

SOME BIOMETRICAL ASPECTS OF *SALIX PURPUREA* AND *SALIX TRIANDRA* FLOWERING ENCOUNTERED IN THE PRAHOVA RIVER MEADOW (PUCHENI)

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Abstract

For the two species with a 38 chromosomes karyotype, we followed the biometry of female and male flowers, for which the vegetative development is less enhanced, when compared to the 76 chromosomes karyotype, in the cenosis of the Prahova River, near Pucheni.

INTRODUCTION

The present study followed the biometry of the flowers, for two *Salix* species, frequently encountered in the cenosis of the Prahova river meadow, having as main criterion the rapid multiplication.

The rapid multiplication of the two species determines the soil stabilization, in case of river flow variation.

MATERIAL AND METHODS

The two species belonging to the *Salix* genre were harvested in the Prahova River meadow, Pucheni, in late April.

The two studied species were: *Salix purpurea*, *Salix triandra*. The male and female catkins were analysed and the following biometrical determinations were performed: number of catkins on the shoot, length of the peduncle (mm), length of the catkin (mm), thickness of the catkin (mm); for the female catkins, the gynoecea were analysed regarding: the length of the bracteate, the length of the pedicel (mm), the length of the ovary (mm), the thickness of the ovary (mm), the shape index of the ovary (the length/thickness ratio), the length of the still (mm), the length of the stigma (mm); for the male catkins the stamens were determined, regarding the bracteate length (mm), the length of the filament (mm) and the length of the anthers (mm).

RESULTS AND DISCUSSION

Salix purpurea has an average of 13 female catkins on the shoot, which are located at the basis of 2-4 leaves. The length of the catkin varies from 24 to 42 mm, with an average of 30.55 mm. The thickness of the catkin varies from 5 to 10 mm, with an average of 8.75 mm. The peduncle of the catkin has a minimum length of 5 mm and a maximum length of 10 mm, with an average of 8.75 mm. The number of gynoecia of a catkin varies from 90 to 185, with an average of 145, disposed helicoidally on the axis (Figure 1).

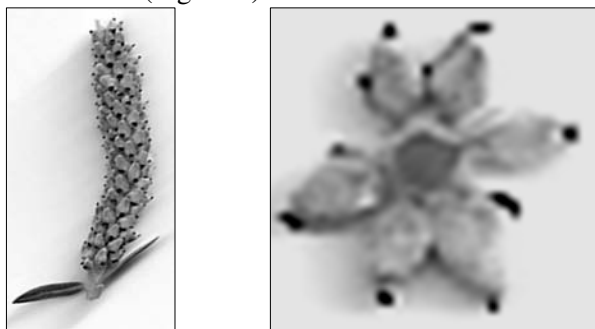


Fig. 1. Section through the catkin ♀ of *S purpurea* longitudinal - transversal

The length of the bracteate of the gynoecium is 1 mm. The pedicel of the gynoecium has a length of 0.5 mm. The length of the ovary is comprised between 3 and 4 mm, with an average of 3.26 mm. The thickness of the ovary varies between 1.7 and 2.5 mm, with an average value of 2.07 mm. The shape index of the ovary varies between 1.4 and 2, with an average value of 1.58. The still length is comprised between 0.1 and 0.3 mm, with an average value of 0.21 mm (0.1 mm, as reported by Săvulescu 1953)[5]. The stigma has a length comprised between 0.1 and 0.2, with an average value of 0.125 mm.

There is an average of 11 male catkins which appear before the leaves on the shoot, at the basis of 2-3 leaves.

The length of the catkin varies between 22 and 36, with an average of 30.15.

The thickness of the catkin varies between 5 and 8 mm, with an average of 6,3 mm (the catkins are long and thick, as reported by Dihoru and colab., 2004)[4]. The peduncle of the catkin has a minimum length of 5 mm and a maximum one of 10 mm, with an average of 8.3 mm.

The number of stamens of a catkin varies from 36 to 74, with an average of 56, which are united in groups of two, and helicoidally disposed on the axis.

