

*Şevket ALP

Orcid No: 0000-0002-9552-4848

**Mevlüde TATAR

Orcid No:0000-0002-3707-1721

*Van Yüzüncü Yıl Üniversitesi,
Mimarlık ve Tasarım Fakültesi,
Peyzaj Mimarlığı Bölümü (Sorumlu
yazar)

**Alata Bahçe Kültürleri Araştırma
Enstitüsü Müdürlüğü

alpsevket@yyu.edu.tr

DOI

[https://doi.org/10.46291/ISPECJASv
ol4iss3pp468-467](https://doi.org/10.46291/ISPECJASv
ol4iss3pp468-467)

Geliş Tarihi: 05/06/2020

Kabul Tarihi: 20/07/2020

Keywords

Dahlia, Van Gardens, Morphology,
Phonology, Identification

A Research on Identification Cultivar of *Dahlia* Cav. Grows In Traditional Van Gardens

Abstract

Exotic ornamental plants belonging to various cultural centers are grown in Van Gardens that goes back to the Urartians. *Dahlia* Cav. is one of the exotic types brought to be grown in Van. Exotic ornamental plants belonging to various cultural centers in Van Gardens dating back to the Urartians are grown. There were the exotic plants that grow in tradition Van gardens. *Dahlia* Cav. was one of the exotic plants brought to be grown in Van Gardens. As a result of the experimentations, 3 groups of *Dahlia* cv. having different morphologic characteristics have been identified in Eminpaşa District. According to the group keys of identified *Dahlia* cv., it has been identified that the first group consists of the flowers having yellow color and is 10 cm in diameter, the second one has red color and its diameter is under 10 cm, and the last one has a purple color and is under 10 cm in diameter. In Van and its vicinity, *Dahlia* cv. types which fit the climate, soil and other surrounding conditions have existed up until today. The usage of these types that do not belong to the very nature of Van, that is, not from Van, would be a cultural and biological achievement in reforming the urban identity.

INTRODUCTION

Van Province of Turkey which has been founded on the east coast of Lake Van, get over from the negative impacts of continental climate due to mild climates of Lake Van, the history of which goes back to the Urartus period (BC 8-7. Century); and Van city developed a unique culture of the garden (Alp et al., 2010). In the last century, during the pre-republican period, there were some significant foreign institutions such as The French Dominican Mission, British Consulates and American Schools (Günel, 1993). The interaction with the Western World provided the cultivation of some ornamental plants in gardens of Van which belong to the Western Cultural Centers and do not exist in the region. It has been estimated that *Dahlia* spp., which spreads from Europe to the World, comes to the Van gardens with this interaction. The Dahlia plant, which was in Central America naturally grow especially in the high mountains of Mexico, was spread to the world when it sent to Holland from Mexico in 1872. The Dahlia is a bulbous plant that blooms in the summer and autumn seasons, with bush trunk and shaped as tuberous roots. (Brickell, 1992; Hessayon, 1993; and Mc Claren, 2004). Photoperiod and average temperatures also affect the cultivation of

the Dahlia plant. Together with photoperiod, the effect of temperature affects storage roots and tuber formation, the bud development, and the formation of flower buds. Moreover, it can be said that the temperature has a greater effect than photoperiod. The most suitable temperatures for the development of Dahlia at daytime is 18-19 °C and at night 17-18 °C. High temperatures, especially at long daytime conditions, cause smallness of the flower, decrease its quality and burns in leaves. Low temperatures, especially in short days, restrict the development of plants and cause the plants to stunted. The temperature that below - 2 °C negatively affects plant tubers (Hertogh and Nard, 1993; Mc Claren, 2004; and Anonymous A). The study was executed in the gardens of Eminpaşa District which has conserved its old city texture that comes from its history. In the study, the variety of Dahlia ecotypes were determined that grow in the old gardens and after that, they were classified by determining their morphological specifications. There were some engagements and interviews with the people from the district and gathered information about the subjects; how Dahlia ecotypes were brought to the region and by whom and how and where they are being

used in Van gardens. At the end of the study, the ecological circumstances of the region were determined in terms of Dahlia cultivation.

MATERIAL and METHOD

The study has been carried out in the Eminpaşa district that remaining below the historical Şamran Channel and between the; D 430 19' 51'', K 380 27' 42'' and D 430 19' 59'' K 380 27' 23'' coordinates. Eminpaşa District is known as Şamran District which is its old name. The district was placed in downtown which is known as the business and trade center of old Van and as the walled part before the Republic. Since the historical Şamran water channel passes through the district, it's an old dwelling unit that is big and has old vineyards and gardens. Getting from types Dahlia plants that cultivated in the old gardens of the region, with the assistance of some sources such as; Brickell, 1992; Hessayon, 1993; Hertogh, 1993; and Mc Claren, 2004; it has been determined the particularities of the plant. In the classification of the identified varieties, it has been used the classification system of ADS (The American Dahlia Society) (Alp, 2014). The classified plants have been taken under observation and the developments of the plants were recorded. It is interviewed

one to one with the garden owners, who had been taken under observation, about where the plant came from, why and how it cultivated.

