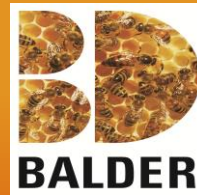


İSTANBUL'UN BALLI BİTKİLERİ



Neriman ÖZHATAY

Mine KOÇYİĞİT, Mehmet BONA



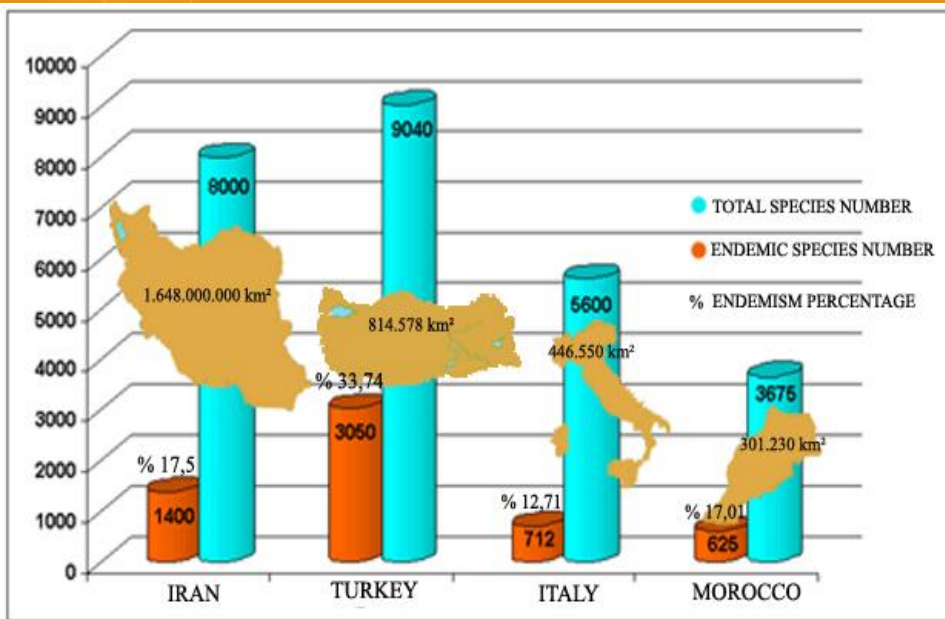
BU ÇALIŞMANIN AMACI

- Balarılarının nektar ve polen topladıkları İstanbul'un doğal (yabani) florasını saptamak
- İstanbul'un ballı bitkilerinden oluşan bir herbaryum (Yasılataarak kurutulmuş bitki örneklerinin saklandığı arşiv) hazırlamak
- İstanbul Ballı bitkilerinin fotoğraflarını içeren bir kitap hazırlamak
- İstanbulun Doğal bitkileri hakkında farkındalık yaratmak ve florasının korunmasına katkıda bulunmak.



FLORISTIC RICHNESS OF TURKEY

Floristically, Turkey is one of the richest countries in the Western Palearctic Region. Vascular flora (flowering plants and ferns) comprises about 10.000 species characteristic for Turkish flora is the high percentage of endemic taxa (34 %).



