceae	Pistacia vera	Ph	IT*
Fabaceae	Pisum formosum	He	Hyr, IT
Plantaginaceae	Plantago atrata	He	Hyr, IT
Plantaginaceae	Plantago bellardi	Th	IT, KhO
Plantaginaceae	Plantago boissieri	Th	KhO
Plantaginaceae	Plantago cilliata	Th, He	KhO, IT
Plantaginaceae	Plantago coronopus	Th, He	IT
Plantaginaceae	Plantago evacina	Th	IT
Plantaginaceae	Plantago gentianoides	He	IT
Plantaginaceae	Plantago indica	Th	IT, Hyr, KhO
Plantaginaceae	Plantago lagopus	He, Th	IT, Hyr
Plantaginaceae	Plantago lanceolata	He	IT, Hyr, KhO
Plantaginaceae	Plantago major	He	Hyr, IT
Plantaginaceae	Plantago maritima	He	IT
Plantaginaceae	Plantago ovata	He	IT, KhO, Hyr
Plantaginaceae	Plantago psyllium	Th	IT, Hyr, KhO
Plantaginaceae	Plantago stocksii	He	IT, KhO
Plantaginaceae	Plantago trichophylla	Th, He	KhO
Orchidaceae	Platanthera bifolia	Ge	Hyr
Platanaceae	Platanus orientalis	Ph	IT*, Zag
Asteraceae	Platychaete aucheri	He	IT, KhO
Asteraceae	Platychaete glaucescens	Ch	IT, KhO
Asteraceae	platychaete mucronifolia	Ch	KhO, IT

Family	Plant species	Life form	Floristic region
Cuppressaceae	Platycladus orientalis	Ph	IT
Plumbaginaceae	Plumbago europaea	He	IT, Hyr
Poaceae	Poa annua	Th	Hyr
Poaceae	Poa araratica	Ge	IT
Poaceae	Poa bulbosa	Ge	IT, Hyr
Poaceae	Poa nemoralis	Ge	Hyr, IT
Poaceae	Poa pratensis	Ge	IT, Hyr
Poaceae	Poa sinaica	Ge	IT
Poaceae	Poa trivialis	Ge	Hyr, IT
Asteraceae	Podospermum laciniatum	He	IT, Hyr
Caryophyllaceae	Polycarpon tetraphyllum	Th	Hyr, KhO, Zag
Polygalaceae	Polygala anatolica	He	IT, Hyr
Polygalaceae	Polygala erioptera	He, Th	KhO
Polygalaceae	Polygala platyptera	He	Hyr, (End)
Asparagaceae	Polygonatum orientale	Ge	Hyr, IT
Polygonaceae	Polygonum afghanicum	He	IT
Polygonaceae	Polygonum alpestre	He	IT, Hyr
Polygonaceae	Polygonum arenastrum	Th	IT
Polygonaceae	Polygonum argyrocoleon	Th	IT
Polygonaceae	Polygonum aridum	He	IT
Polygonaceae	Polygonum aviculare	He, Th	Cosm
Polygonaceae	Polygonum convolvulus	Th	IT, Hyr
Polygonaceae	Polygonum dumosum	Ch	IT
Polygonaceae	Polygonum hydropiper	Th	Hyr, IT
Polygonaceae	Polygonum hyrcanicum	He, Th	Hyr, IT
Polygonaceae	Polygonum lapathifolium	Th	Hyr, IT
Polygonaceae	Polygonum luzuloides	He	IT
Polygonaceae	Polygonum orientale	Th	IT, Hyr
Polygonaceae	Polygonum paranchioides	He	IT
Polygonaceae	Polygonum patulum	Th	IT

Family	Plant species	Life form	Floristic region
Polygonaceae	Polygonum persicaria	Th	IT, Hyr
Polygonaceae	Polygonum polycnemoides	Th	IT
Polygonaceae	Polygonum rottboellioides	Th	IT
Polygonaceae	Polygonum spinosom	He	IT
Polygonaceae	Polygonum thymifolium	He	IT
Polypodiaceae	Polypodium interjectum	Ge	Hyr
Polypodiaceae	Polypodium vulgare	Ge	Cosm
Poaceae	Polypogon fugax	Th	IT, KhO
Poaceae	Polypogon monspeliensis	Th	Cosm
Aspisiaceae	Polystichum aculeatum	Ge	Cosm
Aspisiaceae	Polystichum woronowii	Ge	Hyr
Salicaceae	Populus afghanica	Ph	Zag
Salicaceae	Populus alba	Ph	IT*
Salicaceae	Populus caspica	Ph	IT*, Hyr, Ara
Salicaceae	Populus deltoids	Ph	Hyr
Salicaceae	Populus euphratica	Ph	IT*, KhO, Zag
Salicaceae	Populus nigra	Ph	IT*, Hyr, Ara
Portulacaceae	Portulaca grandiflora	Th	KhO
Portulacaceae	Portulaca oleracea	Th, He	KhO
Asteraceae	Postia puberula	Ch	IT, Zag
Potamogetonaceae	Potamogeton nodosus	Hyd	IT, Hyr
Potamogetonaceae	Potamogeton pectinatus	Hyd	IT, Hyr
Potamogetonaceae	Potamogeton perfoliatus	Hyd	KhO, Hyr
Rosaceae	Potentilla argentea	He	IT
Rosaceae	Potentilla canescens	He	IT, Hyr
Rosaceae	Potentilla crantzii	He	Hyr
Rosaceae	Potentilla lignosa	He	Hyr
Rosaceae	Potentilla micrantha	Ge	Hyr
Rosaceae	Potentilla nuda	He	IT, (End)

Family	Plant species	Life form	Floristic region
Rosaceae	Potentilla persica	He	Zag, (End)
Rosaceae	Potentilla recta	He	IT, Hyr
Rosaceae	Potentilla reptens	Ge	IT, Hyr
Umbelliferae	Prangos acaulis	He	IT
Umbelliferae	Prangos feruiacea	He	IT
Umbelliferae	Prangos latiloba	He	IT
Umbelliferae	Prangos uloptera	He	IT, Hyr
Asteraceae	Prenanthes cacaliifolia	He	Hyr
Primulaceae	Primula acaulis	He	Hyr
Primulaceae	Primula auriculata	He	IT, Hyr
Primulaceae	Primula capitellata	He	IT
Primulaceae	Primula heterochroma	He	IT
Mimosaceae	Prosopis cineraria	Ph	KhO
Mimosaceae	Prosopis farcta	Ph	KhO, IT
Mimosaceae	Prosopis juliflora	Ph	KhO
Mimosaceae	Prosopis koelziana	Ph	KhO
Mimosaceae	Prosopis spicigera	Ph	KhO
Mimosaceae	Prosopis stephaniana	Ph	KhO, IT
Lamiaceae	Prunella vulgaris	He	Cosm
Rosaceae	Prunus arminiacae	Ph	Cosm
Rosaceae	Prunus avium	Ph	Hyr
Rosaceae	Prunus brachypetala	Ph	IT*, Ara, Zag
Rosaceae	Prunus caspica	Ph	IT*, Ara, Hyr, (End)
Rosaceae	Prunus chorassanica	Ph	IT*
Rosaceae	Prunus diffusa	Ph	IT*, Hyr, Zag, (End)
Rosaceae	Prunus divaricata	Ph	IT*, Zag, Hyr, Ara
Rosaceae	Prunus domestica	Ph	Hyr, Zag
Rosaceae	Prunus incana	Ph	IT*, Zag
Rosaceae	Prunus lycioides	Ph	IT, Zag

