# Alfred Heilbronn Botanical Garden

# Istanbul University, Faculty of Science

**The Establishment of the Istanbul University Botanical Garden**

The initiative to establish a botanical garden at Istanbul University came from Ord. Prof. Dr. Alfred Heilbronn when he started lecturing in Istanbul. The construction of the garden was started in 1934 and it began operating in the spring of 1935 under the name of İ.Ü. Botanik Bahçesi (I.U.Botanical Garden – Hortus Botanicus Istanbulensis). Ord. Prof. Dr. Alfred Heilbronn worked hard to ensure that the botanical garden was compatible to its advanced counterparts in Europe. He corresponded personally with Germany's leading corporations to buy long-lasting and high-quality equipment and he also contributed to the garden plan and greenhouse projects. The botanical garden was established with contributions from Ord. Prof. Dr. Leo Brauner, who supported Heilbronn in arranging the garden and in education along with garden curators (Horti Inspector) W. Spethan, G.A. Catt, G.A.M. Pisard and H. Lücke, and chief gardeners (Hortulanus Primarius) Adnan Mete and Ahmet Atílla.

Among these curators, British-born G.A. Catt and Ahmet Atílla, who received his professional botany training at the Gardening Branch of the Bursa School of Agriculture, published articles in periodicals on gardening techniques and plants. In 1935, the first seed catalogue of the botanical garden was published under the name of "İstanbul University Botanical Garden Seed Catalogue" (*Index Seminum Hortus Botanicus Istanbulensis*). One important feature of the seed catalogues was that the cover generally included pictures of plants from Turkey's flora, some of which were of endemic plants.

**Istanbul University Alfred Heilbronn Botanical Garden (AHBG)**

The Biology Institutions were founded on 3 March 1935 and opened on 4 June 1937. Following the first arrangements in 1934 the garden came into service in the spring of 1935 under the name of İ.Ü. Botanik Bahçesi (I.U.Botanical Garden – Hortus Botanicus Istanbulensis).

Alfred Heilbronn ensured that the botanical garden would possess the appropriate conditions. He worked on the garden plan drawings, the greenhouse project, as well as the selection of heating and cooling systems. Today there were 23 pools in the garden of various sizes, 15 of them are in the greenhouses, 8 in a natural environment, and some of them are heated. There is also a rock garden of 430 $m^2$. AHBG trades seed with approximately 400 foreign botanical gardens. In addition to this, it has a recognized position as the oldest and richest botanical garden in Turkey. Every year the AHBG contributes to the education of more than 1000 undergraduate students of Biology in the garden and greenhouses, interesting samples from the world of plants are presented to primary and secondary education students and to people who live in Istanbul and surroundings and also to foreign guests.

*Tropical Glasshouse I*

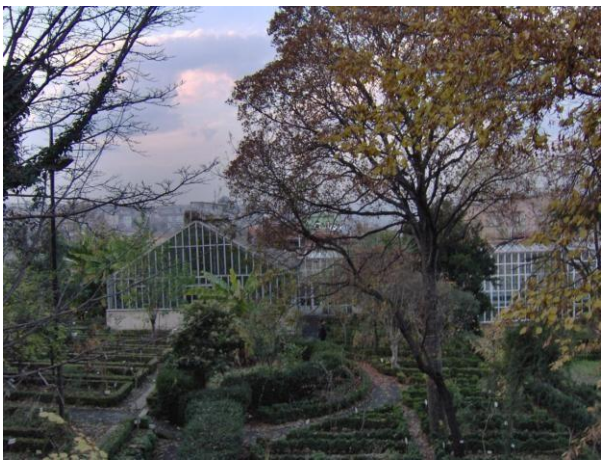
**The meaning of the emblem of Alfred Heilbronn Botanical Garden**

The plant in the AHBG emblem belongs to the *Acanthus* genus which has been in the Botanical Garden since 1935. It is represented together with five species of Turkish flora. The *Acanthus mollis* has provided new suckers for 75 years in the parcel it inhabits, and it appeared in the first seed catalogue. It is in the emblem to provide aesthetical value and as one of the plants which witnessed the establishment of the garden.


The emblem also shows the University entrance gate to illustrate the historical tradition, reforms and scientific power of Istanbul University. The *Acanthus* leaves embrace the historical gate of our university to show the allegiance to Istanbul University and its support to the University in its own scientific field. The frame of the emblem has a thick black band. The background colour is taken from the green of the formal emblem of Istanbul University. The *Acanthus* leaves are brown, whereas the lower parts are yellow. The Roman numerals MCMXXXV refer to the founding year of the garden. The black band signifies "Power and Passion", the green background "Nature and Flora", while the yellow represents "Vividness", and brown symbolizes "Soil and Establishment".

