Determination of the dominant families in Ilkhji region, Eastern Azerbaijan province (Northwest of Iran)

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Abstract: Systematic Knowledge or plant taxonomy is one of the very old and important branches of botany. By gathering plants, we can recognize rare species of plants or those which are facing extinction, so that we can find some ways to prevent them from destruction. In this research, all plants were gathered from Ilkhji area which is located in East Azerbaijan province. Ilkhji region is located in 25 km south west of Tabriz and the geographic coordinates 45.59 to 12 and 46.3 eastern longitudes and 37.55 to 37.57 north latitude. Plant samples from Yal, Khaselar, Kordlar and Chaman areas as well, were obtained during winter of year 2008 to fall year 2009. Standard method was followed with regard to collection of plant materials, drying, mounting, preparation and preservation of plant specimens' .All the plant samples were pressed according to standard guides. If the plant samples were too long, then they were cut from several areas, so the sample contained the complete plant. At the next stage, samples were stick to the herbarium Cardboards and then were identified using floras, keys, illustrations and explanations which are available for different sources of plant Species. Dominant plant families consist of: Asteraceae (30 species), Brassicaceae (23 species), Fabaceae (21 species), Poaceae (21 species) Boraginaceae (16 species) and Lamiaceae (16 species).
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Key words: herbarium, systematic, flora.

Introduction

Plant systematic science provide tools to make a list of plants, the methods of identification, name and ordering, however, can be the basic knowledge for the biological science. Identification of a plant, introduces a specific way to determine the natural condition of that and bring about an introduction to recognize the relationship between different species. Collecting plants or endangered plants likely helps to improve methods to save them and also revealers their far relationships with the well-known species. In sum, dominant species greatly affect both physical and biological conditions, and it makes sense to use them to examine community condition. The behavior of a dominant species and its relationship to other species are not necessarily constant, however. A dominant species can be highly competitive in a core habitat or able to tolerate stress in a peripheral habitat (Wisheu and Keddy 1992). Substantial information about both abiotic and biotic properties of a plant community is conveyed simply by identifying the dominant species (as in Clements 1916, Whittaker 1965). Through their architecture, physiology, growth, and phonology, dominant plants determine overall community structure, such as biomass and canopy strata (Richards 1996) and ecosystem engineering (Malmer *et al.* 2003); soil properties (Bardgett *et al.* 1999); ways of succession (Fastie 1995); ecosystem properties, such as nutrient cycling (Allison and Vitousek 2004) and fire regimes (Taylor 2000); micro-habitats for subordinate species (Grime 1998); and even hydrological conditions (Simberloff and Von Holle 1999). Dominant plants can exert strong influence by their abundance, height, shade, root and rhizome biomass, or chemistry (e.g., allelopathy). Iran, has a diversity of plant varieties which because of the specific geographic locations, great number of them are not known, therefore, the identification and name these plants is of a great importance.

2. Materials and Methods

All the plant samples in this research were gathered from Ilkhji area which is located in East Azerbaijan province. Ilkhji area is located in 25 km south west of Tabriz and the geographic coordinates 45.59 to 12 and 46.3 Eastern longitudes and 37.55 to 37.57 North latitude. Plant samples from Yal, Khaselar, Kordlar and Chaman areas as well, were obtained during winter of year 2008 to fall in the year 2009. Standard method was followed with regard to collection of plant materials, drying, mounting, preparation and preservation of plant specimens (Shrestha and Dhillion, 2003). All the plant samples were pressed according to standard guides. If the plant samples were too long, then they were cut from several areas, so the sample contained the complete plant. At the next stage, samples were stick to the herbarium

cardboards and they were identified using floras, keys, illustrations and explanations which are available for different sources of plant Species. Finally dominant plants were separated and introduced.

RESULTS

Result of survey show that Dominant plant families consist of: Asteraceae (30 species), Brassicaceae (23 species), Fabaceae (21 species), Poaceae (21 species) Boraginaceae (16 species) and Lamiaceae (16 species). Results showed as Tables 1.

