

## A NEW SPECIES OF GENUS *CODONOPSIS* WALL. (CAMPANULACEAE) FROM MIDDLE ASIA

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The presence of 2 species of genus *Codonopsis* in the flora of Middle Asia was traced. Description of a new species found in the western part of Uzbekistan is given.

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**Key words:** Taxonomy; *Codonopsis*; Campanulaceae; distribution; TASH; Middle Asia

یک گونه جدید از جنس *Codonopsis* (تیره گل استکانی) از آسیای میانه

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حضور دو گونه از جنس *Codonopsis* در فلور آسیای میانه مورد بررسی قرار گرفت و یک گونه جدید از غرب ازبکستان شناسایی و به عنوان گونه جدید شرح داده می شود.

### INTRODUCTION

There are about 50 species of the genus *Codonopsis* Wall. in the world flora. The distribution of *Codonopsis* species are mainly limited by the mountainous forests of Eastern Asia. In the main revision of the flora of Middle Asia (Li 1987) only one species, *Codonopsis clematidea* (Schrenk) C.B. Clarke was indicated. Nevertheless, K.H. Rechinger and H. Schiman-Szeika (1965) mentioned 2 species (*Codonopsis obtusa* (Chip) Nannf., *C. clematidea*). These 2 species are distributed on the western border of the genus distribution and are strongly in need of studies based on living material.

### RESULTS AND DISCUSSION

During several collecting missions in Middle Asia it was revealed that *C. clematidea* (fig.1) growing in Dzhungar Alatau (Kazakhstan) and in Pamir-Alay (Uzbekistan), (map, 1) are definitely different from

each other in ecology and main morphological (vegetative and generative) characters. The type specimen of *C. clematidea* (fig. 2) was studied in Leningrad herbarium (LE) and as well as living plants on the northern slopes of Dzhungar Alatau (southern village Katon Karagay). Plants from type locality were growing on the meadows within high grasses at the altitude more than 2000 m.a.s.l. on the wet slopes. On the western slopes of Western Tien-Shan we also found *C. clematidea* with the same ecology and morphological characters. The flowers were campanulate (length longer than width) and inner part of the flowers was of the same color. The roots of Tien-Shanian and Dzhungarian plants were long and thin (the same sizes as the stems). When the plants from Pamir-Alay (Hissar range) were dug out surprisingly the roots looked like a large potato (fig.3), 20-30 cm in diam with 5-12 kg. weight. Moreover, the flowers were

