Chromosome numbers of selected species from the Bulgarian flora

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Abstract. The chromosome numbers of 12 woody and a non-woody species from the Bulgarian flora are reported. The chromosome number $2n = 22$ of *Juniperus oxycedrus* is reported for the first time for the species. Chromosome counts of *Amorpha fruticosa* ($2n = 40$), *Clematis integrifolia* ($2n = 16$), *Pinus mugo* ($2n = 24$), and *Staphylea pinnata* ($2n = 26$) are reported for the first time from Bulgarian accessions. The chromosome numbers of the remaining species: *Clematis vitalba* ($2n = 16$), *C. viticella* ($2n = 16$), *Cornus sanguinea* ($2n = 22$), *Cotinus coggygria* ($2n = 30$), *Fraxinus ornus* ($2n = 46$), *Jasminum fruticans* ($2n = 26$), *Prunus spinosa* ($2n = 32$), and *Viburnum lantana* ($2n = 18$) confirm the earlier counts from Bulgaria and elsewhere.

Key words: Bulgarian plants, chromosome numbers, woody species

Introduction

The publication presents the chromosome numbers of 12 woody and a non-woody species from the Bulgarian flora.

Material and methods

Plant material (seeds, fruits and live plants) has been collected from natural accessions in Bulgaria and cultivated in the experimental greenhouse of the Institute of Botany. Karyological studies have been carried out at the Cytotaxonomic Laboratory of the same Institute. Voucher specimens have been deposited in the herbarium SOM.

Root tips were collected and pretreated with 0.01 or 0.025 % colchicine for 1–4 h (depending on the species), fixed in ethanol:glacial acetic acid (3:1) for at least 2 h at room temperature and stored in 96 % ethanol until needed. Hydrolyzation was conducted in 1N HCl at 60 °C for 20–40 min. Then the root tips were treated with HCl:ethyl ether (1:1) for 10–15 min at 60 °C, rinsed in distilled water and stained with haematoxylin after Gomori (Melander & Wingstrand 1953) for 45–60 min at 60 °C. Finally, the root tips were squashed in a drop of 45 % acetic acid and mounted in Euparal.

The species below are listed in alphabetical order.

Results and discussion

Amorpha fruticosa L. (*Fabaceae*)

$2n = 40$

Rhodopi Mts (*Central*): Dobrostanski Ridge, along the road between the villages Oreshets and Gornoslav, LG-34, 14.10.2000, coll. *V. Vladimirov & D. Dimitrova* (VV D-16).

First count for the species from a Bulgarian accession. It confirms the earlier counts from elsewhere (Al-Mayah & Al-Shehbaz 1977; Goldblatt 1985, 1988; Goldblatt & Johnson 1990, 1991, 2006).

***Clematis vitalba* L.** (*Ranunculaceae*)

2*n* = 16

Rhodopi Mts (*Central*): *c.* 12 km south of Kurdzhali town, along the road to Dzhebel town, in a mixed deciduous bushland, 200 m, 41°33′N, 25°23′E, 12.10.2000, coll. *V. Vladimirov* & *D. Dimitrova* (VV D-9); Asenova Fortress near Asenovgrad, on limestone, 300 m, 41°59′N, 24°52′E, 14.10.2000, coll. *V. Vladimirov* & *D. Dimitrova* (VV D-15).

The chromosome number confirms the earlier counts from other parts of Bulgaria (Popova & Češchmedjiev 1978; Koeva-Todorovska & Nenova 1980) and elsewhere (Goldblatt 1981, 1984, 1985, 1988; Goldblatt & Johnson 1991, 1994, 1996, 2000, 2006).

***Clematis viticella* L.** (*Ranunculaceae*)

2*n* = 16

Toundzha Hilly Country: Mt Sakar, *c.* 530 m, 41°57′45″N, 26°21′34″E, coll. *R. Natcheva* & *V. Vladimirov* (VV D-27).

This chromosome number confirms the previous count from a different locality in Bulgaria (Koeva-Todorovska & Nenova 1980).

***Clematis integrifolia* L.** (*Ranunculaceae*)

2*n* = 16

Northeast Bulgaria: Kabiyushka Mogila, 43°21′N, 26°59′E, 19.09.2003, coll. *V. Vladimirov* (VV 203-133).

First report of the chromosome number for this perennial herb from a Bulgarian accession. It agrees with the earlier reports from elsewhere (Goldblatt 1984; Goldblatt & Johnson 1990, 1991).

