

THE DIVERSIFICATION OF FLORAL STUDENT COLLECTION IN DAHLIA TYPE CACTUS

DIVERSIFICAREA COLECȚIEI STUDENȚEȘTI DE PLANTE FLORICOLE LA DAHLIA DE TIP CACTUS

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Abstract: *There are many attractive Dahlias cultivars available each year to be grown in the garden. Together with gladioli, lilies and begonias, the dahlias are one of the most important and popular summer-flowering bulbs. Dahlias are widely cultivated due to the huge range of colours and flower types available, its many uses, and fairly easy cultivation. Nowadays is about the more than 20.000 garden cultivars that have been created by hybridization and selection. In Romania, at University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, researching activity for improving and diversification of floral plants assortment by introducing of the most competitive foreign floral cultivars is one of the main objectives. This paper describes new cultivars Dahlia hybridus Cactus types which were monitories in Transylvanian behaviors and recorded for the following morpho-decorative characteristics: blooming time, colour of flowers, plant height, and circumference of plant, number of stems, number of flower, flower diameters and number of ligules.*

Key words: *Dahlia hybridus, cultivars Cactus types, morpho-decorative characteristics*

Rezumat: *În fiecare an există disponibile numeroase soiuri de Dahlia foarte atractive care pot fi cultivate în grădină. Împreună cu gladiolele, crinii și begoniile, daliile sunt unele din cele mai importante și cunoscute plante floricole „bulboase” de câmp. Daliile sunt cultivate în mare măsură datorită gamei largi de culori disponibile, a tipurilor de flori, a multiplelor utilizări și pentru că sunt ușor de cultivat. În zilele noastre există peste 20.000 de soiuri de grădină care au fost create prin hibridare și selecție. În România, la Universitatea de Științe Agricole și Medicină Veterinară Cluj-Napoca activitatea de cercetare pentru îmbogățirea și diversificarea sortimentului de plante floricole prin introducerea celor mai competitive soiuri străine este unul din obiectivele principale. Această lucrare prezintă noi soiuri de Dahlia hybridus de tip Cactus care au fost monitorizate în condițiile climatice din Transilvania și au fost înregistrate observații la următoarele caracteristici morfo-decorative: perioada de decor, culoarea florilor, înălțimea și diametrul plantelor, numărul de flori, diametrul florilor, numărul de ligule.*

Cuvinte cheie: *Dahlia hybridus, cultivare tip Cactus, caracteristici morfo-decorative*

INTRODUCTION

Dahlias are a native flower in Mexico. Some two hundred years ago the first Dahlia arrived in Western Europe from its native habitat in Mexico. Nowadays, it is

difficult to find this original dahlia among the current dahlia assortment as flower enthusiasts and growers have done much in the way of developing new types, shapes and colours.

Today, there are almost 30 species in the genus *Dahlia*, which is highly variable and even includes vinelike species, but this profile is about the more than 20,000 garden cultivars that have been created by hybridization and selection (Dole et al., 1999). Few of the wild species *Dahlias* are cultivated. It seems likely that many, if not most, of the modern dahlia cultivars came from hybridization and back-crossing *D. coccinea*, *D. rosea*, and/or *D. pinnata* with other wild *Dahlia* species (Huxley et al., 1992). The garden dahlias are bushy plants that grow from underground tubers. Most of *Dahlia* cultivars have strong, erect stems and attractive toothed or featherlike leaves. The larger cultivars can get 1-1.5 m height. Flower colors may be white, pink, yellow, orange, red or purple, and sometimes mixed (Bailey and Bailey, 1976). The many cultivars range from miniatures with flowerheads 5 cm in diameter to giants with flowerheads over 25 cm across (De Hertogh and Le Nard, 1993).

In the 20th century, Europeans learned to extract inulin from *Dahlia* tubers, and then convert the inulin to laevulose, a sugar substitute important to diabetics and useful in retarding crystallization in candy and other sugar products (Lukaszewska, 1980).

Dahlias are classified according to flower shape and arrangement of petals. Flowers fall into 11 categories, including: *Decorative*, *Cactus*, *Fimbriated*, *Ball*, *Waterlily*, *Anemone*, *Collarette*, *Orchid*, *Peony*, *Single* and *Novelty*. Each variation of the dahlia petal is a beauty.