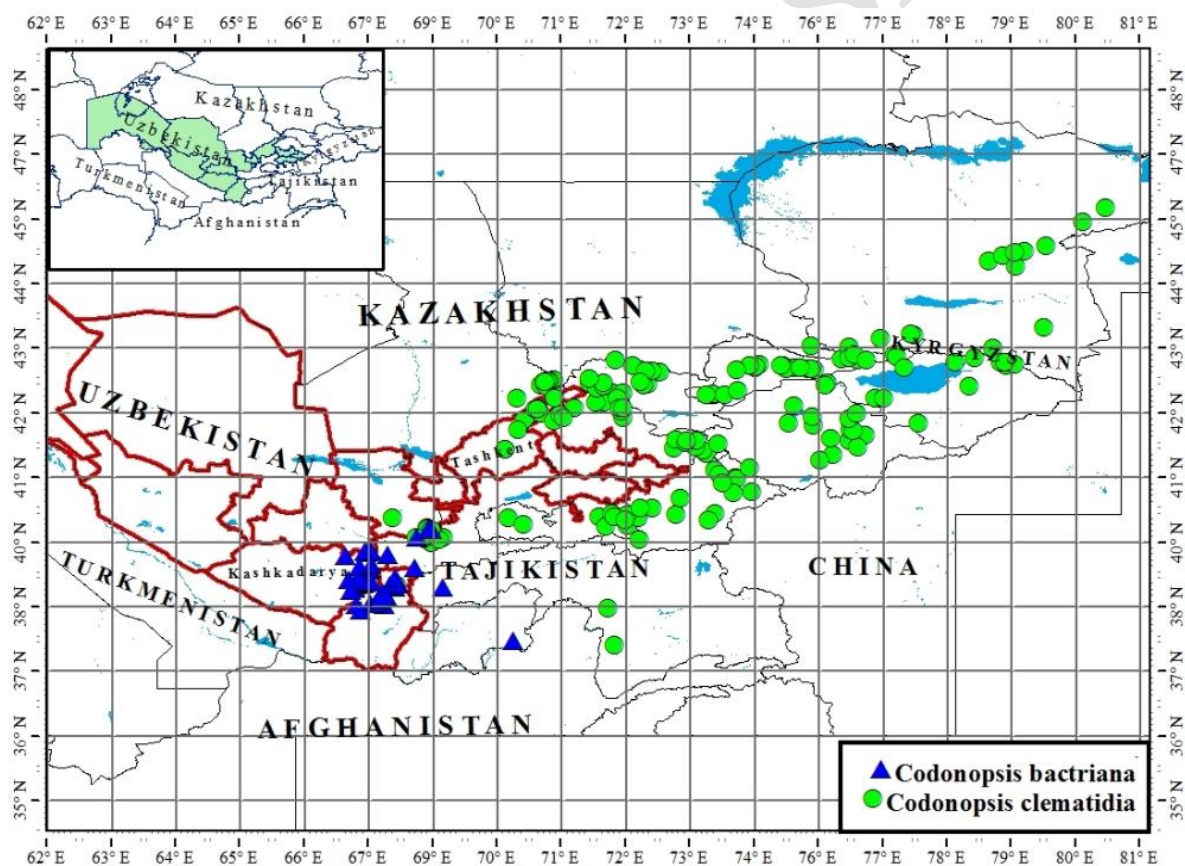
broad campanulate (width longer than length) with dark patch (fig. 4). Also, the stems were green and hollow up to 1.5-2 m. of length up 1.5-2 m.

*Codonopsis bactriana* F.O. Khass., U.H. Kodyrov & A. Myrz. **sp. nov.**, figs. 3, 4, 5, 6, 7.

Roots tuber-shaped, 10-30 cm long, 10-30 cm width. Stems single or numerous, erect or ascending, slightly procumbent, 50-100 cm high; branches slender, erect or slightly spreading, mostly at lower part but those at the upper part usually fertile, when young. Leaves on main stems smaller and alternate, those on branches opposite; petiole up to 2.5 cm long, sparsely hispidulous, blade ovate, oblong, broadly lanceolate, or lanceolate, 1-3.5 (-5.2) x 0.8-2(-3.2) cm, abaxially densely hispidulous, adaxially sparsely or densely hispidulous, base slightly cordate or rounded, margin entire or occasionally crenulate or sinuate, apex acute.

Flowers solitary, terminal on main stems and branches, long pedicellate; pedicels sparsely white hispidulous. Calyx tube adnate to ovary up to middle, hemispheric, glabrous or rarely sparsely white downy, ovate, elliptic, or lanceolate, 10-15 x 6-8 mm, glabrous or apex sparsely puberulent, margin entire, apex acute. Corolla pale blue with dark blue veins and purple spots inside, broadly campanulate, 1.7-2.6 cm long., glabrous. Stamens glabrous; filaments slightly dilated at base, 5-6 mm long; anthers oblong, 5-6 mm long. Capsule semiglobose below, conical above, rostrum acute, 15-20 x 12-15 mm in total; persistent calyx lobes much enlarged, revolute. Seeds numerous, pale brown-yellow to brown, narrowly ellipsoid or oblong, terete, smooth.

**Holotype:** Surkhandarja district, spurs of Chulbair range, Obudara river, 18 Jun 1957 (in Russian), I. Gringoff 64, TASH (fig.7).



Map. 1. Distribution of genus *Codonopsis* in Middle Asia.