***Cornus sanguinea* L.** (*Cornaceae*)

2*n* = 22

Forebalkan (*Western*): Secheve locality near Soumer village, Montana district, FP-80, 24.04.2004, coll. *V. Vladimirov* (VV 04-24).

The chromosome number confirms the earlier counts from other parts of Bulgaria and elsewhere (for references, see Ivanova & al. 2006).

***Cotinus coggygria* Scop.** (*Anacardiaceae*)

2*n* = 30

Northeast Bulgaria: near Velino village, Shoumen district, 43°23′54″N, 27°01′37″E, 11.05.2004, coll. *V. Vladimirov* & *D. Dimitrova* (VV 04-67, 04-69).

This chromosome number confirms the earlier reports from a different locality in Bulgaria (Markova & Goranova 1987) and elsewhere (Goldblatt 1981, 1988; Goldblatt & Johnson 1991, 1994, 2000).

***Fraxinus ornus* L.** (*Oleaceae*)

2*n* = 46

Rhodopi Mts (*Central*): Asenova Fortress near Asenovgrad town, on limestone, 300 m, 41°59′N, 24°52′E, 14.10.2000, coll. *V. Vladimirov* & *D. Dimitrova* (VV D-18).

This chromosome number coincides with the previous counts from Bulgaria (Ivanova & al. 2005, 2006) and elsewhere (see references in Ivanova & al. 2005).

***Jasminum fruticans* L.** (*Oleaceae*)

2*n* = 26

Rhodopi Mts (*Central*): Asenova Fortress near Asenovgrad town, on limestone, 300 m, 41°59′N, 24°52′E, 14.10.2000, coll. *V. Vladimirov* & *D. Dimitrova* (VV D-22).

This chromosome number confirms the earlier counts from Bulgaria (Markova & Goranova 1987) and elsewhere (Goldblatt 1981; Goldblatt & Johnson 1996).

***Juniperus oxycedrus* L.** (*Cupressaceae*)

2*n* = 22

Valley of Strouma River: in the hills by the road between Dolno Spanchevo and Chouchouligovo villages, near the road fork to Novo Hodzhovo village, 41°25′02″N, 23°22′32″E, 02.06.2004, coll. *V. Vladimirov* (VV 04-125).

Probably the first report of the chromosome number for the species. Mitotic plates with 2*n* = 22 and 2*n* = 44 have been observed in the same slide.

***Pinus mugo* Turra** (*Pinaceae*)

2*n* = 24

Pirin Mts: on the slopes above Vihren chalet, GM-02, *c.* 2100 m, 21.09.2003, coll. *V. Vladimirov* (VV 203-123).

This is the first report of the chromosome number from a Bulgarian accession. It coincides with the earlier counts from elsewhere (Goldblatt & Johnson 1990, 1991, 1996).

***Prunus spinosa* L.** (*Rosaceae*)

2*n* = 32

Rhodopi Mts (*Central*): *c.* 12 km south of Kurdzhali town, along the road to Dzhebel town, in a mixed de-

ciduous bushland, 200 m, 41°33' N, 25°23' E, 12.10.2000, coll. *V. Vladimirov* & *D. Dimitrova* (VV D-1).

This count confirms the previous counts from other parts of Bulgaria (Petrova & al. 2007) and elsewhere (Goldblatt 1981; Goldblatt & Johnson 1991, 1994, 1996, 2000). Other chromosome numbers, $2n$ = 40, 43, 44, 48, 53, 59, 64 have been also published (Goldblatt 1984; Goldblatt & Johnson 1994, 1996, 2006).

***Staphylea pinnata* L.** (*Staphyleaceae*)

$2n$ = 26

Forebalkan (*Western*): Vrushka Chouka, NE slopes, 500–550 m, FP-15, 14.05.2007, coll. *V. Vladimirov*.

First count for the species from a Bulgarian accession. It confirms the earlier counts from elsewhere (Jankun 1983; Kiehn & al. 1991; Goldblatt & Johnson 2000, 2006).

***Viburnum lantana* L.** (*Caprifoliaceae*)

$2n$ = 18

Rhodopi Mts (*Central*): along the road from Trigrad gorge to lakes Chairite, 1000–1400 m, 41°36' N, 24°26' E, 11.10.2000, coll. *V. Vladimirov* & *D. Dimitrova* (VV D-7).

This chromosome number confirms the previous counts from Bulgaria (Čheshmedzhiev 1994; Ivanova & al. 2005; Goranova 2007) and elsewhere (for references see Ivanova & al. 2005).

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