Known for their beauty and individuality, the Cactus Dahlias are some of the most unique flowers in the world. Growing up to 40" tall and producing very large blooms, the *Cactus Dahlia* will make an exotic addition to your garden.

MATERIAL AND METHOD

The subjects of the research in our experimental field at the USAMV Cluj-Napoca, Department of Floriculture (Fig 1.), during 2006-2007 periods were studied 6 new *Dahlia variabilis* varieties, **Cactus** type: 'Vuurvogel', 'Purple Gem', 'Sultane', 'Kennemerland', 'Colour Spectable' and 'Vulcan', which were bought from Holland.

The biological material was planted in the field in May 15, 2008 after a two month forcing period, in the greenhouse, in pots. These entire cultivars were monitoring and investigated in our Transylvanian for the main morpho-decorative characteristics: blooming time, colour of flowers, plant height, and circumference of plant, number of stems, number of flower, flower diameters and number of ligules.

The observations were made for 10 plants from each cultivars and were calculated the average.

RESULTS AND DISCUSSIONS

The observations and the measurements of main morphological characteristics of new 6 cultivars Cactus types of *Dahlia variabilis* studied at the U.S.A.M.V. Cluj-Napoca floral collection are presented in the following table (1). Analyzing the table, we can conclude the following:



Fig. 1. Experimental field of *Dahlia* cultivars

The *Dahlia* cultivars presented a large variety of color for the flower. The cultivars investigated are monochrome such as ‘Colour Spectable’ - salmon or ‘Vulcan’ - coral intense and there are also cultivars with different striped and spotted color: ‘Sultane’, ‘Kenmerland’ and ‘Vuurvogel’ (Fig. 2).

Concerning the vigor of the plants, we can show the different height between the cultivars of Cactus Dahlia and also between the forms of flowers.

Generally all the Cactus Dahlia varieties produce 3-4 stems per plant, only the cultivar ‘Vulcan’ had only 2 stems while ‘Purple Gem’ has 6 stems.

Regarding the number of flowers/plant, it is a great variability; all the cultivars are very productive, which give a very large decorative value of the Cactus *Dahlia* cultivars. The number of flowers/plant was between 15.0 (‘Vulcan’) and 32.0 (‘Vuurvogel’). Flower size varies from then 22.1 cm for Colour Spectable to less than 12.3 cm in diameter for Vulcan.

Table 1

Morphological observations of the main characteristics of Cactus *Dahlia* cultivars

Cultivars	Color of flower	Height of plant (cm)	Circumference (cm)	No. stem	No. of flowers/plant	Diameter of flower (cm)	No. ligules
Vuurvogel	Orange with red striped on the tip	114.1	112.0	4.0	32.0	15.2	136.0
Purple Gem	Red dark	153.0	120.0	6.0	30.0	17.4	210.0
Sultane	Yellow with red striped	115.9	114.8	3.0	26.0	15.7	138.0
Vulcan	Coral intense	110.2	104.0	2.0	15.0	12.3	104.0
Colour spectable	Salmon	128.4	137.0	3.0	29.0	22.1	156.0
Kenmerland	Yellow intense with very light red lines	132.3	127.8	4.0	24.0	18.2	151.0



Fig. 2. Durban cultivar



Fig. 3. Vuurvogel cultivar

The number of ligules is very big for Cactus type, up to 210.0 ligules/flower ('Purple Gem') while the 'Vulcan' has only 104.0 ligules/flower.

CONCLUSIONS

The knowledge of the morphology and biology of the new cultivars *Dahlia hybridus Cactus* type is very important because those can be recommended for new varieties that will be adequate to the Romanian local conditions.

These varieties can be primarily used in the cutting garden. Very appreciate for landscape designs, time for borders and also for individual groups.

They can be special cut flowers ('Purple Gem', 'Vuurvogel', 'Kennemerland', 'Sultane) for any occasions or make beautiful in the vase.

The results will be also used by a large number of commercial growers which will be able to obtain substantial profits from this research activity. The students of U.S.A.M.V. Cluj-Napoca can be using the researches obtained for their graduate thesis. The most representative varieties can also be used in our future breeding program as genitors for hybrid combinations.

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