

## *Allium oriento-iranicum* (Alliaceae), a new species from Iran

Fatemeh Neshati<sup>1</sup>, Shahin Zarre<sup>2,\*</sup>, Reinhard Michael Fritsch<sup>3</sup> & Mohammad-Reza Joharchi<sup>1</sup>

<sup>1</sup> Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran

<sup>2</sup> Department of Plant Biology, School of Biology, College of Science, University of Tehran, P.O. Box 14155-6455, Tehran, Iran (\*corresponding author's e-mail: zarre@khayam.ut.ac.ir)

<sup>3</sup> Leibniz Institut für Pflanzengenetik und Kulturpflanzenforschung, Corrensstr. 3, D-06466 Gatersleben, Germany

Received 30 July 2008, revised version received 11 Dec. 2008, accepted 12 Dec. 2008

Neshati, F., Zarre, S., Fritsch, R. M. & Joharchi, M.-R. 2009: *Allium oriento-iranicum* (Alliaceae), a new species from Iran. — *Ann. Bot. Fennici* 46: 599–601.

*Allium oriento-iranicum* Neshati, Zarre & R.M. Fritsch (Alliaceae) is described and illustrated as a new species from NE Iran. It belongs in sect. *Megaloprason* and is compared with other species in that section.

Key words: Alliaceae, *Allium*, morphology, new species, taxonomy

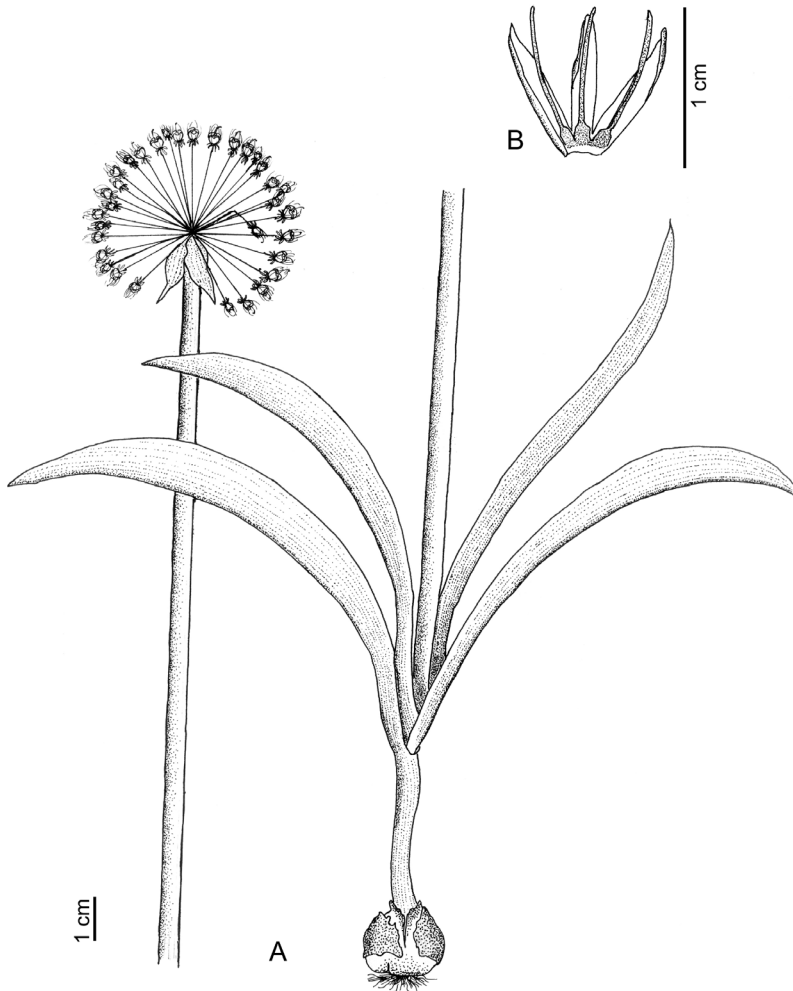
The genus *Allium* (Alliaceae) includes about 800 species (Friesen *et al.* 2006), of which 93 are known from Iran (Fritsch *et al.* 2006). Several species have been added to this genus during the last years based on new collections deposited in different Iranian herbaria and collections abroad. Northeast Iran (prov. Khorasan) with about 35 species of *Allium* is one of the most important diversity centers of the genus in the country. This area is adjacent to Middle Asia, which has also been recognized as a center of *Allium* diversity (Fritsch & Friesen 2002).

During two years of botanical study conducted by the first author, several new collections of *Allium* were made. We found a species new to science, belonging in subgen. *Melanocrommyum* and sect. *Megaloprason* as defined by Friesen *et al.* (2006).