Family	Plant species	Life form	Floristic region
Rosaceae	Prunus mahaleb	Ph	IT*, Ara, Zag
Rosaceae	Prunus microcarpa	Ph	IT*, Zag, Hyr, Ara
Rosaceae	Prunus pseudoprostratus	Ph	IT*, Hyr
Rosaceae	Prunus sp.	Ph	
Rosaceae	Prunus spinosa	Ph	Hyr, Ara
Rosaceae	Prunus tortuosa	Ph	IT*, Zag
Rosaceae	Prunus turcomanica	Ph	IT*, Hyr
Umbelliferae	Psammogeton canescense	Th	IT, KhO
Poaceae	Psathyrostachys fragilis	Ge	IT
Asteraceae	Psephellus leuzeoides	Ch	IT
Brassicaceae	Pseudocamelina camelinae	Th, He	IT
Brassicaceae	Pseudocamelina glaucophylla	He	IT, Hyr
Brassicaceae	Pseudocumelina campylopoda	He	IT
Asteraceae	Pseudohandelia umbellifera	He	IT
Crassulaceae	Pseudosedum multicaule	He	IT
Myrtaceae	Psidium guajava	Ph	KhO
Fabaceae	Psoralea aucheri	Ph	KhO
Fabaceae	Psoralea drupacea	Ph	IT
Fagaceae	Psoralea plicata	Ch	KhO
Asteraceae	Psychrogeton amorphoglossus	Ge	IT
Asteraceae	Psychrogeton obovatus	He	IT
Paronychiaceae	Pteranthus dichotomus	Th	IT, Hyr, KhO
Hypoleoidaceae	Pteridium aquilinum	Ge	Hyr
Pteridaceae	Pteris cretica	Ge	Hyr
Juglandaceae	Pterocarya fraxinifolia	Ph	Hyr
Dipsacaceae	Pterocephalus brevis	Th	KhO
Dipsacaceae	Pterocephalus canus	He	IT
Dipsacaceae	Pterocephalus gedrosiacus	He	IT
Dipsacaceae	Pterocephalus kurdicus	He	IT*

Family	Plant species	Life form	Floristic region
Dipsacaceae	Pterocephalus melanobasis	He	IT
Dipsacaceae	Pterocephalus persicus	He	IT*, (End)
Dipsacaceae	Pterocephalus plumosus	Th	IT, Hyr
Polygonaceae	Pteropyrum aucheri	Ph	Ara, IT
Polygonaceae	Pteropyrum noeanum	Ph	KhO
Polygonaceae	Pteropyrum olivieri	Ph	IT
Poaceae	Puccinellia grossheimiana	He	Hyr, IT
Asteraceae	Pulicaria dysenterica	Ge	Hyr, IT
Asteraceae	Pulicaria gnaphalodes	He	IT, KhO
Asteraceae	Pulicaria salviifolia	He	IT
Punicaceae	Punica granatum	Ph	Hyr, IT*, Ara, Zag, KhO
Umbelliferae	Pycnocycla aucherana	Ch	IT, KhO
Umbelliferae	Pycnocycla caespitosa	He	IT
Umbelliferae	Pycnocycla flabellifolia	He	KhO
Umbelliferae	Pycnocycla nodiflora	Ch	IT, KhO
Umbelliferae	Pycnocyla spinosa	Ch	IT
Rosaceae	Pyracantha coccinea	Ph	Hyr
Rosaceae	Pyrus amygdaliformis	Ph	Zag
Rosaceae	Pyrus boissieriana	Ph	IT*, Hyr, Ara, Zag
Rosaceae	Pyrus communis	Ph	Hyr, Zag
Rosaceae	Pyrus elaeagnifolia	Ph	Ara
Rosaceae	Pyrus glabra	Ph	Zag, (End)
Rosaceae	Pyrus grossheimii	Ph	Hyr
Rosaceae	Pyrus hyrcana	Ph	Hyr
Rosaceae	Pyrus mazanderanica	Ph	IT*, Hyr, (End)
Rosaceae	Pyrus oxyprion	Ph	Ara
Rosaceae	Pyrus salicifolia	Ph	IT*, Ara
Rosaceae	Pyrus sp.	Ph	

Family	Plant species	Life form	Floristic region
Rosaceae	Pyrus syriaca	Ph	Ara, Zag
Fagaceae	Quercus apiculata	Ph	Zag
Fagaceae	Quercus atropatana	Ph	Hyr
Fagaceae	Quercus baneica	Ph	Zag
Fagaceae	Quercus brantii	Ph	IT
Fagaceae	Quercus caduchorum	Ph	Zag
Fagaceae	Quercus castaneifolia	Ph	Hyr
Fagaceae	Quercus cedrorum	Ph	Zag
Fagaceae	Quercus globularis	Ph	Zag
Fagaceae	Quercus hedjazii	Ph	Zag
Fagaceae	Quercus iberica	Ph	Hyr
Fagaceae	Quercus infectoria	Ph	Zag
Fagaceae	Quercus irregularis	Ph	Zag
Fagaceae	Quercus komarovii	Ph	Ara
Fagaceae	Quercus libani	Ph	Zag
Fagaceae	Quercus macranthera	Ph	Hyr, Ara
Fagaceae	Quercus magnosquamata	Ph	Zag
Fagaceae	Quercus ophiosquamata	Ph	Zag
Fagaceae	Quercus ovicarpa	Ph	Zag
Fagaceae	Quercus persica	Ph	Zag
Fagaceae	Quercus polynervata	Ph	Zag
Fagaceae	Quercus saii	Ph	Zag
Fagaceae	Quercus scalaridentata	Ph	Zag
Fagaceae	Quercus squamulosa	Ph	Zag
Fagaceae	Quercus subcordata	Ph	Zag
Fagaceae	Quercus tregubovii	Ph	Zag
Fagaceae	Quercus ungeri	Ph	Zag
Fagaceae	Quercus vesca	Ph	Zag
Ranunculaceae	Ranunculus arvensis	Th	IT, Hyr
Ranunculaceae	Ranunculus asiaticus	Ge	IT

Family	Plant species	Life form	Floristic region
Ranunculaceae	Ranunculus aucheri	Ge	IT
Ranunculaceae	Ranunculus eriorrhizus	Ge	IT
Ranunculaceae	Ranunculus macropodioides	Ge	IT
Ranunculaceae	Ranunculus muricatus	Th	IT
Ranunculaceae	Ranunculus trichophyllus	Hyd	IT, Hyr
Brassicaceae	Raphanus raphanistrum	Th	IT, Hyr
Brassicaceae	Rapistrum rugosum	Th	Hyr, IT
Tamaricaceae	Reaumuria alternifolia	Ch	IT
Tamaricaceae	Reaumuria cistoides	Ch	IT, KhO
Tamaricaceae	Reaumuria floyeri	Th, He	KhO
Tamaricaceae	Reaumuria fruticosa	Ch, Ph	IT
Tamaricaceae	Reaumuria kermanensis	Ch	IT, (End)
Tamaricaceae	Reaumuria oxiana	Ch	IT, (End)
Tamaricaceae	Reaumuria persica	Ch	IT, (End)
Tamaricaceae	Reaumuria reflexa	Ch	IT
Tamaricaceae	Reaumuria sogdiana	Ch	IT
Tamaricaceae	Reaumuria squarrosa	Ch	IT
Tamaricaceae	Reaumuria stocksii	He, Th	KhO, IT
Tamaricaceae	Reaumuria turcestanica	Ch	IT, Hyr
Asteraceae	Reichardia orientalis	Th	IT, KhO
Resedaceae	Reseda alba	He, Th	KhO
Resedaceae	Reseda aucheri	Th, He	IT, KhO
Resedaceae	Reseda buhseana	He, Th	IT
Resedaceae	Reseda bungei	He	IT
Resedaceae	Reseda lutea	He, Th	IT, Hyr, KhO, Zag
Resedaceae	Reseda luteola	He	IT
Resedaceae	Reseda macrobotrys	Th, He	IT
Asteraceae	Rhagadiolus stellatus	Th	IT, Hyr
Rhamnaceae	Rhammus elbursensis	Ph	Hyr
Rhamnaceae	Rhammus frangula	Ph	Hyr