The new species differs from *C. clematidea* by widely campanulate flowers, recurvate tepals, green and hollow stems and tuber-shaped roots.

**Examined specimens:** Pamir-Alay, Khodzha-Izbereksay, near the river, 26 Jul 1934, Butkov- 365!; Western Hissar, Sangardak river, Aksu river, near Kyzylsay: 07 Avgus 1937, Lepeshkin, Pavlova- 32!; Hissar range, near village Tamarkhut, 02 VI 1922, Kuznetzova- 126!; Chulbair range, Obidara river basin, near village Sina, 25 May 1929, Vvedensky- 65!; Kashkadaryriver basin, Shourty mountains, 13 VII 1949, Gomolitzky, Kholmatov-154!; Ketmenchopty range, by the river, 26 VII 1940, Pyataeva, Vassilkovskysya- 81!; Tupalang river basin, near lake Aygyrkul, 02 VIII 1955, Chevrinidy- 144! All in TASH.

**Distribution and habitat:** This species is distributed in the western ranges of Pamir-Alay (Turkestan, Zeravshan, Hissar and Darwaz ranges) in the middle mountainous part (1200-1700 m.s.l.) between the stones nearby the rivers.

After studies of herbarium materials in TASH, LE and MBG, a map of distribution of two *Codonopsis* species in Middle Asia was implemented (map. 1).



Fig. 1. *Codonopsis clematidea* in type locality.

Studies of the type of *Codonopsis ovata* Benth. = *C. ovata* Benth. var. *obtusa* (Aitchinson, 748) in Kew herbarium and several collections from Afghanistan (in MBG) showed that the flowers of the plants from classical location (Himalaya) are narrowly campanulate and very small (about 1 cm in diam) growing in the forests. Probably there can be divided into several taxa like in Middle Asia and without studies of the living material one can not make any decision.

**Ethymology:** The new species is named based on its growing place in the northern part of Bactria subprovince (Kamelin 1973) in the honor of Old state occupied by Alexandre the Great.

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Fig. 2. Type specimen of *Codonopsis clematidea* (LE).





Fig. 3. Root of *Codonopsis bactriana* from Pamiroalaj.



Fig.4. Flower of *Codonopsis bactriana*.



Fig. 5. *Codonopsis bactriana* from Pamir-Alay.

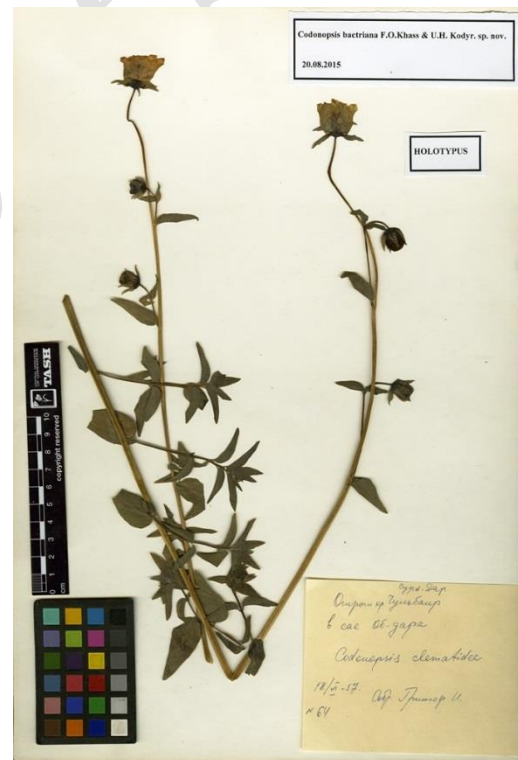


Fig. 6. Type of *Codonopsis bactriana* (TASH).



Fig. 7. *Codonopsis bactriana* F. O. Khass., U. H. Kodyrov & A. Myrz. *sp. nov.*, General habit and details. -Drawn from a plant of the type collection. Scale bar = 2 cm. (artist: Sitara H. Fayzullaeva).