Table1. Dominant plants in Ilkhji region

Family	Genus	Species	Growth habite
Brassicaceae	Alyssum	A.bracteatum	Hemicriptophite
	Alyssum	A.dasycarpum	Hemicriptophite
	Alyssum	A.longistylum	Hemicriptophite
	Alyssum	A.linifolium	Hemicriptophite
	Alyssum	A.minus	Hemicriptophite
	Capsella	C.bursa-pastoris	Therophite
	Cardaria	C.draba	Hemicriptophite
	Choriospora	Ch.tenella	Therophite
	Conringia	C.perfoliata	Therophite
	Descurainia	D.sophia	Hemicriptophite
	Erysimum	E.aitchisonii	Hemicriptophite
	Erysimum	E.crassipes	Hemicriptophite
	Erysimum	E.cuspidatum	Hemicriptophite
	Erysimum	E.deifolium	Hemicriptophite
	Erysimum	E.filifolium	Hemicriptophite
	Lepidium	L.perfoliatum	Hemicriptophite
	Malcolmia	M.africana	Therophite
	Malcolmia	M.iberica	Therophite
	Raphanus	M.raphanistrum	Therophite
	Strigmostemum	S.sulphureum	Hemicriptophite
	Sisymberium	S.loeselii	Hemicriptophite
	Thlaspi	T.arvense	Therophite

	Thlaspi	T.umbellatum	Therophite
Papilionaceae	Alhaji	A.camelo	Hemicriptophite
	Astragalus	A.askius	Hemicriptophite
	Astragalus	A.chrysostachys	Hemicriptophite
	Astragalus	A.effuses	Hemicriptophite
	Astragalus	A.holopsilus	Hemicriptophite
	Astragalus	A.oroboides	Therophite
	Astragalus	A.globiflorus	Therophite
	Coronilla	C.balansae	Therophite
	Coronilla	C.varial	Therophite
	Hedysarum	H.formosum	Therophite
	Lotus	L.corniculatus	Hemicriptophite
	Medicago	M.sativa	Hemicriptophite
	Melilotus	M.officinalis	Therophite
	Onobrychis	O.cornuta	Therophite
	Trifolium	T.canescens	Therophite
	Trifolium	T.clusii	Therophite
	Trifolium	T.repens	Therophite
	Trigonella	T.aurantiaca	Therophite
	Trigonella	T.coerulescens	Hemicriptophite
	Trigonella	T.monantha	Hemicriptophite
	Trigonella	T.monspeliaca	Hemicriptophite
Boraginaceae	Alkanna	A.orientalis	Hemicriptophite
	Alkanna	A.brateosa	Hemicriptophite
	Anchusa	A.italica	Hemicriptophite
	Asperugo	A.procumbens	Therophite
	Heliotropium	H.brevilimbe	Therophite

	Heliotropium	H.swtanense	Hemicriptophite
	Heterocaryum	H.szovitsianum	Therophite
	Lappula	L.sinaica	Therophite
	Lithospermum	L.arvense	Hemicriptophite
	Moltkia	M.coerulea	Camephite
	Moltkia	M.grpsacea	Hemicriptophite
	Nonnea	N.caspica	Camephite
	Nonnea	N.persica	Camephite
	Onosma	O.kotschyi Boiss	Camephite
	Rochelia	R.disperma	Camephite
	Rochelia	R.persica	Camephite
Lamiaceae	Marrubium	M.vulgare	Geophite
	Mentha	M.longifolia	Hemicriptophite
	Nepeta	N.meyeri	Hemicriptophite
	Nepeta	N.persica	Hemicriptophite
	Nepeta	N.racemosa	Hemicriptophite
	Phlomis	Ph.olivieri	Hemicriptophite
	Salvia	S.nemorasa	Hemicriptophite
	Salvia	S.sahendica	Hemicriptophite
	Salvia	S.spinosal	Hemicriptophite
	Salvia	S.virgata	Hemicriptophite
	Stachys	S.inflata	Hemicriptophite
	Stachys	S.lavandifolia	Hemicriptophite
	Stachys	S.turcomanica	Hemicriptophite
	Thymus	T.cotschyanus	Geophite
	Thymus	T.pubescens	Geophite
	Ziziphora	Z.tenuior	Therophite