Family	Plant species	Life form	Floristic region
Rhamnaceae	Rhammus spathuliifolia	Ph	Hyr
Rhamnaceae	Rhamnus cathartica	Ph	Hyr, Ara
Rhamnaceae	Rhamnus cornifolia	Ph	Hyr, Zag
Rhamnaceae	Rhamnus escalerae	Ph	Zag
Rhamnaceae	Rhamnus grandifolia	Ph	Hyr
Rhamnaceae	Rhamnus iranica	Ph	IT*, Zag
Rhamnaceae	Rhamnus kurdica	Ph	Zag
Rhamnaceae	Rhamnus pallasii	Ph	IT*, Hyr, Ara, Zag
Rhamnaceae	Rhamnus persica	Ph	IT*, Zag
Rhamnaceae	Rhamnus sintenissi	Ph	IT*
Rhamnaceae	Rhamnus spathuliifolia	Ph	IT*
Apocynaceae	Rhazya stricta	Ch	KhO
Polygonaceae	Rheum ribes	Ge	IT
Rhizophoraceae	Rhizophora mucronata	Ph	KhO
Anacardiaceae	Rhus coriaria	Ph	IT*, Zag, Hyr, Ara
Scrophulariaceae	Rhynchocorys elephas	Th	IT, Hyr
Scrophulariaceae	Rhynchocorys maxima	Th	IT, Hyr
Grossulariaceae	Ribes bieberstenii	Ph	Ara, Hyr
Grossulariaceae	Ribes grossularia	Ph	Hyr
Grossulariaceae	Ribes melananthum	Ph	Hyr, IT*
Grossulariaceae	Ribes orientale	Ph	IT*, Hyr
Euphorbiaceae	Ricinus communis	Th, Ph	KhO
Boraginaceae	Rindera lanata	He	IT
Brassicaceae	Robeschia schimperi	Th	IT
Boraginaceae	Rochelia bungei	Th	IT
Boraginaceae	Rochelia cardiosepala	Th	IT
Boraginaceae	Rochelia disperma	Th	IT, Hyr, KhO
Boraginaceae	Rochelia macrocalyx	Th	IT
Boraginaceae	Rochelia persica	He	IT

Family	Plant species	Life form	Floristic region
Papaveraceae	Roemeria hybrida	Th	IT, KhO
Papaveraceae	Roemeria refracta	Th	IT
Rosaceae	Rosa addida	Ph	IT*
Rosaceae	Rosa albicans	Ph	IT*, Zag
Rosaceae	Rosa anserinifolia	Ph	Zag, IT*
Rosaceae	Rosa asperrima	Ph	Zag, IT*
Rosaceae	Rosa aucheri	Ph	IT*, Hyr
Rosaceae	Rosa baggeriana	Ph	IT*, Zag
Rosaceae	Rosa banksiae	Ph	IT
Rosaceae	Rosa beggeriana	Ph	IT, Hyr
Rosaceae	Rosa canica	Ph	IT*, Zag
Rosaceae	Rosa centifolia	Ph	Zag
Rosaceae	Rosa damascena	Ph	Cosm
Rosaceae	Rosa dumetorum	Ph	IT*, Zag, Ara
Rosaceae	Rosa elymaitica	Ph	IT*, Zag
Rosaceae	Rosa foetida	Ph	IT
Rosaceae	Rosa gallica	Ph	IT*
Rosaceae	Rosa guzarica	Ph	IT*
Rosaceae	Rosa hemisphaerica	Ph	IT*
Rosaceae	Rosa iberica	Ph	IT*
Rosaceae	Rosa kotschyana	Ph	IT*
Rosaceae	Rosa lutea	Ph	IT*, Zag
Rosaceae	Rosa moschata	Ph	IT*, Zag
Rosaceae	Rosa orientalis	Ph	IT*, Zag
Rosaceae	Rosa persica	Ge	IT
Rosaceae	Rosa rechingeri	Ph	IT*
Rosaceae	Rosa spinosissima	Ph	IT*
Crassulaceae	Rostraria cristata	Th	IT
Crassulaceae	Rosularia elymaitica	He	IT
Crassulaceae	Rosularia paniculata	He	IT

Family	Plant species	Life form	Floristic region
Crassulaceae	Rosularia sempervivum	Ge	Zag, IT
Rubiaceae	Rubia albicaulis	Ph	IT
Rubiaceae	Rubia florida	Ch	IT
Rubiaceae	Rubia tinctorum	He	IT
Rosaceae	Rubus anatolicus	Ph	IT*, Hyr, Zag, Ara
Rosaceae	Rubus astrae	Ph	Hyr, (End)
Rosaceae	Rubus caesius	Ph	Hyr, IT*, Zag
Rosaceae	Rubus fruticosus	Ph	Hyr
Rosaceae	Rubus hirtus	Ph	Hyr
Rosaceae	Rubus hyrcanus	Ph	Hyr
Rosaceae	Rubus karakalensis	Ph	IT*, Zag
Rosaceae	Rubus lanuginosus	Ph	Hyr
Rosaceae	Rubus ochthodes	Ph	Hyr
Rosaceae	Rubus persicus	Ph	Hyr, (End)
Rosaceae	Rubus raddeanus	Ph	Hyr
Rosaceae	Rubus sanctus	Ph	IT, Hyr
Polygonaceae	Rumex acetosa	He	IT
Polygonaceae	Rumex chalepensis	He	IT, Hyr
Polygonaceae	Rumex conglomeratus	He	IT, Hyr
Polygonaceae	Rumex crispus	He	IT, Hyr, Zag
Polygonaceae	Rumex dentatus	Th	IT
Polygonaceae	Rumex elbursensis	He	IT
Polygonaceae	Rumex scutatus	Ge	Hyr, IT
Polygonaceae	Rumex vesicarius	Th	KhO, IT
Asparagaceae	Ruscus hyrcanus	Ph	Hyr
Poaceae	Saccharum Ravennae	Ge	IT, KhO
Rhamnaceae	Sageretia laetevirens	Ph	KhO
Chenopodiaceae	Salicornia europea	Th	IT, Hyr, KhO
Salicaceae	Salix acmophylla	Ph	IT*, Hyr,

Family	Plant species	Life form	Floristic region
			Zag
Salicaceae	Salix aegyptica	Ph	IT*, Hyr, Zag, Ara
Salicaceae	Salix alba	Ph	IT*, Hyr, Zag
Salicaceae	Salix babylonica	Ph	IT*, Hyr
Salicaceae	Salix caprea	Ph	Hyr
Salicaceae	Salix carmanica	Ph	IT*
Salicaceae	Salix daphnoides	Ph	Hyr
Salicaceae	salix elbursensis	Ph	IT*, Zag, Hyr
Salicaceae	Salix excelsa	Ph	IT*, Zag, Hyr, Ara
Salicaceae	salix pycnostachya	Ph	IT*
Salicaceae	salix songarica	Ph	IT*
Salicaceae	Salix sp.	Ph	
Salicaceae	Salix triandra	Ph	IT*, Zag, Ara, Hyr
Salicaceae	Salix wilhelmsiana	Ph	IT*, Zag, Ara
Salicaceae	Salix zygostemon	Ph	IT*, Zag, Hyr
Chenopodiaceae	Salsola abarghuensis	Ch	IT, (End)
Chenopodiaceae	Salsola aperta	Th	IT
Chenopodiaceae	Salsola arbuscula	Ch	IT
Chenopodiaceae	Salsola arbusculiformis	Ch	IT
Chenopodiaceae	Salsola aucheri	Ch	IT
Chenopodiaceae	Salsola canescens	Ch	IT
Chenopodiaceae	Salsola crassa	Th	IT
Chenopodiaceae	Salsola dendroides	Ch	IT
Chenopodiaceae	Salsola drummondii	Ch	KhO
Chenopodiaceae	Salsola gemmascens	Ch	IT
Chenopodiaceae	Salsola gossypina	Th	IT
Chenopodiaceae	Salsola imbricata	Ch	KhO

