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Rheum khorasanicum (Polygonaceae), a new species from Iran

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Rheum khorasanicum B. Baradaran & A. Jafari is described and illustrated as a new species from NE Iran. It is morphologically very close to *R. ribes*, both of them belonging to sect. *Rheum*. Some features that differentiate *R. khorasanicum* from *R. ribes* are the presence of bracts, different surface of inflorescence, the pedicle joint position and the epidermal cell shape.

Rheum belongs to the Polygonaceae and consists of approximately 103 species, growing mainly in North America, Europe and the areas east of the Mediterranean, including Turkey, Iran, Afghanistan, Pakistan, Russia, and China (Lozina-Lozinskaya 1936, Kao & Cheng 1975, Davis 1985, Rechinger & Schiman-Czeika 1968, Li 1998, Ghaisar 2001, Bojian & Grabkaya 2003). *Rheum* is distributed in W, central, S and NE Iran, and is represented there by three species: *R. ribes*, *R. persicum* and *R. turkestanicum*. These species are placed in sect. *Rheum*. *Rheum persicum* is endemic in Iran (Rechinger & Schiman-Czeika 1968).

In the present study, fresh material and dried specimens from the FUMH and the University of Shiraz herbarium were studied and photos of type specimens in the herbarium E were examined. *Rheum* species were collected from 12 mountainous localities in the NE, W and central Iran at altitudes of 1765 to 2350 m from May to June in 2007. They were identified using *Flora Iranica*, *Flora of Iran*, *Flora of USSR*, *Flora of China* and *Flora of Pakistan* (Lozina-Lozinskaya 1936, Parsa 1949, Rechinger & Schiman-Czeika 1968, Ghaisar 2001, Bojian & Grabkaya 2003).

For the anatomical study, cross sections of the basal leaves, the base of petiole and the inflorescence were prepared from 6–7 specimens. The living material was fixed in FAA and dehydrated with ethanol, and then 12-μm-thick slices were prepared with a microtome. Safranin and Fast Green were used for staining. Upper epidermal cells were separated using KOH (10%) (Chamberlain 1990, Jafari & Maassoumi 2008).

Rheum khorasanicum B. Baradaran & A. Jafari, *sp. nova* (Fig. 1)

Holotype: Iran. Khorasan Razavi Province: Neyshabour, Kharvein village, 2117 m, *B. Baradaran 6768* (IAUM).

Fig. 1. *Rheum khorasanicum* (from the holotype). — **A**: Habit. — **B**: Inflorescence. — **C**: Fruit.

ETYMOLOGY: The specific epithet is derived from the name of the Khorassan Razavi province.

Stem 50 cm long, erect and branched, with leaves. Leaves shorter than petioles; upper surface of leaves verrucose, lower surface glabrous. Lamina dimensions 25 × 35 cm, suborbicular, weakly lobed, with three prominent veins. Base of leaves reniform, margins undulate. Inflorescence pyramidal, erect or recurved and glabrous. Bracts cordate-ovoid. Pedicle 5–9(13) mm long, jointed near apex or at middle. Fruits cordate-ovoid, acuminate, 15 × 5–9(11) mm.

Rheum khorasanicum is morphologically close to *R. ribes* but differs in some characters (Table 1 and Fig. 2). The species grows in the same regions (NE Iran) but at different altitudes. With the addition of *R. khorasanicum*, the number of *Rheum* species in Iran is increased to four, all of which belong to the sect. *Rheum*.

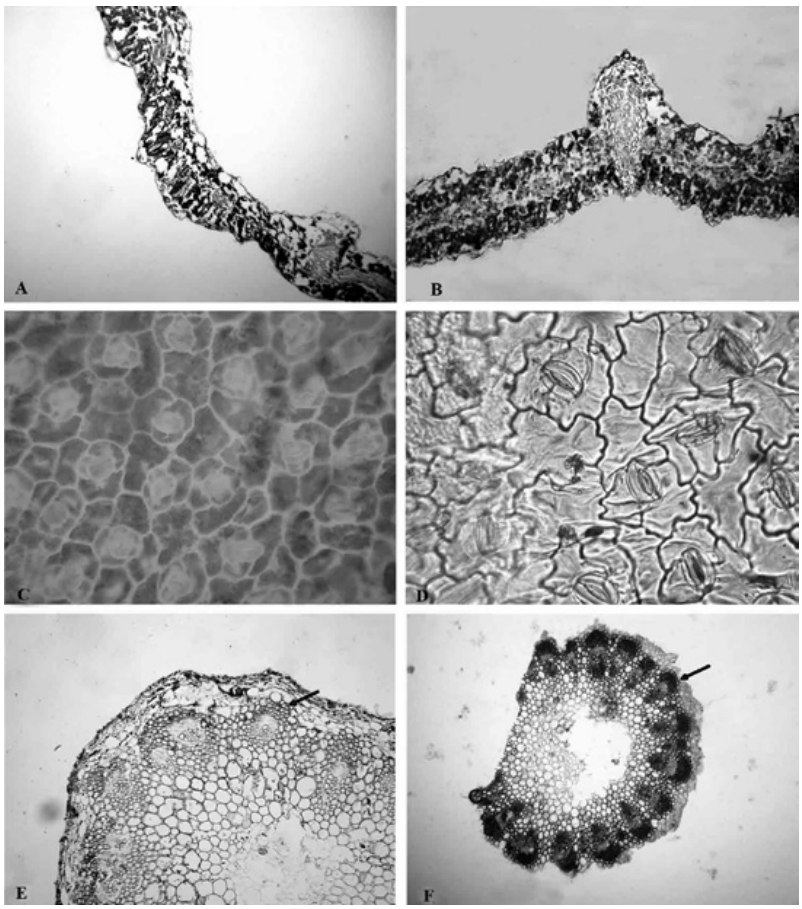

Fig. 2. — **A** and **B**: Mesophyll in cross section of a leaf. **A**: *Rheum khorasanicum*. **B**: *R. ribes*. — **C** and **D**: Epidermal leaf cells. **C**: *R. khorasanicum*. **D**: *R. ribes*. — **E** and **F**: Sclerenchymatous tissue in inflorescence axis (cross section). **E**: *R. khorasanicum*. **F**: *R. ribes*.

Table 1. Morphological comparison between *Rheum khorasanicum* and *R. ribes*.

Character	*R. khorasanicum*	*R. ribes*
Leaf texture	thin	thick
Leaf surface	weakly verrucose	strongly verrucose
Pedicels joint position	middle and upper part	lower part
Bracts	present	absent
Inflorescence surface	glabrous	verrucose
Leaf mesophyll	dorsi-ventral	isolateral
Vascular bundle shape in inflorescence axis	circular-ellipsoid	obconical
Sclerenchymatous tissue above phloem	narrow, irregular	wide, semi-circular
Epidermal cell walls	fairly straight	strongly sinuous

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