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# Botanica Pacifica

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# Chromosome Numbers of Some Vascular Plant Species from Magadan Territory (Russian Far East)

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## ABSTRACT

Chromosome numbers for 10 species of vascular plants from the Magadanskaya Oblast' (Magadan Territory) are reported. The endemic species *Astragalus vallicoides* Khokhr. is studied caryologically for the first time. For 5 species chromosome data are obtained for the first time from the Magadanskaya Oblast'.

## Keywords

chromosome numbers, vascular plants, Magadanskaya Oblast', Russian Far East

## РЕЗЮМЕ

Андрьянова Е.А.

Хромосомные числа некоторых видов сосудистых растений из Магаданской области

Приводятся хромосомные числа для 10 видов сосудистой флоры Магаданской области. Эндемичный вид *Astragalus vallicoides* Khokhr. впервые изучен в карнологическом отношении. Для 5 видов хромосомные числа впервые исследованы с территории Магаданской области.

## Ключевые слова

числа хромосом, сосудистые растения, Магаданская область, российский Дальний Восток

The data on chromosome numbers (CN) of the vascular flora in the south of Magadanskaya Oblast' are fragmentary (see Agapova et al. 1990, 1993, Probatova & Seledets 2008; Probatova et al. 2009, 2013). This contribution is the first in the series of chromosome studies on the flora of south part of Magadanskaya Oblast. Plants were collected in the field and grown from the seeds. The root tips were taken from seedlings. Chromosome counts were performed on squashed preparations of root tips treated of colchicine (0.02%) and fixed with mixture of alcohol and acetic acid (3:1). Preparations were stained with iron hematoxylin. First chromosome data are indicated with an asterisk (\*). First chromosome counts from the Magadanskaya Oblast are indicated by (!). Voucher specimens are deposited in Herbarium of the Institute of Biological Problems of the North FEB RAS (MAG).

## APIACEAE

### *Bupleurum atargense* Gorovoj, **2n = 14.**

Russia, Magadanskaya Oblast', Ol'skii Raion, between the Cape Kharbis and Atargan village, 80 m alt., 59°31'N 151°30'E, 6 Aug 2012, Mochalova MAG M12002. *B. atargense* occurs mainly on the slopes near seashore and sometimes in the tundra. Endemic species of Northern Okhotia, it occurs only in vicinities of Tauiskii Bay (Sea of Okhotsk). We confirmed the CN previously obtained by S. A. Volkova (1992). Besides, this is the unusual CN for the Russian Far East species of *Bupleurum*.

## FABACEAE

### *Astragalus schelichowii* Turcz., **2n = 16.**

Russia, Magadanskaya Oblast', Tenkinskii Raion, in vicinities of Omchak village, stony slope, 850 m alt., 61°39'N, 147°49'E, 8 Aug 2008, Andriyanova MAG A08002. *A. schelichowii* occurs in the East Siberia and North America (Alaska). This diploid CN was known from the Yakutia, Magadans-

kaya Oblast', Kamchatka, the south of the Russian Far East (Krasnoborov et al. 1980, Yurtsev & Zhukova 1982, Zhukova 1983, Gursenkov & Pavlova 1984). However, the tetraploid CN  $2n = 32$  was reported from the Anuyi Mts. (Zhukova 1983).

### \**Astragalus vallicoides* Khokhr., **2n = 16.**

Russia, Magadanskaya Oblast', Ol'skii Raion, Staritskogo Peninsula, Svelaya Bay, meadow on the slope, 65 m alt., 59°29'N, 150°41'E, 4 Sep 2012, Andriyanova MAG A12015. Endemic species of the Okhotsk Sea area, which occurs on the sea faced slopes.

### (!) *Caragana jubata* (Pall.) Poir., **2n = 16.**

Russia, Magadanskaya Oblast', Ol'skii Raion, in vicinity of Atargan settlement, Kharbis Cape 500 m alt., 59°33'N 151°28'E, 9 Jun 1979, Khokhryakov MAG X79001; Russia, Magadanskaya Oblast, Ol'skii Raion, Seryi Cape, meadow on the slope, 120 m alt., 59°34'N, 150°27'E, 20 Jul 2003, Andriyanova MAG A03001. *C. jubata* is mainly Central Asian species. In the Russian Far East it occurs only in few localities on the Okhotsk Sea coast and also in Ol'skoe Plateau. Earlier data on CN exist from South Siberia and Mongolia (Krogulevich 1971, 1978, Rostovtseva 1977, Murin et al. 1984, Krivenko et al. 2011).