RESULT and DISCUSSION

The Van city which was severely damaged after World War I was built over to the old city as the new city after the Republic Period. Eminpaşa District kept its rare textured dwelling unit feature in this period too which comes from the past by its vineyards and gardens. Because of this, it was able to transfer its all accumulation to our modern day. One of the values which were transferred from the past to our modern-day is Dahlia ssp. Cultivation.

Background of Van Garden Dahlia ssp. ve Use

There is not any information about how Dahlia which its homeland is known as high mountains of Mexico has been brought from Europe to Van. Planting Dahlias in old gardens for longstanding which means that the communication and interaction between Van Region and West go back to old times. This plant is both and biological heritage and also a cultural value of the region as it is unknown to Van and suburbs, but acclimatize to the regional climate, soils, and other environmental conditions and surviving until today. The Dahlia plant

cultivated in the place called Hayat or in the places near the recreation areas of the traditional Van garden in order to decorate the garden. As the Dahlia plant used together with a single color or different colors in gardens, it sometimes used also with the other mixed seasonal flowers.

The plant has been one of the most preferred flowers in the region by Van women for its particularities such as the different appearance of the plant among the others in the region, live shades of color, ease of maintenance, and on account of its beautification of the environment and remaining in bloom for a long time when looming plants are less

Phonological Observation Diagrams

As the vegetation period for the development of the plant ecologically, an adaptation of the species to this process is also important. In the urban ecology of Van, in general, the vegetation begins in the middle of April and continues until the middle of November (Alp, 1999). The development of these three Dahlia groups in the vegetation period was observed and it has been determined that all groups during the same period started to the vegetation in the middle of May and continued until the end of October. In this way, in the urban ecological conditions of Van, it has seen that the Dahlia plant has a 5 to 6 years vegetation period (Table 1). Three groups have 50 and 70 cm plant height (Table 2).

Table 1. The phenological observation diagram of Dahlia in Van conditions

Phenological Observations	Dates
Date of Planting	End of April Top of May
Beginning Make of Shoot	15-20 May
Beginning of Foliation	Top of May
Beginning of Blooming	Mid-July
Duration of Blooming	End of October Top of November
Coloration Period in Leaf	End of October
Leaf Dismantling Period	End of November
Dismantling of Tuberosus	End of November

Table 2. Plant height and flower diameter of Dahlia that is determined Van gardens.

	Plant height (cm)	flower diameter (cm)
Group I	60-70	10
Group II	60-70	<10
Group III	50-60	<10

Ecological Properties

When blooming periods of determined three types of Dahlia were investigated, it has been determined that the booming period continued from mid-July until the end of October in general. In the region,

July is the beginning of the short-day conditions. In the region, the temperature varies between 8 – 22.7 °C during this period. The average temperatures decrease rapidly in September and October (Table 3).

Table 3. Some Climatic Dates Belonging to the Long Years Averages in Van Province

Months	Monthly Night Temperature (°C)	Monthly Daytime Temperature (°C)	Monthly Mean Temperatures (°C)	Daily Average Insolation (Hour/Minute)
April	6.8	10.5	8.0	7.3
May	11.8	15.9	13.1	9.2
June	17.0	21.6	18.6	11.6
July	21.0	25.5	22.5	12.1
August	20.9	26.2	22.7	11.8
September	16.1	21.9	21.9	10.2
October	10.2	15.7	12.0	7.4

The Dahlia plant has been affected by the freezes during the rest period. In the region, the temperature decreases below 0 °C in December, January, and February. For that reason, so that plant tuberous to be not affected by the cold winter conditions, plant tuberous are removed and stored in a warmer location. In general, tuberous of Dahlia plant stored in the cellar of the house where potatoes tuberous are also stored, it is called a potato flower plant among the public. Another factor that affects plant growth is the day and night temperature. While daytime temperature is up to 26.2 °C in the region, night temperature drops to 6.8 °C (Table 3). Although these temperature dates are not very favorable for the

development of the plant, they are even not bad to affect it negatively. The effect of high temperature decreases a quantity with irrigation. It has been concluded that plant has been growing for many years in the region, it acclimatized to the regional climate and for that reason, it is not affected by low temperature.

CONCLUSION

Naturally grown dahlia varieties grown in old Van gardens; morphological criteria such as flower and leaf characteristics and phenological characteristics were examined. Morphologically, 3 different types were determined in the examinations. At the end of the field/land observations and taxonomic studies, the Dahlia plants that










grow in the region are divided into three groups. The dichotomous key of these groups is shown below;

Group I: Flower color is yellow, flower diameter is 10 cm, dumb flower leaf length is 4 cm and its width is 2.3cm.

Group II: Flower color is red, flower diameter is 8 cm, dumb flower leaf length is 3.4 cm and its width is 1.9 cm.

Group III: Flower color is purple, flower diameter is 8 cm, and dumb flower leaf length is 4 cm and its width is 2.2cm.