**Botanical Collections of AHBG**

The garden covers an area of 15,000 $m^2$ and is divided into 6 sections: Systematic division, Rock garden, Medicinal plants, Turkish plants, Experimental fields, Arboretum. There are 7 greenhouses and 23 pools in the garden. 400 woody plants including trees and shrubs, 3500 herbal plant specimens from 160 families, some endemic and rare plants for Turkish flora are located in the open fields. In the greenhouses there are also 2500 exotic specimens from different tropical regions of the world (appr.1100 taxon). In total, 6000 plant specimens, both native and exotic, from different taxonomical categories including Ferns, Gymnosperms and Angiosperms are exhibited in the garden.



**The Glasshouses of AHBG**

*Blue Glasshouse:* Research and propagation
*Tropical Glasshouse I*: Plant samples from rainforest countries.
*Tropical Glasshouse II*: Tropical fruit trees and shrubs.
*Orchid Glasshouse*: Tropical orchidaceae. Propagation and exhibition.
*Fern Glasshouse*: Fern samples from Flora of Turkey and the worldwide.
*Cycas Glasshouse*: Propagation and exhibition of living fossil plants.
*Arctic Glasshouse*: Arctic plant samples, propagation and exhibition.

AHBG has a wide variety of bulbous plants located in the rock garden of 430 m2 with unique Bosporus and Golden Horn view. Some examples are native Turkish snowdrops (*Galanthus sp.*), cyclamens (*Cyclamen sp.*), hyacinths (*Hyacinthus sp.*), *Narcissus*, *Tulipa*, *Stenbergia*, *Fritillaria, Romulea, Leucojum, Lilium, Colchicum* and large collection of Crocus (54 taxa) from natural habitats in Turkey. Rich collections of bulbous plants have been moved to the newly built bulb chambers.

*View over the Golden Horn*

**Position of AHBG**

Botanical gardens have great importance for countries like Turkey. Turkey has the richest and interesting flora in the temperate zone with approximately 9000 vascular plant species (10,765 taxa) from 165 families. 3000 plant species approximately (3022 species and 3403 taxon) are endemic for Turkey (35% of the total number grow only in Turkey). It has a wide diversity of habitats and climatic conditions resulting from geological, topographical and continental characteristics of Anatolia as a meeting place of three phytogeographical regions including Euro-Siberian, Mediterranean, and Irano-Turanian.

The "Fertile Crescent", the centre of origin and development of plant domestication is located in Anatolia as demonstrated by paleoethnobotanical findings dating to about 7000-5000 BC. It is one of the

most important centres of diversity of many species including cultivated plants. Rich genetic plant resources including primitive land races, wild crop relatives and other wild plant species provide the raw material to improve the agricultural production in the temperate regions of the world. Many land races and wild relatives of cultivated plants like grains, legumes, grapes, fruit trees and shrubs, medicinal, aromatic and ornamental plants originated and are located in their natural habitats in Turkey.

However, this unique flora, including many areas that have yet to be surveyed, is under immense threat and declining fast. The threats facing the Turkish "Important Plant Areas" (IPAs) are diverse ranging from agricultural reclamation, intensive forestry and industrial/urban development, collection of species for trade and the spread of invasive alien plant species in the environment. Overall, 94% of the IPAs are thought to be threatened to some extent by at least one potentially damaging activity, with the majority – over 75% - threatened by two or more factors. Living and seed bank collections of many species listed in the Bern Convention Appendix I and "Red data book of Turkish plants" can be maintained and conserved in the garden, in addition to the reproduction of some valuable floristic elements in tissue culture conditions including endemic, rare and endangered species.

*Cyclamen cilicicum* Boiss.& Heldr. – (Primulaceae)

The garden is also suitable for educational and social activities due to its special location in the city centre. It provides field experiment facilities to the many botanical disciplines. It provides conservation, reproduction and reintroduction of rare and endemic taxa of the Istanbul flora (There are presently 44 "globally threatened species" and 39 "species of European conservation concern" in the Istanbul flora). A special section of the Garden is devoted to ex situ conservation and multiplication of the bulbous plants of Anatolia at risk in the wild.