Number of species and endemism for selected countries



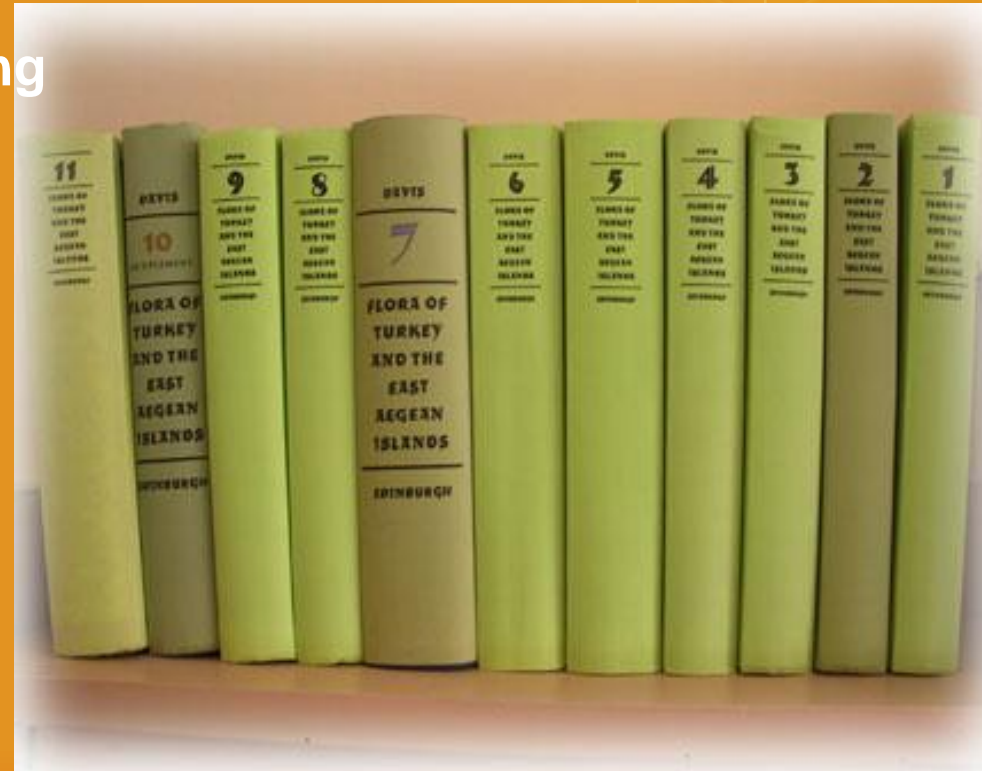
Tulipa sintenisii



○ A considerable number of taxa new for the country or new for science, have been described as a result of taxonomic or floristic studies during the last decades.

According to the recent studies on the Turkish flora, over 700 taxa added to the flora of Turkey since the publication of the Second Supplement (2000) until up to the end of 2011.

The rich and diverse flora of Turkey is well documented in 11 volumes



**This natural richness has also
economical and social value:**

More than 350 medical and aromatic
species are gathered with the
purpose of international trade.

Nearly 200 geofit species have use
value as garden plant.

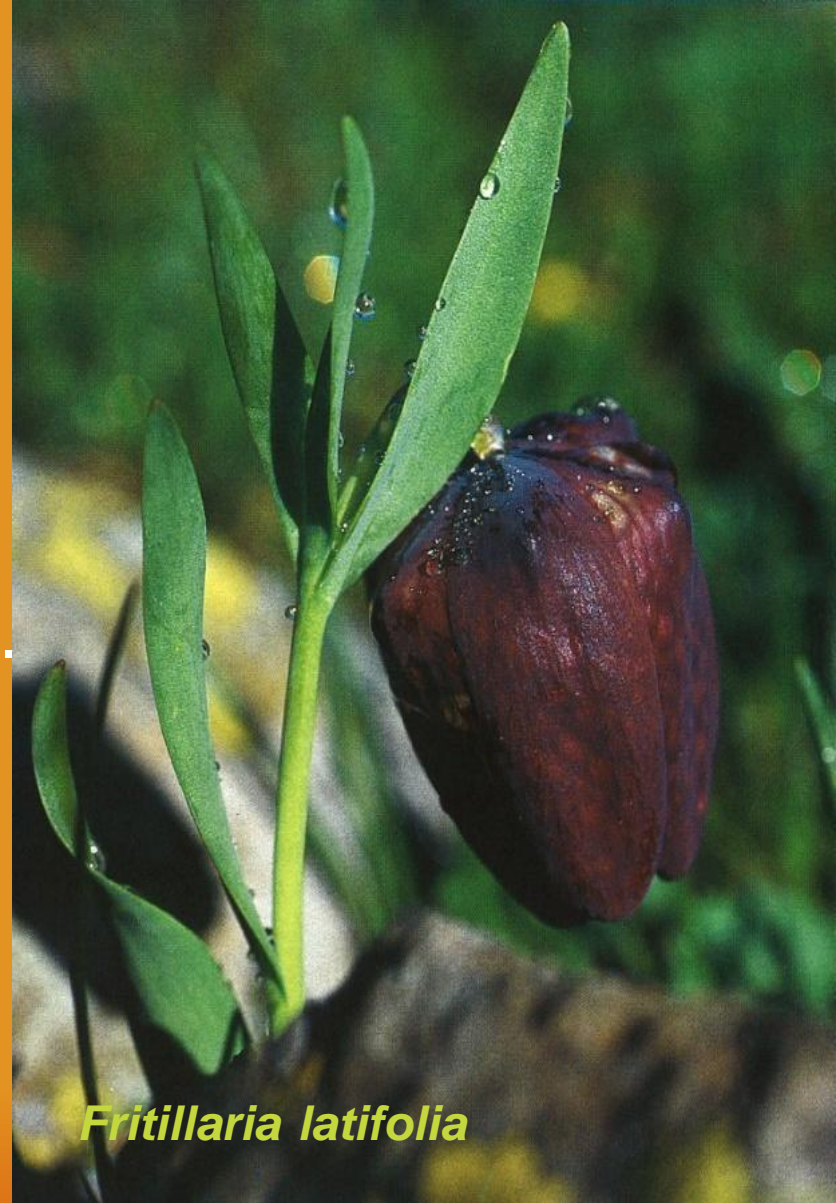
Two areas of the origin of wild
ancestors of some widely produced
agricultural products involves
Turkey.