Family	Plant species	Life form	Floristic region
Chenopodiaceae	Salsola incanescens	Th	IT
Chenopodiaceae	Salsola jordanicola	Th	IT, KhO
Chenopodiaceae	Salsola kali	Th	IT
Chenopodiaceae	Salsola kerneri	Ch	IT
Chenopodiaceae	Salsola lachnantha	Ch	KhO
Chenopodiaceae	Salsola lanta	Th	IT
Chenopodiaceae	Salsola nitraria	Th	IT, KhO
Chenopodiaceae	Salsola orientalis	Ch	IT
Chenopodiaceae	Salsola praecox	Th	IT
Chenopodiaceae	Salsola richteri	Ph	IT
Chenopodiaceae	salsola rigida	Ch	IT
Chenopodiaceae	Salsola sclerantha	Th	IT
Chenopodiaceae	Salsola tomentosa	Ch	IT
Chenopodiaceae	Salsola turcomanica	Th	IT
Chenopodiaceae	Salsola vermiculata	Ch	IT
Chenopodiaceae	Salsola verrucosa	Ch	IT
Chenopodiaceae	Salsola yazdiana	Ch	IT, (End)
Salvadoraceae	Salvadora oleoides	Ph	KhO
Salvadoraceae	Salvadora persica	Ph	KhO
Lamiaceae	Salvia aethiopis	He	IT, Hyr
Lamiaceae	Salvia atropatana	He	IT, Hyr
Lamiaceae	Salvia ceratophylla	He	IT
Lamiaceae	Salvia chloroleuca	He	IT
Lamiaceae	Salvia compressa	He	IT
Lamiaceae	Salvia eremophila	Ch	IT
Lamiaceae	Salvia glutinosa	He	Hyr
Lamiaceae	Salvia hydrangea	He	IT*
Lamiaceae	Salvia limbata	He	IT, Hyr
Lamiaceae	Salvia macrosiphon	Ch	KhO
Lamiaceae	Salvia mirzayanii	He	IT

Family	Plant species	Life form	Floristic region
Lamiaceae	Salvia multicaulis	He	IT, Hyr
Lamiaceae	Salvia nemarosa	Ge	IT
Lamiaceae	Salvia palaestina	He	IT, KhO
Lamiaceae	Salvia reuterana	He	IT
Lamiaceae	Salvia rhytidea	He	IT
Lamiaceae	Salvia sclarea	He	IT
Lamiaceae	Salvia spinosa	He	IT
Lamiaceae	Salvia syriaca	Ge	IT
Lamiaceae	Salvia verticillata	He	IT, Hyr
Lamiaceae	Salvia virgata	He	IT
Lamiaceae	Salvia viridis	Th	IT, Hyr
Caprifoliaceae	Sambucus ebulus	Ge	Hyr, IT
Caprifoliaceae	Sambucus nigra	Ph	Zag
Brassicaceae	Sameraria armena	Th	IT
Brassicaceae	Sameraria elegans	Th	IT
Brassicaceae	Sameraria stylophora	Th	IT
Primulaceae	Samolus valerandi	He	Cosm
Rosaceae	Sanguisorba minor	He	Hyr, IT
Umbelliferae	Sanicula europae	He	IT, Hyr
Caryophyllaceae	Saponaria bodeana	Th	IT
Caryophyllaceae	Saponaria orientalis	Th	IT, Hyr
Lamiaceae	Satuerja laxiflora	Th	IT
Lamiaceae	Satureja bachtiarica	He	IT
Brassicaceae	Savignia parviflora	Th	IT, KhO
Dipsacaceae	Scabiosa argentea	He	IT
Dipsacaceae	Scabiosa calocephala	Th	IT
Dipsacaceae	Scabiosa deserticola	Th	IT
Dipsacaceae	Scabiosa flovida	Th	IT, (End)
Dipsacaceae	Scabiosa hyrcanica	He	Ara
Dipsacaceae	Scabiosa kermanensis	He	IT, (End)

Family	Plant species	Life form	Floristic region
Dipsacaceae	Scabiosa leucactis	Th	KhO, IT
Dipsacaceae	Scabiosa micrantha	Th	IT, Hyr
Dipsacaceae	Scabiosa oliveri	Th	IT
Dipsacaceae	Scabiosa persica	Th	IT
Dipsacaceae	Scabiosa rotata	Th	IT
Umbelliferae	Scaligeria allioides	He	IT
Umbelliferae	Scaligeria nodosa	He	IT
Umbelliferae	Scandix iberica	Th	IT
Umbelliferae	Scandix pecten-veneris	Th	IT, KhO
Umbelliferae	Scandix stellata	Th	IT, Hyr
Asteraceae	Scariola orientalis	Ch	IT, Hyr, KhO
Brassicaceae	Schimpera arabica	Th	IT, KhO
Asteraceae	Schischkinia albispina	Th	IT
Brassicaceae	Schismus arabicus	Th	KhO
Cyperaceae	Schoenoplectus lacustris	Ge	Hyr
Cyperaceae	Schoenus nigricans	Ge	IT, Hyr
Umbelliferae	Schumannia karelinii	Ge	IT
Plantaginaceae	Schweinfurthia papilionacea	Th, He	IT, KhO
Liliaceae	Scilla autumnalis	Ge	KhO
Liliaceae	Scilla bisotunensis	Ge	IT
Liliaceae	Scilla persica	Ge	IT*
Liliaceae	Scilla sibirica	Ge	Hyr
Cyperaceae	Scirpoides holoschoenus	Ge	Cosm
Cypraceae	Scirpus lacustris	He	Hyr
Caryophyllaceae	Scleranthus orientalis	Th, He	IT, Hyr
Caryophyllaceae	Sclerocephalus arabicus	Th	KhO
Asteraceae	Scolymus hispanicus	Th	KhO
Fabaceae	Scorpiurus muricatus	Th	KhO
Asteraceae	Scorzonera calyculata	He	IT, Hyr, Zag

Family	Plant species	Life form	Floristic region
Asteraceae	Scorzonera cana	He	IT
Asteraceae	Scorzonera cinera	He	IT, Hyr
Asteraceae	Scorzonera intricata	He	IT, (End)
Asteraceae	Scorzonera laciniata	He	IT, Hyr, Zag
Asteraceae	Scorzonera leptophylla	He	IT
Asteraceae	Scorzonera litwinowii	He	IT
Asteraceae	Scorzonera microcalathia	He	IT, (End)
Asteraceae	Scorzonera mucida	He	IT, Zag, (End)
Asteraceae	Scorzonera paradoxa	He	IT, KhO
Asteraceae	Scorzonera parviflora	He	IT
Asteraceae	Scorzonera phaeopappa	He	IT, Zag
Asteraceae	Scorzonera pusilla	He	IT
Asteraceae	Scorzonera raddeana	He	IT
Asteraceae	Scorzonera ramossima	He	IT, Zag
Asteraceae	Scorzonera rupicola	He	IT, Zag, (End)
Asteraceae	Scorzonera tortuosissima	He	IT, Zag
Cyperaceae	Scripoides holoschoenus	Ge	IT
Scrophulariaceae	Scrophularia azerbaijanica	He	IT
Scrophulariaceae	Scrophularia deserti	He	IT
Scrophulariaceae	Scrophularia frigida	He	IT, (End)
Scrophulariaceae	Scrophularia leucoclada	Ch	IT
Scrophulariaceae	Scrophularia nervosa	He	IT
Scrophulariaceae	Scrophularia pruinosa	He	IT, Hyr
Scrophulariaceae	Scrophularia striata	He	IT, KhO
Scrophulariaceae	Scrophularia umbrosa	He	Hyr, IT
Scrophulariaceae	Scrophularia variegata	He	IT, Hyr
Scrophulariaceae	Scrophularia vernalis	He, Th	Hyr, IT
Lamiaceae	Scutellaria albida	He	IT
Lamiaceae	Scutellaria multicaulis	He	IT

Family	Plant species	Life form	Floristic region
Lamiaceae	Scutellaria nepetifolia	He	IT
Lamiaceae	Scutellaria orientalis	He	IT
Lamiaceae	Scutellaria pinnatifida	Ch	IT, Hyr
Lamiaceae	Scutellaria tournefortii	Ge	Hyr
Poaceae	Secale cereale	Th	IT, Hyr
Poaceae	Secale montanum	He	IT
Crassulaceae	Sedum hispanicum	Th, He	IT, Hyr
Crassulaceae	Sedum lenkoranicum	He	Hyr
Crassulaceae	Sedum obtusifolium	He	IT
Crassulaceae	Sedum pallidum	He, Th	Hyr
Crassulaceae	Sedum pentapetalum	Th	IT
Crassulaceae	Sedum pilosum	He	Ara, Hyr
Crassulaceae	Sedum rubens	Th	IT, Hyr
Crassulaceae	Sedum spurium	He	Hyr
Crassulaceae	Sedum stoloniferum	He	Hyr
Chenopodiaceae	Seidlitzia cinerea	Th	IT, KhO
Chenopodiaceae	Seidlitzia florida	Th	IT
Chenopodiaceae	Seidlitzia rosmarinus	Ch	IT, KhO
Umbelliferae	Semenovia suffruticose	He	IT
Crassulaceae	Sempervivum iranicum	He	Hyr, (End)
Asteraceae	Senecio cineraria	He	IT
Asteraceae	Senecio erucifolius	Ch	Hyr
Asteraceae	Senecio flavus	Th	IT, KhO
Asteraceae	Senecio galucus	Th	IT, KhO
Asteraceae	Senecio molis	Ge	IT
Asteraceae	Senecio othonnae	He	Hyr
Asteraceae	Senecio paucilobus	He	IT
Asteraceae	Senecio paulsenii	Ge	IT
Asteraceae	Senecio vernalis	Th	Hyr, IT
Asteraceae	Senecio vulgaris	Th	IT, Hyr