### (!) *Hedysarum hedysaroides* (L.) Schinz et Thell., **2n = 14.**

Russia, Magadanskaya Oblast', Khassynskii Raion, the upper course of the Yama River, on riverbank, 795 m alt., 60°41'N, 152° 2'E, 28 Jul 2012, Andriyanova MAG A12003. The plants from Yakutia and the south of the Russian Far East are characterized by diploid CN  $2n = 14$  (Zhukova & Petrovsky 1980, Pavlova et al. 1989), the same is in Magadanskaya Oblast'. But the tetraploid CN  $2n = 28$  (Pavlova et al. 1989) was reported from the North Koryakia (N of Kamchatka Peninsula).

### (!) *Oxytropis czukotica* Jurtz., **2n = 32.**

Russia, Magadanskaya Oblast', Ol'skii Raion, the upper course of the Oksa River, the slope of a hill, on a scree, 500 m alt., 59°38'N, 150°32'E, 27 Jul 2012, Mochalova MAG M12005.

This tetraploid CN  $2n = 32$  was also revealed in Chukotka, the Anuyi Mts. (Zhukova 1983), and the diploid CN  $2n = 16$  was reported from the North Koryakia and Kamchatka (Gurzenkov & Pavlova 1984, Pavlova et al. 1989).

## LINACEAE

### (!) *Linum komarovii* Juz., $2n = 18$ .

Russia, Magadanskaya Oblast', Tenkinskii Raion, in vicinities of Orotuk village, left riverside of the Kolyma River, meadow on the slope, 560 m alt.,  $62^{\circ}01'N$ ,  $148^{\circ}37'E$ , 28 Jun 1999, Sinel'nikova MAG A08002. *L. komarovii* occurs in the East Siberia and in Magadanskaya Oblast. *L. komarovii* sometimes was considered, as well as *L. boreale* Juz., as synonym of *L. perenne* L. (Sokolova 1980). For *L. komarovii* the CN  $2n = 18$  was already known (Semenova et al. 2006); as to *L. perenne*, the CNs  $2n = 18$  (Krasnoborov et al. 1980, Yurtsev & Zhukova 1982, Semenova et al. 2006) and  $2n = 36$  (Chennaveeraiah & Joshi 1983) are indicated.

## RANUNCULACEAE

### *Pulsatilla magadanensis* Khokhr. et Worosch., $2n = 16$ .

Russia, Magadanskaya Oblast', Ol'skii Raion, the upper course of the Oksa River, on the slope, 450 m. alt.,  $59^{\circ}38'N$ ,  $150^{\circ}32'E$ , 4 Jun 2012, Mochalova MAG M12001. This endemic species is known only from the basin of the Oksa River (vicinities of Magadan city). The previous count of CN for *P. magadanensis* ( $2n = 16$ ) was reported (Vesselukhina 1976) from nearly the same area, few kilometers S of our locality.

### *Thalictrum contortum* L., $2n = 14$ .

Russia, Magadanskaya Oblast', Magadanskii Raion, in vicinities of Snezhnaya Dolina settlement, meadow on the riverside, 220 m alt.,  $59^{\circ}44'N$ ,  $150^{\circ}51'E$ , 29 Jun 1978, Khokhryakov MAG X78001. This CN  $2n = 14$  was reported from the south of the Russian Far East and Siberia (Probatova, Rudyka 1981; Rostovtseva, Nechaev 1981; Shatokhina 2006 et al.).

## ROSACEAE

### (!) *Potentilla fragiformis* Willd. ex Schlecht., $2n = 56$ .

Russia, Magadanskaya Oblast', Ol'skii Raion, near the mouth of the Oksa River, coastal rocks, 15 m alt.,  $59^{\circ}36'N$ ,  $150^{\circ}27'E$ , 27 Aug 1972, Khokhryakov MAG X72001. *P. fragiformis* occurs in the Russian Far East and North America (Aleutian Is.). This species grows mainly on gravel and slopes near seashores. Some cytotypes are known for *P. fragiformis*:  $2n = 42$ , 56 (see Agapova et al. 1993).

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