Dactyllorhiza osmanica



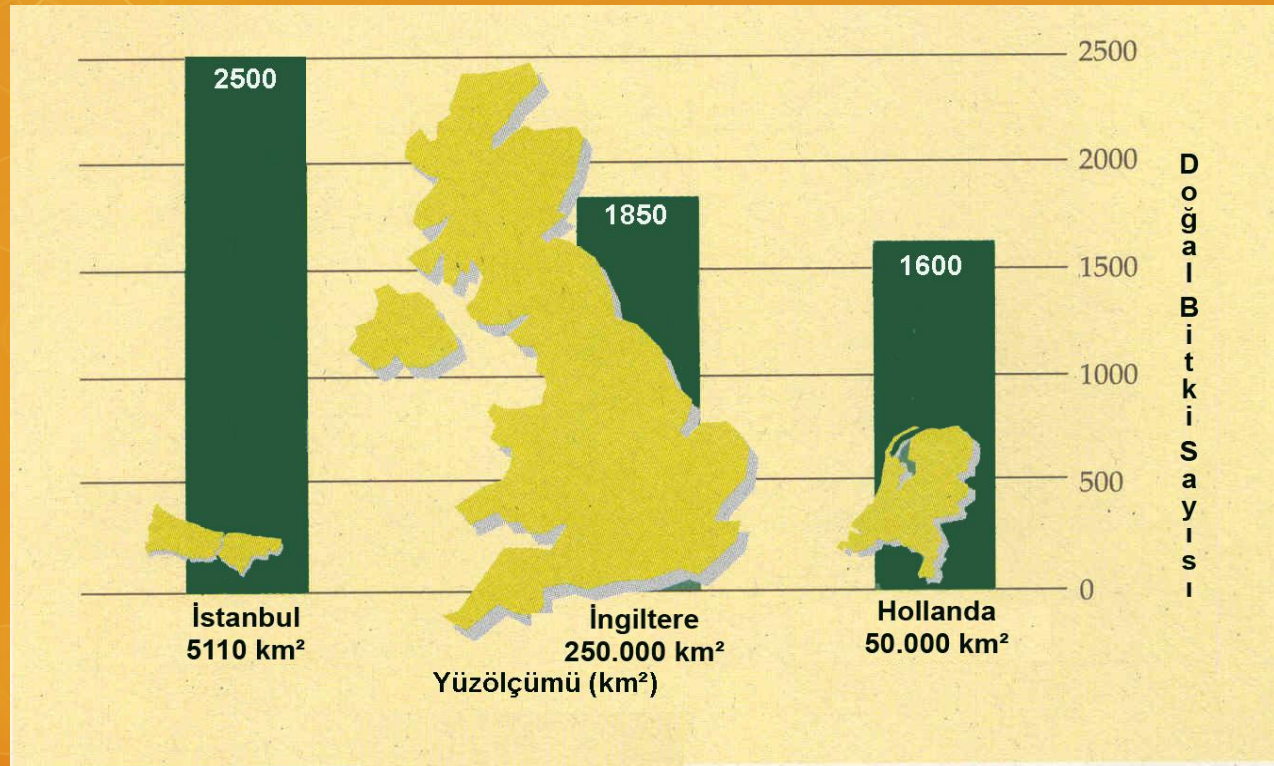
The exceptional diversity in Turkey's flora is the collective result of; the existence of different climatic zones, the diversity in geography and geomorphology, vast resources of water (marine, rivers, and lakes) drastic changes in altitude from sea level up to 5000m, diversity of habitats. Its unique location on the crossroads of Euro- Siberian, Mediterranean, Iran Turanian phytogeography regions. Thus Turkey has always been a bridge between Europe, Asia and Africa.