*Tulipa saxatilis* Sieber ex Sprengel - (Liliaceae)

The small scale seed bank collection includes seed samples from 120 families interacting with 400 botanical gardens for material transfers. The Herbarium is a member of the Index Herbariorum and comprises about 40,000 specimens collected from various localities in Turkey, representing valuable floristic elements. Label information of the accessions is still being recorded into electronic database. Digital herbarium specimens are also prepared by ISTF (Istanbul University Science Faculty Herbarium) staff. Amateurs can access the collection via www.istanbul.edu.tr/herbaryum

The tissue culture and micro-propagation unit operates with the reproduction of some valuable floristic elements including endemic, rare and endangered species according to "Red Data Book of Turkish Plants" using IUCN categories. Some projects and theses are currently in progress in order to increase the number of living collections. The garden is still under reconstruction based on a project supported by the Research Fund of Istanbul University.

Our research programmes in the Botany Division of the Department of Biology include Plant Systematics and Taxonomy, Plant Gene Resources, Plant Morphology and Anatomy, Plant Ecology and Eco-physiology, Plant Molecular Biology, Plant Physiology, Environmental Pollution, Environmental Biotechnology, Phytoremediation, Industrial Plants, Floristics, Ethno-botany and Horticulture.

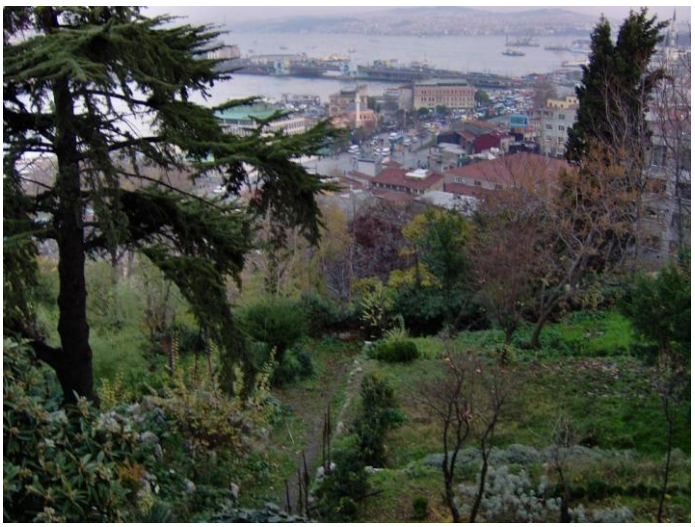
**Students, Researchers and Visitors**

Every year many visitors come to Alfred Heilbronn Botanical Garden (AHBG). Some come to add to their botanical and horticultural knowledge, some to observe the birds and the others to marvel at the wonderful range of plant representing selected species from Turkey and all over the world.

Visitor services include garden tours, educational displays and art exhibitions. The garden is open to the public. Approximately 10000 visitors from a broad range of groups visit the garden every year, including students, researchers and tourists.

The Botanical Garden of Istanbul University is open to all. Even if no employee is available to show you around, one of the faculty members will volunteer to do this.

Admittance is free to the garden. In the case of group, 150 new *kurush* per person is requested. The Kabataş-Zeytinburnu surface metro line goes to the Botanical Garden. From the Istanbul University/Beyazıt stop, it is about a ten-minute walk to the historical atmosphere of the quarter of Süleymaniye.



*View of the Garden to the Bosporus*

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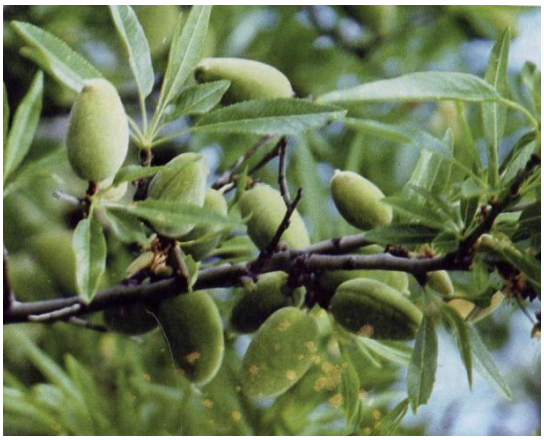

*Amygdalus communis* L. – (Rosaceae)

*Arbutus unedo* L. - (Ericaceae) - Kocayemiş

*Punica granatum* L. - (Punicaceae)

*Liriodendron tulipifera* L. – (Magnoliaceae)

In 2018 Istanbul University transferred the area of the Botanic Garden and surrounding property to the Istanbul Muftiate: The Botanic Garden has since been closed to visitors, except for pre-arranged, exceptional visits.