***Allium oriento-iranicum* Neshati, Zarre & R.M. Fritsch, *sp. nova* (Fig. 1)**

*Species A. stipitati similis, sed differt filamentis quam tepala longioris (nec brevioribus) et tepalam 0.6–1 mm (nec 0.3–0.5 mm) basi adnatis, styli 5.5–7.5 mm longis (nec ad 5 mm longis), scapis ad 70 cm (nec ad 120 cm) longis, differt ab A. sarawschanico filamentis quam tepala longioris (nec brevioribus) et ovariis apicorum non cornutis (cornibus brevibus 6 provisum).*

HOLOTYPE: Iran. Khorasan: Torbat-e Jam, Bezd mountains, gravely East slope, 1780–1820 m, 6.V.2007 *F. Neshati* & *H. Zangoui* 35912 (holotype TUH; isotypes FUMH, TARI). — PARATYPES: Iran. Khorasan: South Birjand, Akbarabad village to Hasanabad village, 32°43'03"N 59°20'58"E, 2270–2280 m, 30.IV.2007 *F. Neshati* & *M. Basiri* 35913 (FUMH, TUH, TARI); NW Neyshabour, Barr waterfall, ca. 2000 m, 29.VI.2003 *Zangoui* 34896 (FUMH).



**Fig. 1.** *Allium oriento-iranicum* (from the holotype). — **A:** Plant habit. — **B:** Perigonium and stamen filaments, internal view.

Bulbs 1.3–2.5 cm diam., oblong-ovate; outer tunics grayish brown, covering lower part of scape and leaves about 3 cm. Leaves 2–4, shorter than scape, up to 2 cm wide, covering base of scape, narrowly lanceolate, flat, completely smooth at margins and on surface, in lower parts dark brown to blackish. Scape 30–75 cm, 0.6 cm diam., cylindrical, erect. Spathe brownish with purple veins, splitting into three segments. Inflorescence globose, almost loose. Pedicels slightly unequal, purplish, 2.8–4.3 cm long. Tepals pinkish-purple, more deeply colored at median vein, 5.5–8 × 0.6–1.3 mm, uniform, linear lanceolate, obtuse or subacute at tip, during maturing folded at margins and becoming deflexed. Filaments same color as tepals, 6.5–8.5 mm long, slightly longer than tepals, subulate, inner fila-

ments triangular at base, outer ones sub-square there. Anthers 1.5–1.7 mm long, purplish. Ovary obovate-spheroidal, with 6 indistinct apical outgrowths (hornlets), tuberculate on surface. Style filiform 5.5–7.5 mm. Capsule ca. 3 × 1.5–2 mm, triangular-elliptic. Seeds 3 in each capsule, black, wrinkled on surface, ca. 3 × 1.5–2.5 mm. Flowering and fruiting April to May.

*Allium oriento-iranicum* resembles *A. stipitatum*, *A. sarawschanicum* and *A. altissimum*, but can be distinguished from them by several characters (Table 1). Lack of hornlets on ovary is the most important characteristic feature separating *A. oriento-iranicum* from *A. sarawschanicum*, while the shape of filament base and longer filaments relative to tepals are useful in separating the new species from the other two species.

**Table 1.** Comparison of *Allium oriento-iranicum* with similar species in sect. *Megaloprason*.

Character	<i>A. altissimum</i>	<i>A. stipitatum</i>	<i>A. sarawschanicum</i>	<i>A. oriento-iranicum</i>
Length of filaments relative to tepals	shorter	shorter	shorter	longer
Hornlets on ovary	absent	absent	present	absent
Style length (mm)	5–10	5	5–9	5.5–7.5
Adnation of filaments to tepals (mm)	0.7–1	1–1.3	0.5–2	0.8–1.5
Connation of filaments (mm)	≤ 0.5	0.3–0.5	0.5–1	0.6–1
Shape of filament base	triangular	triangular	quadrate	quadrate

**HABITAT AND DISTRIBUTION.** Like most species of sect. *Megaloprason* with main distribution in northeast Iran and central Asia (Fritsch & Friesen 2002), *A. oriento-iranicum* is growing on gravelly slopes in mountainous steppes. Similar to its relative *A. sarawschanicum* it prefers clayey soils in the shadow of large rocks, providing more humid conditions. The fact that it is known from three localities in Khorasan Province suggests it has a wider distribution in the area.

### Acknowledgements

We are grateful to Miss Ghassemian (Tehran) for preparing the drawings. We thank the anonymous referee for improving the Latin diagnosis. The research council of the University of Tehran and Alexander Humboldt Stiftung (Germany) support

the investigations conducted by the corresponding author in various ways.

### References

- Friesen, N., Fritsch, R. M. & Blattner F. R. 2006: Phylogeny and new intrageneric classification of *Allium* L. (Alliaceae) based on nuclear ribosomal DNA ITS sequences. — *Aliso* 22: 372–395.
- Fritsch, R. M. 1996: The Iranian species of *Allium* subgen. *Melanocrommyum* sect. *Megaloprason* (Alliaceae). — *Nordic J. Bot.* 16: 9–17.
- Fritsch, R. M. & Friesen, N. 2002: Evolution, domestication, and taxonomy. — In: Rabinowitch, H. D. & Currah, L. (eds.), *Allium crop science: recent advances*: 5–30. CABI Publ., Wallingford.
- Fritsch, R. M., Salmaki, Y., Zarre, S. & Joharchi, M. 2006: The genus *Allium* (Alliaceae) in Iran: current state, new taxa and new records. — *Rostaniha* 7(Suppl. 2): 254–281.