Fritillaria latifolia



The wide diversity of unusual habitats has allowed the development of an astonishingly rich flora in Istanbul. The province covers just 5110 km², yet support remarkably high diversity of plant species with approximately 2500 species, more than the total floras of the Netherlands United Kingdom.



FLORISTIC RICHNESS OF İSTANBUL



The richness of the flora is a result of

- ↪ the variety of soils,
- ↪ varying climate due to its position between two seas, from the damp cool climate of the Black Sea coast to the warmer Mediterranean climate of the Sea of Marmara,
- ↪ position between variety different floras of two continents, Europe and Asia,
- ↪ a long history of traditional land management, which has diversified and enhanced the province's habitats and flora.



RARE AND ENDEMIC POTENTIAL HONEY SPECIES OF İSTANBUL



Over 200 species are regarded as honey plants within the province of these some 25 species are more abundant here than else on earth such as



Asperula littoralis, A low growing perennial of sand dunes, confined to app. 10 localities on the Blacksea coast.



Asperula littoralis

Aurinia uechritziana, an autumn flowering perennial of sand dunes.



Aurinia uechritziana

Centaurea amplifolia, a tall and slender perennial from heathland sites in Asian Istanbul.

Centaurea inermis, a spreading perennial with pink flowers on the dry rock heath of Asian Istanbul.

Cirsium polycephalum,
endemic tall biennial with white flowers thistle.



Cirsium polycephalum

Centaurea hermannii



Centaurea hermannii, an attractive perennial of humid healthy coppice **endemic** to NW Turkey .

Centaurea kilaea



Centaurea kilaea, a grey-leaved perennial of the sand-dunes, **endemic** to NW Turkey.



Lathyrus undulatus,

a very attractive perennial pea,
endemic to NW Turkey



Convolvulus persica,

a handsome perennial with densely
wooly leaves and large white flowers



Taraxacum aznavourii, a yellow
flowered perennial, **endemic**
dandelion.

T. psedobrachyglossum, another
yellow flowered **endemic** dandelion

Erysimum degenianum, **endemic**

Hypericum avicularifolium
subsp. *byzantinum*, **endemic**

Isatis arenaria,

A perennial of old sand dunes ,
endemic to the Black Sea coast of
Turkey.



Lamium purpureum var.
aznavourii, **endemic**

Linum hirsutum subsp.
byzantinum, **endemic**

Linum tauricum subsp. *bosphori*

A large flowered, yellow flax of limestone grassland and fixed sand dunes. **Endemic** to İstanbul and about 10 localities along the western of city.