Family	Plant species	Life form	Floristic region
Asteraceae	Serratula cerinthifolia	He	IT
Asteraceae	Serratula grandifolia	He	IT
Asteraceae	Serratula haussknechtii	Ge	IT, Hyr
Asteraceae	Serratula khuzistanica	He	KhO
Asteraceae	Serratula latifolia	He	IT
Asteraceae	Serratula quinquefolia	He	Hyr
Fabaceae	Sesbania aculeata	Ph	KhO
Fabaceae	Sesbania sesban	Ph	KhO
Poaceae	Setaria glauca	Th	IT, Hyr
Poaceae	Setaria viridis	Th	IT, Hyr
Rubiaceae	Sherardia arvensis	Th	IT, Hyr
Rosaceae	Sibbaldia parviflora	He	Hyr
Lamiaceae	Sideritis montana	Th	IT, Hyr
Asteraceae	Siebera nana	Th	IT
Asteraceae	Siegesbeckia orientalis	Th	IT, Hyr
Caryophyllaceae	Silene arabica	Th	KhO, IT
Caryophyllaceae	Silene aucheriana	He	IT, Hyr
Caryophyllaceae	Silene bupleuroides	Ge	IT, Hyr
Caryophyllaceae	Silene chlorifolia	He	IT
Caryophyllaceae	Silene commelinifolia	He	IT, Hyr
Caryophyllaceae	Silene coniflora	Th	IT
Caryophyllaceae	Silene conoidea	Th	IT, Hyr
Caryophyllaceae	Silene dichotoma	Th, He	IT, Hyr
Caryophyllaceae	Silene goniocaula	He	IT
Caryophyllaceae	Silene gynodioica	He	IT
Caryophyllaceae	Silene latifolia	Th, He	IT, Hyr
Caryophyllaceae	Silene linearis	Th	IT, KhO
Caryophyllaceae	Silene marschallii	He	IT
Caryophyllaceae	Silene microphylla	He	IT
Caryophyllaceae	Silene odontopetala	He	IT, Hyr

Family	Plant species	Life form	Floristic region
Caryophyllaceae	Silene schafta	He	Hyr
Caryophyllaceae	Silene spergulifolia	He	IT
Caryophyllaceae	Silene stapfii	He	IT
Caryophyllaceae	Silene viscosa	He	Hyr, IT
Asteraceae	Silybum marianum	He, Th	Cosm
Cucurbitaceae	Sinapis alba	Th	IT, Hyr
Cucurbitaceae	Sinapis arvensis	Th	IT, Hyr
Brassicaceae	Sisymbrium altissimum	Th	Hyr, IT
Brassicaceae	Sisymbrium irio	Th	Hyr, IT, KhO
Brassicaceae	Sisymbrium loeselii	Th, He	Hyr, IT
Brassicaceae	Sisymbrium officinale	Th	IT, Hyr
Liliaceae	Smilax excelsa	Ph	Hyr
Fabaceae	Smirnova turkestana	Ph	IT
Umbelliferae	Smyrniopsis aucheri	He	IT
Umbelliferae	Smyrnium cordifolium	He	IT
Solanaceae	Solanum asiae-mediae	Ge	IT*
Solanaceae	Solanum dulcamara	Ph	Hyr, Zag
Solanaceae	Solanum incanum	Ph	KhO
Solanaceae	Solanum kieseritzkii	Ge	Hyr
Solanaceae	Solanum melongena	Th	IT
Solanaceae	Solanum nigrum	Th	Cosm
Solanaceae	Solanum olgae	Th	IT
Solanaceae	Solanum persicum	Ph	Hyr, IT, Zag
Solanaceae	Solanum pseudocapsicum	Ph	Hyr
Solanaceae	Solanum surattense	Th	KhO
Solanaceae	Solanum tuberosum	Ge	Cosm
Boraginaceae	Solenanthus circinathus	He	IT, Hyr, Zag
Boraginaceae	Solenanthus stamineus	He	IT, Hyr, Zag
Asteraceae	Solidago virga-aurea	Th, He	Hyr

Family	Plant species	Life form	Floristic region
Asteraceae	Sonchus asper	Th, He	IT, KhO, Hyr
Asteraceae	Sonchus maritimus	He	IT
Asteraceae	Sonchus oleraceus	Th, He	IT, KhO, Hyr
Fabaceae	Sophora alopecuroides	Ge	IT
Fabaceae	Sophora mollis	Ph	KhO, IT
Fabaceae	Sophora pachycarpa	He	IT
Rosaceae	Sorbus boissieri	Ph	Hyr, Ara
Rosaceae	Sorbus caucasica	Ph	Ara
Rosaceae	Sorbus graeca	Ph	IT*, Zag, Hyr, Ara
Rosaceae	Sorbus luristanica	Ph	IT*, Zag, (End)
Rosaceae	Sorbus orientalis	Ph	Hyr
Rosaceae	Sorbus persica	Ph	IT*, Zag, Hyr
Rosaceae	Sorbus torminalis	Ph	Hyr, Ara
Poaceae	Sorghum halepense	Ge	IT, Hyr
Thyphaceae	Sparganium erectum	Hel	IT, Hyr
Caryophyllaceae	Spergularia bocconii	Th	Hyr, KhO
Caryophyllaceae	Spergularia diandra	Th	IT, KhO, Hyr
Caryophyllaceae	Spergularia marina	Th, He	Hyr, IT, KhO
Sphenocleaceae	Sphenoclea zeylanica	Hel	KhO
Chenopodiaceae	Spinacia oleracea	Th, He	IT, KhO
Chenopodiaceae	Spinacia turkestanica	Th	IT
Rosaceae	Spiraea anatolica	Ph	Hyr
Rosaceae	Spiraea brahuica	Ph	KhO
Rosaceae	Spiraea crenata	Ph	IT*, Hyr, Ara
Araceae	Spirodela polyrhiza	Hyd	Hyr
Brassicaceae	Spirorrhynchus sabulosus	Th	IT
Lamiaceae	Stachys acerosa	He	IT

Family	Plant species	Life form	Floristic region
Lamiaceae	Stachys benthamiana	He	IT
Lamiaceae	Stachys byzanthina	He	Hyr
Lamiaceae	Stachys Inflata	He	IT
Lamiaceae	Stachys kurdica	He	IT
Lamiaceae	Stachys lavandulifolia	He	IT, Zag
Lamiaceae	Stachys obtusicrena	He	IT
Lamiaceae	Stachys persica	He	Hyr
Lamiaceae	Stachys pilifera	He	IT
Lamiaceae	Stachys pubescens	He	IT, Hyr
Lamiaceae	Stachys setifera	Ge	IT
Lamiaceae	Stachys spectabils	He	IT
Lamiaceae	Stachys sylvatica	He	Hyr, IT, Ara
Lamiaceae	Stachys tomentosa	He	IT
Lamiaceae	Stachys turcamanica	Ge	IT
Caryophyllaceae	Stellaria alsinoides	Th	IT
Caryophyllaceae	Stellaria holostea	Ge	IT, Hyr
Caryophyllaceae	Stellaria media	Th	Cosm
Thymelaceae	Stelleropsis antoniae	Ch	IT
Thymelaceae	Stelleropsis iranica	He	IT
Asteraceae	Steptorhamphus persicus	He	IT, KhO
Asteraceae	Steptorrhamphus tuberosus	Ge	IT, KhO
Brassicaceae	Sterigmostemum acanthocarpum	Th, He	IT, Hyr
Brassicaceae	Sterigmostemum longistylum	Th, He	IT
Brassicaceae	Sterigmostemum ramosissimum	Th, He	IT
Brassicaceae	Sterigmostemum sulphureum	He, Th	IT, KhO
Orchidaceae	Steveniella satyrioides	Ge	Hyr
Poaceae	Stipa arabica	He	IT
Poaceae	Stipa barbata	He	IT
Poaceae	Stipa capensis	Th	IT, KhO
Poaceae	Stipa hohenackeriana	He	IT

