

ABSTRACT

The garden rose is one of the most frequently used and most diverse flowering ornamental shrubs in the world. In rose-breeding Hungary plays a significant role. In the last decades in Hungary more than 600 varieties and variety candidates have been created by the achievement of the breeder Gergely Márk. This is the reason why I have chosen a project to evaluate the ornamental value of the Hungarian bred polyantha and floribunda roses. I wanted to create some entirely new methods, which are based on measuring, and can supply numerical and reproducible results of the aesthetical value of the flowering process, although this is a highly subjective feature. In order to achieve this I evaluate the dynamics of the flowering and the ornamental value of the flowers at 28 polyantha and floribunda rose varieties between 2002 and 2009. 23 out of them were bred by Gergely Márk while the other 5 were non-Hungarian control varieties. The examinations were carried out at three places at Budapest and its environs, each of them has different ecological status: at Budatétény, Margitsziget and Török-bálint.

The dynamics of the flowering was taken down with flowering-intensity categories. They were converted into the percent of the foliage covered by the flowers with the $Y=0.004*2^X$ regression formula, based on my measuring. The dynamics of the flowering was characterized by 12 indices, which describes the mean flowering-intensity, the highest flowering-intensity, the earliness and the length of the blooming and the time of the blooming waves of each variety. With these indices I could evaluate the varieties with statistical methods and 6 types of dynamism of the annual flowering could be distinguished.

For estimating the ornamental value of the flower, an entirely new method was created. The flowering process was divided into phenological sub-stages, and their lengths were measured in days. The petal colour was measured at the most important phenological stages in the CIE LCh psycho-chromatic colour system. The ornamental values of the colours were estimated by CIEDE₂₀₀₀ chromatic difference method. The mean visible surface of the flower at each phase was also calculated by means of cylinder and cone model, depending on the shape of the flower. The total ornamental value as an index was created, with the formula $D_0 = \sum(A_i\%(15 - \Delta E_{00f})I_f)$. This value was calculated for three ranges of subsequent stages: length of the whole blooming process, the aesthetical period of the flower's life and the peak of the blooming process.

With these new methods it is possible to describe the dynamics of the flowering process and the ornamental value of the flowers numerically and they provide accurate reproducibility. According to the complex evaluation the red polyantha and floribunda roses had the highest ornamental values of the examined Hungarian varieties. In this subclass the most valuable was 'Déva' and 'Munkács'. Unquestionably, out of the white floribundas 'Szent Margit' was the best with its flowering ability, being the most decorative out of the assessed Hungarian varieties. The yellow floribundas were the poorest, but some of the flowering features of 'Domokos János emléke', are higher, than those of the rest in its subclass. The common feature of pink roses is diversity. Out of them 'Déryné' was the most valuable. In the colourful roses 'Verecke' surpasses the rest with its profusion of colours.

According to the numerical examinations, based on exact measuring, many features of the Hungarian varieties are better than the equivalent ones of the control roses. According to the dynamism of the flowering and the ornamental values of the flowers, the following rose varieties bred by Gergely Márk have the highest ornamental value: 'Szent Margit', 'Déva', 'Munkács', 'Báthory István emléke' and 'Petőfi Sándor emléke'. Except the first variety, which is white, these are red polyantha and floribunda roses.