The length of the bracteate of the stamen is 1 mm. The filament of the stamen has a length comprised between 2 and 2.5 mm, with an average of 2.21 mm (apparently one single stamen, after Beldie Alexandru 1979)[1]. The length of the anther is comprised between 0.2 and 0.5 mm, with an average value of 0.36 mm (Figure 2).

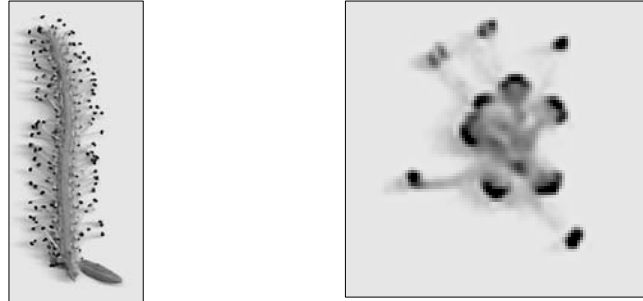


Fig. 2. Section through the catkin ♂ of *S. purpurea* longitudinal - transversal

Salix triandra has an average of 14 female catkins, the catkin being located at the basis of four leaves. The length of the catkin varies between 25 and 50 mm, with an average of 39.2 mm (long, as reported by Dămăceanu 1994)[3]. The thickness of the catkin varies from 5 to 9 mm, with an average of 7.55 mm. The peduncle of the catkin has a minimum length of 10 and a maximum one of 28 mm, with an average of 18.2 mm. The number of gynoecia of a catkin varies from 44 to 98, with an average of 78, disposed helicoidally on the axis (Figure 3).



Fig. 3. Section through the catkin ♀ of *S. triandra* longitudinal - transversal

The length of the bracteate of the gynoecia varies between 0.7 and 1 mm, with an average value of 0.95 mm. The pedicel of the gynoecium has a minimum length of 1 mm and a maximum length of 3 mm, with an average of 1.48 mm. The length of the ovary is comprised between 2.8 and 3.5 mm, with an average value of 3.14 mm. The thickness of the ovary varies between 1 and 1.2 mm, with an average of 1.07 mm. The shape index of the ovary varies between 2.5 and 3.5, with an average of 2.96. The style is absent (observation confirmed by Săvulescu 1953)[5]. The stigma has a length comprised between 0.3 and 0.5 mm, with an average value of 0.435 mm.

There is an average of 11 male catkins, which appear before the leaves on the shoot, being located at the basis of three leaves. The length of the catkin varies between 41 and 60 mm, with an average of 49.15 mm. The thickness of the catkin

varies between 7 and 8 mm, with an average of 7.6 mm. The peduncle of the catkin has a minimum length of 3 mm and a maximum length of 21 mm, with an average of 7.45 mm. The number of stamens from a catkin varies from 70 to 146, with an average of 102, and are disposed helicoidally on the axis (Figure 4).

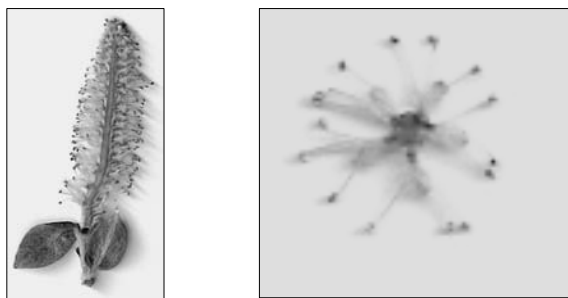


Fig. 4. Section through the catkin ♂ of *S triandra* longitudinal - transversal

The length of the bracteate of the stamen is comprised between 1.8 and 2.2 mm, with an average of 2 mm. The filament of the stamen (three are free, as reported by Ciocârlan 1990)[1] has a length comprised between 3 and 3.5 mm, with an average value of 3.165 mm. The length of the anther is comprised between 0.3 and 0.5 mm, with an average value of 0.47 mm.

CONCLUSIONS

1. The female catkin of *Salix purpurea* is 23% smaller than the one of *Salix triandra* and the explanation consists in the latter flowering.
2. For *Salix purpurea*, the male catkin is smaller than the one of *Salix triandra*, the reason being related to the characteristic morphology.

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