Family	Plant species	Life form	Floristic region
Poaceae	Stipa parviflora	He	IT
Poaceae	Stipagrostis paradisea	He	IT, KhO
Poaceae	Stipagrostis pennata	Ge	IT
Poaceae	Stipagrostis plumosa	He	IT, KhO
Sapindaceae	Stocksia brahuica	Ph	KhO
Chenopodiaceae	Suaeda acuminata	Th	IT
Chenopodiaceae	Suaeda aegyptiaca	Th, He	KhO
Chenopodiaceae	Suaeda altissima	Th	IT
Chenopodiaceae	Suaeda arcuata	Th	IT
Chenopodiaceae	Suaeda fruticosa	Ch	IT, KhO
Chenopodiaceae	Suaeda microphylla	Ch	IT
Chenopodiaceae	Suaeda microsperma	Th	IT
Chenopodiaceae	Suaeda vermiculata	Ch	IT, KhO
Boraginaceae	Symphytum kurdicum	He	IT
Oleaceae	Syringa persica	Ph	IT*, Ara
Poaceae	Taeniatherum crinitum	Th	IT, KhO
Caesalpiniaceae	Tamarindus indica	Ph	KhO
Tamaricaceae	Tamarix altemifolia	Ph	IT
Tamaricaceae	Tamarix androssowii	Ph	IT
Tamaricaceae	Tamarix aphylla	Ph	IT, KhO
Tamaricaceae	Tamarix aralensis	Ph	IT
Tamaricaceae	Tamarix aravensis	Ph	IT
Tamaricaceae	Tamarix arceuthoides	Ph	IT
Tamaricaceae	Tamarix aucheriana	Ph	KhO
Tamaricaceae	Tamarix bachtiarica	Ph	IT
Tamaricaceae	Tamarix deserti	Ph	IT
Tamaricaceae	Tamarix dioica	Ph	IT, KhO
Tamaricaceae	Tamarix dubia	Ph	IT
Tamaricaceae	Tamarix florida	Ph	IT, KhO, Zag
Tamaricaceae	Tamarix galica	Ph	IT, KhO,

Family	Plant species	Life form	Floristic region
			Zag
Tamaricaceae	Tamarix hispida	Ph	IT
Tamaricaceae	Tamarix hohenackeri	Ph	IT, Zag
Tamaricaceae	Tamarix indica	Ph	IT, KhO
Tamaricaceae	Tamarix ispahanica	Ph	IT
Tamaricaceae	Tamarix karakalensis	Ph	IT, Hyr
Tamaricaceae	Tamarix karelini	Ph	IT
Tamaricaceae	Tamarix korolkowii	Ph	IT
Tamaricaceae	Tamarix kotschyi	Ph	IT, KhO, Zag
Tamaricaceae	Tamarix laxa	Ph	IT, KhO
Tamaricaceae	Tamarix leptopetala	Ph	IT, KhO, Hyr
Tamaricaceae	Tamarix macrocarpa	Ph	IT, KhO
Tamaricaceae	Tamarix mascatensis	Ph	IT, KhO
Tamaricaceae	Tamarix meyeri	Ph	IT
Tamaricaceae	Tamarix octandra	Ph	IT
Tamaricaceae	Tamarix passerinoides	Ph	IT, KhO
Tamaricaceae	Tamarix ramoissima	Ph	IT, Hyr, Zag, Ara
Tamaricaceae	Tamarix rosea	Ph	IT
Tamaricaceae	Tamarix serotina	Ph	IT
Tamaricaceae	Tamarix sp.	Ph	
Tamaricaceae	Tamarix stricta	Ph	IT, KhO
Tamaricaceae	Tamarix szowitsiana	Ph	IT
Tamaricaceae	Tamarix tetragyna	Ph	IT, KhO
Tamaricaceae	Tamarix tetrandra	Ph	IT
Dioscoraceae	Tamus communis	Ge	Hyr, IT
Asteraceae	Tanacetum canescens	He	IT
Asteraceae	Tanacetum chiliophyllum	Ge	IT
Asteraceae	Tanacetum coccineum	He	Hyr
Asteraceae	Tanacetum fruticolosum	He	IT

Family	Plant species	Life form	Floristic region
Asteraceae	Tanacetum lingulatum	He	IT, (End)
Asteraceae	Tanacetum paradoxum	He	IT, (End)
Asteraceae	Tanacetum parthenium	Ge	IT, Hyr
Asteraceae	Tanacetum persicum	He	IT
Asteraceae	Tanacetum Pinnatum	He	IT
Asteraceae	Tanacetum polycephalum	He	IT
Asteraceae	Tanacetum turcomanicum	He	IT
Asteraceae	Tanacetum walteri	He	IT
Asteraceae	Taraxacum azerbaijanicum	He	IT, (End)
Asteraceae	Taraxacum baltistanicum	He	IT, Ara
Asteraceae	Taraxacum bessarabicum	He	Hyr, IT, Zag
Asteraceae	Taraxacum brevirostre	He	IT, Hyr
Asteraceae	Taraxacum calliops	He	IT
Asteraceae	Taraxacum hydrophilum	He	IT, (End)
Asteraceae	Taraxacum microcephaloides	He	IT
Asteraceae	Taraxacum monochlamydeum	He	IT
Asteraceae	Taraxacum montanum	He	IT, Hyr
Asteraceae	Taraxacum officinale	He	IT
Asteraceae	Taraxacum persicum	He	IT
Asteraceae	Taraxacum pseudo calocephalum	He	IT, Hyr
Asteraceae	Taraxacum roseum	He	IT
Asteraceae	Taraxacum syriacum	He	IT, Hyr
Asteraceae	Taraxacum wallichii	He	IT
Brassicaceae	Tauscheria lasiocarpa	Th	IT
Fabaceae	Taverniera glabra	Ch	KhO
Fabaceae	Taverniera nummularia	Ch	KhO
Fabaceae	Taverniera persica	Ch	KhO
Fabaceae	Taverniera spartea	Ph	KhO
Taxacaea	Taxus baccata	Ph	Hyr, Ara
Bignoniaceae	Tecomella undulata	Ph	KhO

Family	Plant species	Life form	Floristic region
Caryophyllaceae	Telephium eriglaucum	He	IT, (End)
Combretaceae	Terminalia arjuna	Ph	KhO
Combretaceae	Terminalia catappa	Ph	KhO
Zygophyllaceae	Tetradiclis tenella	Th	IT
Poaceae	Tetrapogon villosus	Ge	KhO
Umbelliferae	Tetrataenium lasiopetalum	He	IT
Lamiaceae	Teucrium chamaedrys	He	IT, Hyr
Lamiaceae	Teucrium hyrcanicum	Ge	Hyr
Lamiaceae	Teucrium orientale	Ch	IT, KhO
Lamiaceae	Teucrium polium	He	Cosm
Lamiaceae	Teucrium scordium	Ge	IT
Ranunculaceae	Thalictrum isopyroides	He	IT
Ranunculaceae	Thalictrum minus	Ge	IT
Umbelliferae	Thecocarpus meifolius	He	IT
Asteraceae	Thevenotia persica	Th	IT, Hyr
Apocynaceae	Thevetia neriifolia		KhO
Brassicaceae	Thlaspi arvense	Th	IT, Hyr
Brassicaceae	Thlaspi perfoliatum	Th	IT, Hyr, KhO
Lamiaceae	Thuspeinantha persica	Th	IT
Thymelaceae	Thymelaea mesopotamica	Th	IT, KhO
Lamiaceae	Thymus caramanicus	Ch	IT
Lamiaceae	Thymus daenensis	Ch	IT
Lamiaceae	Thymus fallax	Ch	IT
Lamiaceae	Thymus kotschyanus	Ch	IT*
Lamiaceae	Thymus serpyllum	Ch	IT*
Lamiaceae	Thymus transcaspicus	Ch	IT
Tiliaceae	Tilia begonifolia	Ph	Hyr
Tiliaceae	Tilia caucasica	Ph	Hyr
Tiliaceae	Tilia dasystyla	Ph	Hyr
Tiliaceae	Tillia platyphyllos	Ph	Hyr, Ara

