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## **SCIENTIFIC BASES OF AZERBAIJAN LANDSCAPE ARCHITECTURE**

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In Institute of Dendrology NAS of Azerbaijan has studied research works at first time the scientific bases of floral compositions and their ornamental use in climate conditions of Absheron, flowering time and their determinations to eco-factors resistance. During landscape composition creations has used 2 styles: regular and landscape styles. There are determined that the introduced plants from different countries and from local flora ornamental shrubs and herbaceous plants are well adapted in Absheron climate conditions and they are recommended for use in parks, squares, in various composition creations.

**Keywords:** landscape, architecture, composition, parks.

### **INTRODUCTION**

There has been proceeded in Azerbaijan Republic independency time connect with state economic development extensive genofond protection in country landscape, increasing biodiversity and ecological balance stability. In Baku central avenues and in other big cities have been established new parks, landscape compositions using in it ornamental trees, shrubs and herbaceous plants. In Apsheron parks, alleys, squares, green lawns cultivated plants have significantly improved the life of citizens.

Azerbaijan is a country with rich architectural and landscape heritage, origins went back to the past distance. It has been a long while at the crossroads of important caravan routes leading from Asia to Europe. Azerbaijan gardens and parks are the greatest social wealth of our citizens. In parks and gardens modified nature has acted as a natural environment and as a basis of highly valued human social functions implementations [1].

In Azerbaijan it has taken a special importance to study all of different branches of park - garden arts. Nevertheless it has become preservation tasks of our cultural heritage. Many of historical gardens and parks, which have been formed as an organic part of this heritage have been disappeared or have been rapidly destroyed in our eyes, design of flowers of previous time are not suitable for new planning forms, to build and improve our cities and housings. There has been arisen an urgent need for reconstruction and renovation of park and gardens landscape compositions, to take a caring attitude to landscape architecture monuments, immediate suspension of their destruction processes, the creation of new compositions in flower and ornamental plants landscape architecture. We have purposed to conduct research works on study of biological and ecological features of some ornamental shrubs and herbaceous plants introduced from different countries and from local flora in Absheron climate conditions and their use in landscape

architecture in Institute of Dendrology NAS of Azerbaijan in laboratory "Landscape architecture".

### MATERIALS AND METHODS

Objects of research used various kinds and sorts from following families and grades: *Liliaceae* Dumort.- *Tulipa* L. - 21 sorts, *Hyacinthus* L. - 4 sorts; *Iridaceae* Juss. - *Gladiolus* L. - 5 sort; *Amaryllidaceae* Jaume st. Hil. - *Narcissus* L. - 2 sorts; *Hippeastrum* Herb. - 5 kind; *Euphorbiaceae* Juss. - *Euphorbia* L. – 2 kinds; *Theaceae* D.Don - *Camellia* L. - 1 kind and etc.

Morphological features of vegetative organs have been studied by method I.T.Vasilchenko [8] and I.Q.Serebryakov [6], and morphology of roots system by method V.A.Kolesnikov [2].

### RESULTS AND DISCUSSION

Institute of Dendrology territory is consisted of 12 hectares; it has a beautiful example in Absheron landscape architecture. There are collected many plants in Institute of Dendrology from round the world. Greenhouse stocks in Institute of Dendrology are a living museum of tropical and subtropical plants. There are scientifically studied bioecological features and their use in landscape architecture of subtropical and tropical plants in greenhouses. By research works have been carried out in Arboretum territory of Institute of Dendrology NAS of Azerbaijan, in parks, streets, squares of different areas of Baku city, in seaside parks, in front of the Republic Palace has been created landscape compositions including of evergreen trees and shrubs, ornamental herbaceous plants. Some of designed landscape compositions have been shown in article's figures. There are used the following ornamental plants in designed landscape compositions:

Fig .1. *Euonymus* L., *Rosa* L., *Microbiota* Kom., *Thuja* L.

Fig.2. *Cycas* Thunb., *Cupressus* L., *Papaver* L., *Chamaerops* L., *Viola* L.

Fig.3. *Juniperus* L., *Salvia* L., *Petunia* Juss., *Calendula* L., *Viola* L.

Fig .4. *Tulipa* L..

Fig. 5. *Geyxera* L., *Dian thus* L., *Vinca* L.

Early-flowering bulbous are planted usually near mix borders between perennials. They are perfectly combined with ground-covering plants that grow and gradually have covered the area fades primroses [3].

We have used 2 styles of composition structures: regular in form of geometric shapes or landscape. In



Fig.1. Azerbaijan map.

compositions of the regular style are created different geometrical shapes, such as "Square", "Rhomb", "Circle", "Star", "Rectangle», but in landscape style - the original form of the compositions, such as "Flowers", "Buta", "Map of Azerbaijan", "Tulip", etc. Time of flowering, color and flower shapes, their quality, their size, height of different sorts and species is while you create compositions during the time of flowering, it depends on color and shape of flowers, their quality, their size, their height of the various species and varieties of plants. By making compositions are taken into account the biological and ecological characteristics and decorative qualities of plants.



Fig.2. Sculpture "Flora" in center of ornamental plants.



Fig.3. Flower composition.

Most of flower plants are photophilous and they couldn't tolerate shady places, or many of them are poorly developed in semi shade places. However, the flower gardens should be well protected against the wind [5].

