

NEW DATA ABOUT *CRATAEGUS X MEDIA* BECHST. (ROSACEAE, MALOIDEAE) IN BULGARIA

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Abstract

An individual belonging to *Crataegus x media* Bechst., a species not reported previously for Bulgarian flora, was found in the floristic region of Sofia, between the locality 'Kambanite' and the village of Pancharevo, 720 m a.s.l., at the boundary between abandoned field and a meadow. Floristic characteristics of the locality are presented. The seeds of 2007 crop were analysed by using 1000 seed weight and the rate of full seeds as indicators. The authors suggest including the species in the Red Data Book of Bulgaria with a category 'critically endangered' and its protection by the Biodiversity Act.

Key words: *Crataegus x media* Bechst., locality, Bulgaria

INTRODUCTION

An individual belonging to genus *Crataegus*, having non-specific for the known Bulgarian representatives leaf shape and with two seeds in the fruits was found during a botanical expedition in the vicinities of Sofia. According to herbarium specimens collected and fruit structure (SOM, SO) the species was identified as *Crataegus x media* Bechst. (Vakarelov, 1988). The objective of the present work was to present a complete floristic record and to supplement the existing information about the single known locality of *C. media* in Bulgaria. An additional task was to provide the geographic coordinates and altitude and to make a phytosociological characteristic of the plant community where the species grows. Also, determining of number of seeds per fruit and seed weight were assessed as an additional differentiating criterion.

METHODS

Full floristic and phytosociological description of the plant community where *Crataegus x media* Bechst. grows was performed. The herbarium specimens collected were deposited in SOM and SO. Geographic coordinates and altitude were scored by means of GPS, type 'GARMIN'. Total 200 fruits were collected and the percentage of fruits containing one and two seeds (kernels) was assessed. Seed weight was extrapolated for 1000 seeds.

RESULTS AND DISCUSSION

Crataegus x media Bechst. Sofia Region: between the locality 'Kambanite' and Pancharevo village, FN-91, 23.05.1987, a branch with inflorescences (SOM 147875); 18.10.1987, a branch with fruits (SOM 147876); 5.03.1988, a branch in winter conditions (SOM 147874), coll. I. Vakarelov; 13.10.1999, branches with fruits (SOM 164007, 164008; SO 104713, 104714), coll. A. Tashen.

All the above-mentioned herbarium specimens were critically revised by Prof. J. Zielinski (Institute of Dendrology, Polish Academy of Sciences), who confirmed their taxonomic status and affiliation.

The individual is situated at 720 m a.s.l. with geographic coordinates 42°36'25.4" N and 23°22'27.7" E. The region of the locality is hilly and the soil type is Planosols. The individual grows near an abandoned field, about 2 km south from the monument 'Zname na mira', in the land of Pancharevo village. It is a shrub with 5.5-6.0 m height having rounded crown, 4.5-5.0 m wide, consisting of many branches emerging from the base. Twelve branches, 12-20 cm in diameter each, are almost accreted together at the base. The age of the thickest branches was determined by means of Presler bore and was estimated about 55-60 years.

The vegetation around the individual of *Crataegus x media* is represented by soliters of *Quercus pedunculiflora* C. Koch, *Pyrus pyraeaster* Burgsd., *Prunus cerasifera* Ehrh., *Rhamnus catarticus* L., *Rosa canina* L., *Crataegus monogyna* Jacq., *Clematis vitalba* L. and larger groups of *Prunus spinosa* L., and *Rubus caesius* L. The herbaceous layer is dominated by *Dactylis glomerata* L. with participation of groups of *Elymus repens* (L.) Gould., *Agrostis capillaris* L., *Aetusa cynapium* L., *Fragaria vesca* L., *Clinopodium vulgare* L., *Mentha pulegium* L. and small groups or single individuals of *Geum urbanum* L., *Galium verum* L., *Agrimonia eupatoria* L., *Cucubalus baccifer* L., *Cichorium intybus* L., *Eryngium campestre* L., *Carduus nutans* L., *Achillea collina* J. Becker ex Rchb., *Daucus carota* L., *Teucrium chamaedrys* L., *Filipendula vulgaris* Moench, *Verbascum speciosum* Schrad. and some others.

Crataegus x media Bechst. is distributed naturally only in Europe and is, therefore, considered as an European floristic element (Eur). According to Christensen (1992) it is distributed in Northern Europe (Denmark, Sweden, United Kingdom), Middle Europe (Austria, Belgium, Czech Republic, Slovakia, Germany, Hungary, Poland, Switzerland), East Europe (Estonia, Latvia), South western Europe (France) and South eastern Europe (Italy, Romania, Former Yugoslavia). Therefore, its occurrence in Bulgaria seems quite natural. The locality in Bulgaria is the south eastern limit of the species in Europe.

Crataegus x media Bechst. is considered as a spontaneously occurred in Western Europe as a hybrid between *Crataegus laevigata* (Poir.) DC. (*C. oxyacantha* L.) and *C. monogyna* Jacq. var. *lasiocarpa* (Lange) K. I. Chr. As noted in Tsinovskis (1971), this is clearly expressed hybridogenic species with sustainable morphological characters of *C. oxyacantha* and one of the glabrous forms of the complex *C. monogyna* s. l. Description of this species was provided in Ascherson, Graebner (1906), Buia (1956), Franco (1968), Lambinon (1981), Hackney (1986) and Christensen (1992). The most complete

description is presented in Tsinovskis (1971) and the detailed morphological description of the individual found in Bulgaria (Vakarelov, 1988) is almost completely identical.

Mature fruits of *Crataegus x media* were collected in the autumn 2007 (08.11.2007) and the number of seeds per fruit was counted. Two seeds were found in 70% of the fruits and one seed – in 30%. The weight of 1000 seeds was as follows: from two-seed fruits – 77.87 g, and from one-seed fruits – 96.18 g. The percentage of full seeds was 50 % in the seeds originating from two-seed fruit and 0 % in the seeds originating from one-seed fruits.

These results, compared with 1987 crop (Vakarelov, 1988) indicate higher percentage of one-seed fruits (15% in 1987) and higher percentage of full seeds (0% in 1987).

CONCLUSIONS

Despite the fact that only one individual of *Crataegus x media* was found in the region of Sofia, the authors consider that the species should be included in the list of higher plants of Bulgarian flora. The supplementary results confirmed its hybrid origin. It should be listed also in the Red Data Book of Bulgaria with a category ‘critically endangered’, because it meets all the criteria required for this category. Hence, *Crataegus x media* should be included also in the Appendix 3 of the Biodiversity Act of Bulgaria (Biodiversity Act of Bulgaria, 2002) as a protected species. Monitoring of the individual is necessary, since it is threatened by the extensive construction works in the vicinities of Sofia, which could reach the locality within several years. Also, looking for more individuals around is worthy and should continue.

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