Family	Plant species	Life form	Floristic region
Umbelliferae	Tordylium persicum	Th	IT
Umbelliferae	Torilis arvensis	Th	Hyr, IT
Umbelliferae	Torilis leptophylla	Th	IT, Hyr
Brassicaceae	Torularia aculeolata	Th	IT
Brassicaceae	Torularia torulosa	Th	IT, KhO
Boraginaceae	Trachelanthus cerinthoides	He	IT*
Apocynaceae	Trachomitum armenum	Ch	IT, Hyr, Ara, Zag
Apocynaceae	Trachomitum sarmatiense	Ch	Hyr
Apocynaceae	Trachomitum scabrum	Ch	IT
Apocynaceae	Trachomitum venetum	Ph	IT, Hyr
Umbelliferae	Trachydium depressum	He	IT
Poaceae	Trachynia distachya	Th	IT, KhO
Asteraceae	Tragopogon bornmuelleri	He	IT
Asteraceae	Tragopogon buphthalmoides	He	Cosm
Asteraceae	Tragopogon capitatus	He	IT
Asteraceae	Tragopogon caricifolium	He	IT, Hyr
Asteraceae	Tragopogon collinus	He	IT, Hyr
Asteraceae	Tragopogon gaudanicus	He	IT
Asteraceae	Tragopogon graminifolius	He	IT, Hyr, Zag
Asteraceae	Tragopogon Jezdianus	He	IT, Hyr, KhO, (End)
Asteraceae	Tragopogon longirostris	He	Hyr, Zag, IT
Asteraceae	Tragopogon montanus	He	IT, Hyr, (End)
Asteraceae	Tragopogon reticulatus	He	Hyr, IT
Asteraceae	Tragopogon vaginatus	He	IT
Asteraceae	Tragopogon vvedenskyi	He	IT, Hyr
Poaceae	Tragus racemosus	Th	IT, Hyr, KhO
Onograceae	Trapa natans	Hyd	Hyr

Family	Plant species	Life form	Floristic region
Zygophyllaceae	Tribulus longipetalus	Th, He	IT, KhO
Zygophyllaceae	Tribulus macropterus	Th, He	IT, KhO
Zygophyllaceae	Tribulus ochroleucus	He	IT
Zygophyllaceae	Tribulus terrestris	Th, He	Hyr, IT, KhO
Boraginaceae	Trichodesma aucheri	He	IT, (End)
Boraginaceae	Trichodesma incanum	He	IT*
Boraginaceae	Trichodesma stocksii	He	KhO
Poaceae	Tricholaena tenerriffae	He	KhO
Cyperaceae	Trichophorum pumilum	Ge	IT, Hyr
Fabaceae	Trifolium alexandrinum	Th	IT
Fabaceae	Trifolium ambiguum	Ge	IT
Fabaceae	Trifolium angustifolium	Th	Hyr
Fabaceae	Trifolium arvense	Th	IT, Hyr
Fabaceae	Trifolium campestre	Th	IT, Hyr
Fabaceae	Trifolium clusii	Th	IT, Hyr, KhO
Fabaceae	Trifolium dasyurum	Th	IT, Zag, KhO
Fabaceae	Trifolium fragiferum	He	IT, Hyr
Fabaceae	Trifolium pratense	He	Hyr, IT
Fabaceae	Trifolium purpureum	Th	IT
Fabaceae	Trifolium radicosum	Ge	IT
Fabaceae	Trifolium repens	He	Hyr, IT
Fabaceae	Trifolium resupinatum	He, Th	Hyr
Fabaceae	Trifolium tumens	Ge	IT, Hyr
Juncaginaceae	Triglochin palustris	Ge	IT, Hyr
Fabaceae	Trigonella elliptica	He	IT
Fabaceae	Trigonella monantha	Th	IT
Fabaceae	Trigonella monspeliaca	Th	IT
Fabaceae	Trigonella spruneriana	Th	IT, Hyr
Fabaceae	Trigonella stellata	Th	KhO, IT

Family	Plant species	Life form	Floristic region
Fabaceae	Trigonella teheranica	He	IT
Fabaceae	Trigonella uncata	Th	IT, KhO
Asteraceae	Tripleurospermum decipiens	He, Th	IT
Asteraceae	Tripleurospermum disciforme	He, Th	IT, Hyr
Poaceae	Trisetum flavescens	He	IT, Hyr
Liliaceae	Tulipa biflora	Ge	IT, KhO
Liliaceae	Tulipa chrysantha	Ge	IT, Hyr
Liliaceae	Tulipa clusiana	Ge	IT, KhO
Liliaceae	Tulipa cuspidata	Ge	IT
Liliaceae	Tulipa lehmanniana	Ge	IT
Liliaceae	Tulipa micheliana	Ge	IT
Liliaceae	Tulipa montana	Ge	IT, Hyr
Liliaceae	Tulipa sp.	Ge	
Liliaceae	Tulipa systola	Ge	IT, Hyr
Liliaceae	Tulipa undulatifolia	Ge	IT
Liliaceae	Tulipa wilsoniana	Ge	IT
Umbelliferae	Turgenia latifolia	Th	IT, Hyr
Brassicaceae	Turritis glabra	He	Hyr, IT
Asteraceae	Tussilago farfara	Ge	IT, Hyr
Typhaceae	Typha angustifolia	Ge	IT
Thyphaceae	Typha australis	Ge	Hyr, IT
Thyphaceae	Typha grossheimii	Ge	IT
Typhaceae	Typha latifolia	Ge	Hyr
Ulmaceae	Ulmus carpinifolia	Ph	Hyr, Ara, Zag
Ulmaceae	Ulmus densa	Ph	IT
Ulmaceae	Ulmus elliptica	Ph	Hyr
Ulmaceae	Ulmus glabra	Ph	Hyr
Ulmaceae	Ulmus laevis	Ph	Hyr
Ulmaceae	Ulmus minor	Ph	Hyr, IT
Ulmaceae	Ulmus umbraculifera	Ph	IT

Family	Plant species	Life form	Floristic region
Crassulaceae	Umbilicus intermedius	Ge	IT, KhO, Hyr
Crassulaceae	Umbilicus tropaeollifolius	Ge	IT
Asparagaceae	Urginea maritima	Ge	IT, KhO
Asteraceae	Urospermum picroides	Th	Cosm
Urticaceae	Urtica dioica	Ge	IT, Hyr, Zag, KhO
Urticaceae	Urtica pilulifera	He, Th	IT, KhO, Hyr, Zag
Urticaceae	Urtica urens	He, Th	IT, KhO, Hyr, Zag
Caryophyllaceae	Vaccaria grandiflora	Th	IT
Caryophyllaceae	Vaccaria oxydonta	Th	IT
Caryophyllaceae	Vaccaria pyramidata	Th	IT, Hyr, KhO
Ericaceae	Vaccinium arctostaphylos	Ph	Hyr
Valerianaceae	Valeriana ficariifolia	He	IT
Valerianaceae	Valeriana sisymbrifolia	Ge	IT, Hyr
Valerianaceae	Valerianella amblyotis	Th	IT
Valerianaceae	Valerianella cymbicarpa	Th	IT
Valerianaceae	Valerianella dactylophylla	Th	IT
Valerianaceae	Valerianella dufresnia	Th	IT, Hyr
Valerianaceae	Valerianella lasiocarpa	Th	IT, Hyr
Valerianaceae	Valerianella muricata	Th	IT, Hyr
Valerianaceae	Valerianella oxyrrhyncha	Th	IT
Valerianaceae	Valerianella plagiostephana	Th	IT
Valerianaceae	Valerianella platycarpa	Th	IT
Valerianaceae	Valerianella szovitsiana	Th	IT
Valerianaceae	Valerianella triplaris	Th	IT
Valerianaceae	Valerianella vesicaria	Th	IT
Asteraceae	Varthemia persica	Ch	IT
Caryophyllaceae	Velezia rigida	Th	IT
Scrophulariaceae	Verbascum agrimoniifolium	He	IT, Hyr