Asteraceae	Achillea	A.millefolium	Hemicriptophite
	Achillea	A.vermicularis	Hemicriptophite
	Acroptilon	A.repens	Hemicriptophite
	Anthemis	A.hyalina	Therophite
	Calendula	C.persica	Therophite
	Carthamus	C.oxyacantha	Therophite
	Centaurea	C.depressa	Hemicriptophite
	Centaurea	C.pulchella	Hemicriptophite
	Centaurea	C.virgata	Hemicriptophite
	Cichorium	C.intybus	Hemicriptophite
	Cirsium	C.arvense	Hemicriptophite
	Cirsium	C.congestum	Hemicriptophite
	Cnicus	C.benedictus	Therophite
	Cosinia	C.rhaphiostega	Camephite
	Crepis	C.foetida	Hemicriptophite
	Crupina	C.crupinastrum	Therophite
	Echinops	E.cephalotes	Therophite
	Helichrysum	H.araxinum	Hemicriptophite
	Helichrysum	H.rubicundum	Hemicriptophite
	Heteropappus	H.altaicus	Hemicriptophite
	Kolepinia	K.teniuisima	Therophite
	Lactuca	L.scarioloides	Therophite
	Lasiogon	L.muscoides	Therophite
	Onopordon	O.leptolepis	Hemicriptophite
	Senecio	S.vernalis	Therophite
	Sonchus	S.oleraceus	Hemicriptophite
	Taraxacum	T.vulgare	Therophite

	Tragopogon	T.buphthalmoides	Therophite
	Tragopogon	T.caricifolium	Therophite
	Tragopogon	T.graminifolius	Hemicriptophite
	Xanthium	X.spinosum	Hemicriptophite
Poaceae	Aegillops	A.tauschii	Therophite
	Agropyron	A.longe- aristatum	Hemicriptophite
	Alopecurus	A.arandinaceus	Hemicriptophite
	Bromus	B.danthonia	Therophite
	Bromus	B.tectorum	Therophite
	Cynodon	C.dactylis	Therophite
	Dactylis	D.glomerata L.	Therophite
	Echinochloa	E.crus – galli	Therophite
	Eremopyrum	E.confusum	Therophite
	Eremopyrum	E.distans	Therophite
	Halopyrum	H.muaronatum	Hemicriptophite
	Hordeum	H.glaucum	Therophite
	Lolium	L.persicum	Therophite
	Phleum	Ph.paniculatum	Therophite
	Phleum	Ph.pretense	Hemicriptophite
	Phragmites	Ph.communis	Hemicriptophite
	Poa	P.bulbosa	Hemicriptophite
	Setaria	S.viridis	Therophite
	Stipa	S.pulcherrima	Hemicriptophite
	Taeniatheriun	T.crinitum	Therophite
	Trachynia	T.distachya	Therophite

Conclusion

In this research dominant plants were detected. They were consisting of these families: Asteraceae, Brassicaceae, Fabaceae, Poaceae, Boraginaceae and Polygonaceae. Determining the condition of a plant community is increasingly important as vegetation responds to anthropogenic stress, exotic species invasions, abiotic disturbances, and new management approaches (e.g., Godefroid and Koedam 2003, Abella and Covington 2004). Through their architecture, physiology, growth, and phenology, dominant plants determine overall community structure, such as biomass and canopy strata (Richards 1996) and ecosystem engineering (Malmer et al. 2003); A dominant species can be highly competitive in a core habitat or able to tolerate stress in a peripheral habitat (Wisheu and Keddy 1992). It can make up a majority of stems in a plot or less than the majority. Species richness can also vary with different dominants (Denslow and Hughes 2004). A particular species can vary in its dominance or dominate wherever it occurs (Lavoie et al. 2003). A few authors characterize dominant plants in relation to the number of co-occurring species. Some of scientists call those that coexist with many species, such as alpine tundra sedges, "conservative dominants." (Theodose and Bowman 1997)In contrast, some of them (Hodgson et al. 1998) described abundant plants of speciespoor assemblages as "aggressive dominants." Invasive or transformer species (Richardson et al. 2000), such as Phalaris arundinacea (reed canarygrass) and Typha x glauca (hybrid cattail), behave in this way, tending to exclude other species and create monotypic stands (Galatowitsch et al. 1999). While not quantitative, these distinctions begin to address the different roles and behaviors of dominant species. The presence or abundance of invasive species has also been suggested as an indicator of wetland quality. However, (Denslow and Hughes 2004) note that complex community interactions can allow a blurring of the distinction between native and exotic dominants, as native dominants become management issues and exotic dominants do not always decrease species diversity.

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