Table 4. The descriptive table of Dahlias that grows in Van

Photo	Leaf	Dumb flower	Group	Size	Form	Color	Flowering Period
			Group I	BB	FD	Y	July November
			Group II	BA	ID	R	July November
			Group III	BA	ID	PR	July November

In our era, one of the criteria of development is to develop biological wealth which it has by knowing its value and use most efficiently. Dahlia genotypes are

included in a biological wealth of the region which did not exist in the nature of Van but naturalized in time in the region.

naturalized species such as Dahlia which are very low costs and maintenance can be successful to be used in Van urban and rural landscape designs. To widely use, they should be cultured, produced and sold in nurseries. Thus, by using historical species effectively and consciously in landscape designs, it will contribute to the local economy in terms of sustainable designs and development. In the old gardens of Van, there are Dahlia populations that are adapted to the region in three different colors and cultivated by the local women. It is being used as a foliage plant easily for many years because of its glamorous color and short height features. But since it, because the determined genotypes features are not able to respond to changing expectations, the usage of local materials is gradually decreasing. But conserving the existing genotypes is so important for future improvement studies. Because of these reasons; it has become an obligation to compile and restore the local populations in our region. The altitude of city Van which is 1720 m decreases the average temperature value. Van Lake, which is the biggest water body in land in Turkey, is a real temperature regulator for the city Van and its environment. Van Lake takes a role in gaining a quite homogeneous character in

the vegetation period in the summer night and day temperatures. This feature proves that the city has the appropriate ecological circumstances for Dahlia torus cultivation.

Dahlia populations are found in Van garden due to the urbanization that accelerated after the 1980s have caused a decrease and damaged a part of them completely. In the recent years, as a result of the contemporary approach, the activities of urban open space have gained importance at the sense of individuality and the public sense; especially the municipalities have accelerated to establish urban open space in the different parts of the city (Alp at al., 2010). Besides the classical species, it can be focused on the species that are known and grown by the public in terms of ornamental plants, which are going to be used in the urban open space. In this respect, the detected form of the Dahlia, which has been grown for many years in Van and received the public's appreciation, can be cultivated in the urban open space.

With modern plant breeding and new growing techniques; Besides the dwarf varieties; different types of flowers colorful, longer flowering times, more decorative leaves, compact, uniform appearance, many varieties developed for different areas of use. These varieties from the past connect

the landscape to history and give your soul. The conservation of this plant which has become a part of local culture for many years in Van is again for the region as much as is a biological and cultural wealth. Creating the new identity of the city, this beauty which is used in old gardens and had an important place in the city identity once should be conserved and cherished. Otherwise, this beauty and the culture composed of it will vanish. Natural Geophytes species are distributed under natural conditions and without human intervention. Therefore, natural species are more durable and satisfied than the cultivated species (Altuntaş, 2020). however naturalized Geophytes species such as Dahlia is difficult to tolerate extreme natural conditions. This species, which does not grow naturally in Anatolia, has not been granted any protection status against naturalization in the region. Varieties may be recommended to be identified as “Vulnerable (V)” in the IUCN threat classification. However, existing populations should be meticulously protected and maintained healthily. The continuation of the process will also contribute to a more healthy transfer of the genetic reserve of the varieties to future generations.

his biodiversity from the past is making up a wealth of natural resources for the city. Since the promotion and economy of the city is inevitably based on natural resources, it can be one of the elements that will contribute to the promotion and development of the region if this wealth is preserved and evaluated.

REFERENCES

- Alp, Ş., Batı, B.B., Akın, A., Paksoy, M., 2014. Yıldızçiçeği-Dahlia (*Dahlia* ssp.) yetiştiriciliği, sınıflandırılması ve kullanımı. Selçuk Tarım Bilimleri Dergisi 1(1):41-44
- Alp, Ş., Öztürk, Ş., Türkoğlu, N., Koyuncu, M. 2010. Basic elements of the identity of traditional Van garden. African Journal of Agricultural Research Vol. 5(11): 1277-1283
- Altuntaş, A., 2020, Benefit From Natural Plants In Landscape Architecture: Example of Siirt Geophytes, ISPEC Journal of Agr. Sciences : 4(2)
- Anonim, A. 2004. Dwarf Dahlias, The Flowers Fields, Yoder Brothers, Inc., 04028 S: 2
- Brickell, C. 1992. Encyclopedia of Gardening. The Royal Horticultural Society, London. 648.
- Günel, F. M. 1993. Eski Van Kent Dokusu Üzerine Bir Deneme, Yüzüncü Yıl

Üniversitesi, Sosyal Bilimleri Enstitüsü,
Yüksek Lisans Tezi, Van.

Hertogh, A., Nard, L. M. 1993. The
Physiology of Flower Bulbs. ISBN: 0 444
874 98 4. Elsevier Pres, Amsterdam. 811.

Hessayon, D. G. 1993. The Flowers
Expert. Pbi Publications. 158

Mc Claren, B. 2004. Encyclopedia of
Dahlias Timber Press. USA, 211.

Zimmerman, P. W. and Hitchcock, A. E.
1929. Root Formation and Flowering of
Dahlia Cuttings When Subjected to
Different Day Lengths. Botanical Gazette,
Vol. 87, No. 1. 1-13.