Family	Plant species	Life form	Floristic region
Scrophulariaceae	Verbascum alceoides	He	IT
Scrophulariaceae	Verbascum carduchorum	He	IT
Scrophulariaceae	Verbascum cheiranthifolium	He	IT, Hyr
Scrophulariaceae	Verbascum disjectum	He	IT, (End)
Scrophulariaceae	Verbascum farsistanicum	He	IT, KhO, (End)
Scrophulariaceae	Verbascum intricatum	He	IT, (End)
Scrophulariaceae	Verbascum kochiforme	He	KhO
Scrophulariaceae	Verbascum phlomoides	He	IT
Scrophulariaceae	Verbascum pseudo-digitalis	He	IT
Scrophulariaceae	Verbascum sinuatum	He	IT
Scrophulariaceae	Verbascum songaricum	He	IT, Hyr
Scrophulariaceae	Verbascum speciosum	He	IT, Hyr
Scrophulariaceae	Verbascum thapsus	He	IT, Hyr
Verbenaceae	Verbena officinalis	He	Hyr, IT
Scrophulariaceae	Veronica acrotheca	He	IT
Scrophulariaceae	Veronica anagallis-aquatica	Ge, Hel	IT, Hyr
Scrophulariaceae	Veronica anagalloides	Th	Hyr, IT
Scrophulariaceae	Veronica argute-serrata	Th	IT
Scrophulariaceae	Veronica arvensis	Th	Hyr, IT
Scrophulariaceae	Veronica beccabunga	Ge	IT
Scrophulariaceae	Veronica biloba	Th	IT
Scrophulariaceae	Veronica campylopoda	Th	IT
Scrophulariaceae	Veronica capillipes	Th	IT
Scrophulariaceae	Veronica ceratocarpa	Th, He	Hyr
Scrophulariaceae	Veronica crista-galli	Th	Hyr
Scrophulariaceae	Veronica francispetae	Th	Hyr, (End)
Scrophulariaceae	Veronica hederifolia	Th	Hyr, IT
Scrophulariaceae	Veronica hispidula	Th	IT
Scrophulariaceae	Veronica macropoda	Th	IT

Family	Plant species	Life form	Floristic region
Scrophulariaceae	Veronica orientalis	He	IT
Scrophulariaceae	Veronica oxycarpa	He	IT
Scrophulariaceae	Veronica persica	He, Th	Cosm
Scrophulariaceae	Veronica polita	Th	IT, Hyr
Scrophulariaceae	Veronica rubrifolia	Th	IT*
Caprifoliaceae	Viburnum cotinifolium	Ph	KhO
Caprifoliaceae	Viburnum Lantana	Ph	Hyr, Ara
Caprifoliaceae	Viburnum opulus	Ph	Ara
Fabaceae	Vicia aintabensis	Th	IT
Fabaceae	Vicia amphicarpa	Th	IT, Hyr, KhO
Fabaceae	Vicia angustifolia	Th	IT, Hyr
Fabaceae	Vicia assyriaca	Th	IT
Fabaceae	Vicia ciceroidea	He	IT
Fabaceae	Vicia cracca	He	Hyr, IT
Fabaceae	Vicia crocea	Ch	Hyr
Fabaceae	Vicia ervilia	Th	IT, Hyr
Fabaceae	Vicia hirsuta	Th	Hyr
Fabaceae	Vicia hybrida	Th	IT
Fabaceae	Vicia michauxii	Th	IT
Fabaceae	Vicia monantha	Th	IT, KhO
Fabaceae	Vicia narbonensis	Th	IT, Hyr
Fabaceae	Vicia peregrina	Th	IT, Hyr
Fabaceae	Vicia sativa	Th	IT, Hyr
Fabaceae	Vicia subvillosa	Ge	IT
Fabaceae	Vicia tetrasperma	Th	Hyr, IT
Fabaceae	Vicia truncatula	He	IT, Hyr
Fabaceae	Vicia variabilis	He	IT, Hyr
Fabaceae	Vicia villosa	Th	IT, Hyr
Apocynaceae	Vinca herbacea	He	Hyr, IT
Asclepiadaceae	Vincetoxicum canescens	He	IT

Family	Plant species	Life form	Floristic region
Asclepiadaceae	Vincetoxicum pumilum	He	IT
Asclepiadaceae	Vincetoxicum scandens	He	Hyr
Violaceae	Viola alba	Ge	Hyr
Violaceae	Viola arvensis	Th	Hyr, Ara
Violaceae	Viola behboudiana	Th, He	KhO
Violaceae	Viola caspica	Ge	Hyr
Violaceae	Viola modesta	Th	IT
Violaceae	Viola occulta	Th	IT, Hyr
Violaceae	Viola odorata	Ge	Hyr, IT
Violaceae	Viola pachyrrhiza	Ge	Zag, IT*
Violaceae	Viola reichenbachiana	He	Hyr, IT
Violaceae	Viola riviniana	Ge	Hyr
Violaceae	Viola sieheana	Ge	Hyr
Violaceae	Viola sintenisii	Ge	Hyr
Violaceae	Viola stocksii	Th	KhO
Violaceae	Viola suavis	Ge	Hyr
Violaceae	Viola sylvestris	He	Hyr, IT
Violaceae	Viola tricolor	Th, He	Hyr
Loranthaceae	Viscum album	Ph	Hyr
Verbenaceae	Vitex angus-castus	Ph	IT
Verbenaceae	Vitex negundo	Ph	KhO
Verbenaceae	Vitex pseudo-negundo	Ph	KhO, IT, Zag
Vitaceae	Vitis sylvestris	Ph	Hyr, Ara, Zag
Vitaceae	Vitis vinifera	Ph	Hyr, IT
Poaceae	Vulpia myuros	Th	Hyr, IT
Poaceae	Vulpia persica	Th	IT
Asteraceae	Willemetia tuberosa	Ge	IT, Hyr
Solanaceae	Withania coagulans	Ph	KhO
Solanaceae	Withania somnifera	Ph	KhO

Family	Plant species	Life form	Floristic region
Asteraceae	Xanthium spinosum	Th	IT
Asteraceae	Xanthium stramarium	Th	IT
Potamogetonaceae	Zannichellia palustris	Hyd	Cosm
Lamiaceae	Zataria multiflora	Ch	IT*, KhO
Ulmaceae	Zelkova carpinifolia	Ph	Hyr
Ulmaceae	Zelkova hyrcana	Ph	Hyr
Poaceae	Zingeria trichopoda	Th	IT
Lamiaceae	Ziziphora capitata	Th	IT
Lamiaceae	Ziziphora clinopodioides	Ch	IT
Lamiaceae	Ziziphora tenuior	Th	IT
Rhamnaceae	Ziziphus jujuba	Ph	IT
Rhamnaceae	Ziziphus lotus	Ph	KhO
Rhamnaceae	Ziziphus nammularia	Ph	KhO, Zag
Rhamnaceae	Ziziphus officinarum	Ph	KhO
Rhamnaceae	Ziziphus oxyphylla	Ph	KhO
Rhamnaceae	Ziziphus spina-Christi	Ph	Zag, KhO
Asteraceae	Zoegea leptaurea	Th	IT, Zag
Asteraceae	Zoegea purpurea	Th	IT, KhO
Umbelliferae	Zosimia absinthifolia	He	IT
Zygophyllaceae	Zygophyllum atriplicoides	Ph	IT, KhO
Zygophyllaceae	Zygophyllum eurypterum	Ph	IT, KhO
Zygophyllaceae	Zygophyllum fabago	Ch	IT
Zygophyllaceae	Zygophyllum hamiense	Ch	KhO
Zygophyllaceae	Zygophyllum megacarpum	Ph	IT
Zygophyllaceae	Zygophyllum propinquum	Ch	KhO
Zygophyllaceae	Zygophyllum simplex	Th	KhO

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