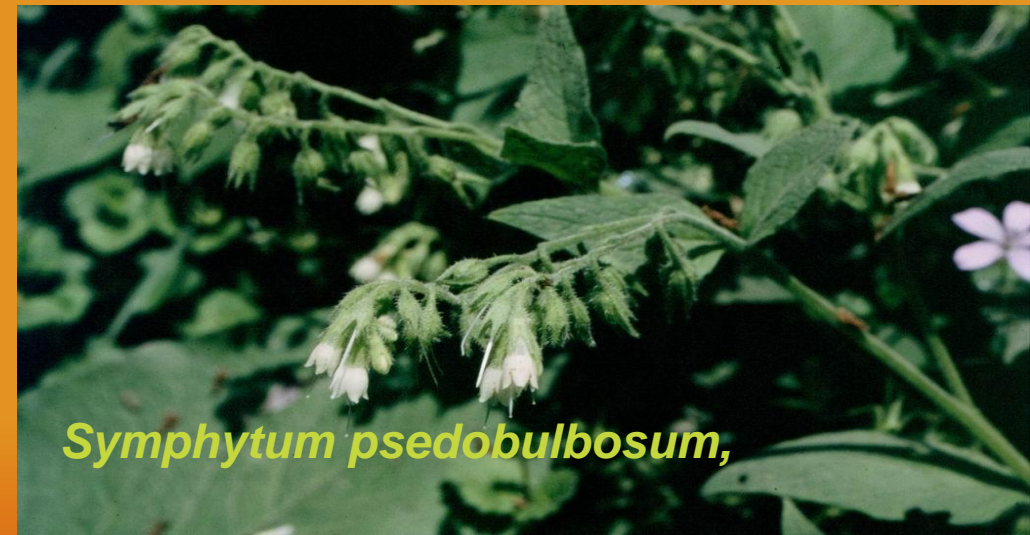
Onosma propontica, **endemic**

Peucedanum obtusifolia, **endemic**

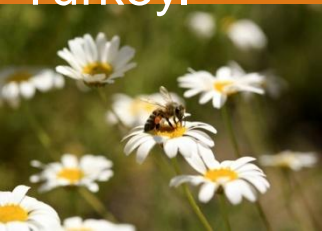
Symphytum pseudobulbosum, A white flowered perennial of forest and field margins. **Endemic** to NW Turkey.



Linum tauricum subsp. *bosphori*



Symphytum pseudobulbosum,



Trifolium apertum var. *kilaeum*, **endemic**

Trifolium pachycalyx, **endemic**

Verbascum bugulifolium,

found on dry heathlands and acid rocks. Short-lived perennial with spikes of flowers, each a mixture of yellow, green, brown and purple.

Verbascum degenii, **endemic**.



HONEY PRODUCTION AND BEEKEEPERS OF İSTANBUL



According to record of Turkish Statistical Institute, 60.830 beehives , 1.034 tones production of honey and about 1500 beekeepers in İstanbul.

	Arıcı	Kovan	Bal Üretim miktarı(ton)
I. Region Çatalca, Silivri, Büyükçekmece, Bahçeşehir	250	13750	234
II. Region Kartal, Tuzla, Pendik, Maltepe	Ma350	19250	327
III. Region Sarıyer ,Eyüp	145	7975	136
IV. Region Şile	361	19855	338
İstanbul	1106	60830	1.034

Kaynak: İstanbul Arı Yetiştiricileri Birliği, Tarım İlçe Müdürlükleri







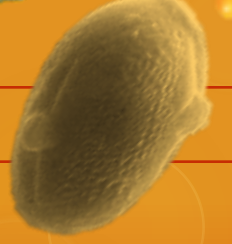

**PREVIOUS FINDING OF THE FIELD TRIPS CARRIED
OUT JUNE-OCTOBER 2011 in ISTANBUL**


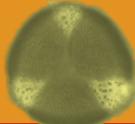

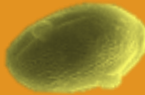




- **50 melliferous plants have been identified in Istanbul flora and listed as table.**
- **The resources harvested by bees (nectar and pollen) have been indicated on the table.**