Each year in the compositions are changed annual plants with another annual plants, but perennial plants are stayed fast. In centre of compositions has been planted taller, mostly evergreen shrubs and trees, and at the edge are planted lower, perennial plants and annual herbaceous plants. We have aim to have plants in well grown in plants composition and evolved; we have picking them with the request of soil, light, heat and moisture. There are chosen plants in compositions by the way that their blooms are changed at the same time from fade plants changing to other flowered plants, thus is ensuring the continuity of flowering.

Most beautiful compositions have obtained by the coincidence of flowering perennials with beautiful flowering blooms of shrubs and trees [7].

Every year in different parts of Baku and in front of Republic Palace has held day of flowers. There has been brought for flower day over than 700 species of flowers from

various countries of the world. There are demonstrated eastern sculptures of fabulous heroes created from different flowers.

With composition's creation we must take into account the biological features and ecological resistance to local soil-climate conditions to planted trees, shrubs and flowers. Ornamental qualities are the main features of plants [4].

Nowadays by creating flower compositions has paid much attention to bulbous and tuberous plants. These plants are hyacinth, tulip, narcissus, gladiolus, crocus, lily and etc. Bulbous and tuberous plants are differed of high decorative quality, beautiful, fast flowering and are used in design of flower-gardens. In the research work has studied biological and ecological features of bulbous and tuberous plants and there has used in the creation of compositions.

Phenological development stages of some studied Dutch bulbous plants species are shown in table 1.

**Table 1**

**Phenologica development stages some of researched species**

№	Sorts	Leafing	Budding	Flowering		Yellowing of leaves	Drying of overground parts
				Start	Finish		
1	<i>T. "Editil NL "</i>	16.02	03.04	12.04	30.04	16.05	12.06
2	<i>T. "PW Alexind "</i>	15.02	02.04	11.04	28.04	15.05	11.06
3	<i>T. "Purk"</i>	14.02	03.04	13.04	25.04	14.05	13.06
4	<i>T. "A.Adamkiene"</i>	16.02	04.04	12.04	26.04	16.05	14.06
5	<i>T. "Bring Blos"</i>	15.02	03.04	11.04	25.04	17.05	12.06
6	<i>T. "Wit JL"</i>	14.02	01.04	08.04	28.04	15.05	13.06
7	<i>T. "Bring Bruin"</i>	16.02	03.04	12.04	30.04	14.05	11.06
8	<i>T. "Geidar Aliyev"</i>	15.02	02.04	11.04	27.04	16.05	12.06
9	<i>T. "Portland"</i>	16.02	04.04	13.04	20.04	15.05	14.06
10	<i>T. "Or babu"</i>	14.02	03.04	12.04	28.04	14.05	11.06
11	<i>H. "Wood stask"</i>	10.02	10.03	24.03	15.04	13.05	29.05
12	<i>H. "Sky jaket"</i>	11.02	13.03	27.03	11.04	12.05	27.05
13	<i>H. "Amethyus"</i>	12.02	14.03	28.03	12.04	14.05	28.05
14	<i>H. "Diskwilden "</i>	10.02	13.03	26.03	13.04	15.05	29.05
15	<i>N. "Gemendil"</i>	13.02	14.03	03.04	20.04	14.05	27.05
16	<i>N. "Carnegie"</i>	14.02	13.03	05.04	22.04	15.05	28.05

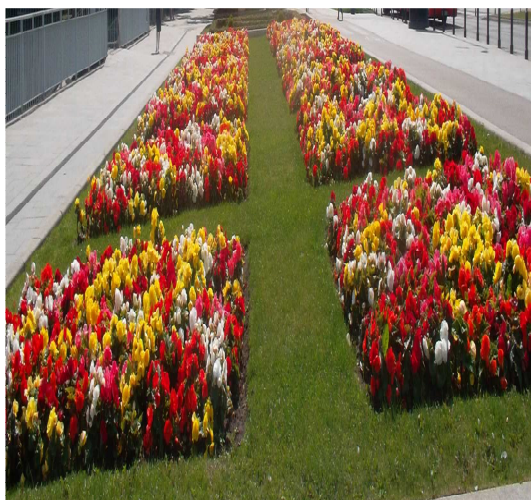


Fig.4. Square shapes.



Fig.5. The original shape in front the Republic Palace.

By research works held in Institute of Dendrology and its scientific bases of floral compositions are determined in conditions of Absheron climate their decorative quality uses, flowering time and their resistance to environmental factors. It was found, that introduced from different countries and from local flora ornamental shrubs and herbaceous plants has been well adapted in Absheron climate. They are also prospectively and there are recommended for use in a various composition's creation of parks and gardens design in Absheron.

Every day the Azerbaijan landscape architecture is developed in different city regions. In squares, streets, parks, gardens are created beautiful compositions. We hope that the landscape architecture will be promoted for further development and it will continue to contribute the beauty to Azerbaijan land.

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Проведенной в Институте Дендрологии НАН Азербайджана научно-исследовательской работе впервые в условиях Апшерона разработаны научные основы цветочных композиций и их использования по декоративным качествам, времени цветения, а также определена их устойчивость к экологическим факторам. При создании композиций были использованы 2 стиля: регулярный и ландшафтный. Было выявлено, что интродуцированные из различных стран и местной флоры декоративные кустарниковые и травянистые растения хорошо адаптируются в условиях Апшерона и рекомендуются для использования при создании различных композиций в парках, скверах.

**Ключевые слова:** ландшафт, архитектура, композиция, парк, сквер.

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