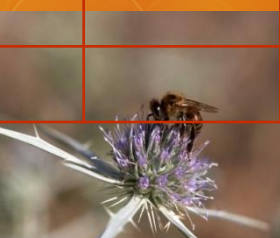


Species	Pollen/ Nectar
<i>Allium fuscum</i>	
<i>Allium rotundum</i>	
<i>Aristolochia clematitis</i>	
<i>Centaurea hermanii</i>	
<i>Cistus creticus</i>	
<i>Cistus salviifolius</i>	
<i>Consolida orientalis</i>	
<i>Convolvulus arvensis</i>	
<i>Cornus mas</i>	
<i>Dorycnium pentaphyllum</i>	
<i>Echium italicum</i>	
<i>Echium vulgare</i>	
<i>Erica arborea</i>	

Taxon	Pollen/ Nectar
<i>Hypericum bithynicum</i>	
<i>Hypericum elagans</i>	
<i>Hypericum montbretii</i>	
<i>Hypericum perforatum</i>	
<i>Iris sintenisii</i>	
<i>Lamium purpureum</i>	
<i>Lathyrus annuus</i>	
<i>Lathyrus cicera</i>	
<i>Lathyrus laxiflorus subsp. laxiflorus</i>	
<i>Lathyrus nissolia</i>	
<i>Lathyrus undulatus</i>	

Species	Pollen/ Nectar
<i>Malva parviflora</i>	
<i>Malva sylvestris</i>	
<i>Medicago orbicularis</i>	
<i>Nigella damascena</i>	
<i>Papaver dubium</i>	
<i>Plantago lanceolata</i>	
<i>Securigera securidaca</i>	

Species	Pollen/ Nectar
<i>Trifolium angustifolium</i>	
<i>Trifolium arvense var. arvense</i>	
<i>Trifolium campestre</i>	
<i>Trifolium constantinopolitanum</i>	
<i>Trifolium echinatum</i>	
<i>Trifolium ligusticum</i>	
<i>Trifolium michelianum var. balansae</i>	
<i>Trifolium nigrescens subsp. petrisavii</i>	
<i>Trifolium pallidum</i>	
<i>Trifolium pannonicum subsp. elongatum</i>	
<i>Trifolium patens</i>	
<i>Trifolium pratense var. pratense</i>	
<i>Trifolium purpureum</i>	
<i>Trifolium repens var. repens</i>	
<i>Trifolium resupinatum var. resupinatum</i>	
<i>Trifolium striatum</i>	
<i>Trifolium subterraneum</i>	



TOP 10 SPECIES FOR HONEY BEES IN İSTANBUL FLORA





Castanea sativa Mill.



Tilia argentea Desf.exDC.



Erica arborea L.



Erica multiflora L.



Arbutus unedo L.



Cercis siliquastrum L.



Crataegus monogyna Jacq.



Trifolium repens L.



Lamium purpureum L.



Echium vulgare L.

HONEY PLANTS HERBARIUM IN ISTE

“ HERBARIUM OF FACULTY OF
PHARMACY İSTANBUL UNIVERSITY”







İSTANBUL ÜNİVERSİTESİ ECZACILIK FAKÜLTESİ
BAL BİTKİLERİ HERBARYUMU
Farmasötik Botanik Anabilim Dalı



Nom. : *Trifolium echinatum* BIEB.

Fam. : *Papilionaceae*

Loc. : A1 (E) İstanbul: Silivri, Çeltik, Kurtulmuş mevki

Dat. : 07.vii.2011

Alt. : 143 m

Leg. : M. Bona, M. Koçyiğit

Det. :

Polen

Nektar

No : 157



“Bal varsa hayat var; bitki varsa bal var”

İSTANBULUN BALLI BİTKİLERİ



Lavandula stoechas

- Bitkinin İstanbul'da Yetiştirildiği Alanlar
- (Distribütin in İstanbul):
- Çiçek Açtığı Aylar
- (Flowering time and duration):
- Polen / Nektar(Pollen /Nectar):





“This project was supported by Istanbul Development Agency under the scope of Financial Support Programs of The Agency.”





THANK YOU FOR YOUR ATTENTION