Ann. Bot. Fennici 49: 402–406 ISSN 0003-3847 (print) ISSN 1797-2442 (online)
Helsinki 30 November 2012

Klasea nana (Asteraceae), a new species from NE Iran

Massoud Ranjbar[1,*], Kazem Negaresh[1], Roya Karamian[1] & Mohammad Reza Joharchi[2]

[1)] *Department of Biology, Herbarium Division, Bu-Ali Sina University, P.O. Box 65175/4161, Hamedan, Iran (*corresponding author's e-mail: ranjbar@basu.ac.ir)*
[2)] *Herbarium FUMH, Research Center for Plant Sciences, Ferdowsi University of Mashhad, Mashhad, Iran*

Received 5 Dec. 2011, final version received 25 May 2012, accepted 28 May 2012

Ranjbar, M., Negaresh, K., Karamian, R. & Joharchi, M. R. 2012: *Klasea nana* (Asteraceae), a new species from NE Iran. — *Ann. Bot. Fennici* 49: 402–406.

Klasea nana Ranjbar & Negaresh *sp. nova* (Asteraceae) is described and illustrated. It is confined to the Khorasan Province in northeastern Iran and closely resembles *K. latifolia*, but differs from it by having a shorter habit, smaller basal leaves, and arachnoid phyllaries.

Klasea is an Old World genus of perennial herbs (Martins 2006). It is sometimes considered an independent genus, at other times a section in the genus *Serratula*. Based on chromosome numbers (Löve & Löve 1961, Cantó 1982, 1986, Garcia-Jacas & Susanna 1998), pollen morphology (Wagenitz 1955, Dittrich 1977, Cantó 1987), and ETS and ITS sequences (Susanna *et al*. 1995, Häffner & Hellwig 1999, Garcia-Jacas *et al*. 2001, Martins & Hellwig 2005, Martins 2006, Hidalgo *et al*. 2006), currently the most widely-accepted taxonomic notion recognizes two genera, and thus places most of the *Serratula* species to *Klasea* (Cantó 2009). A classification for the genus *Klasea* is presented by Martins (2006), accommodating 46 species in ten sections. In *Flora Iranica*, 12 species were reported for the genus in Iran (Rechinger 1980). Since then, three new species and one new record have been added to the Iranian flora (Mozaffarian 1992, 2006, Ranjbar *et al*. 2012). The species have involucral bracts mostly without differentiated apical appendages, with tubular florets, and glabrous achenes with a simple pappus composed of several series of free long bristles (Boissier 1875, Borisova 1963, Davis & Kupicha 1975, Rechinger 1980, Cantó 2011). *Klasea* species tend to have very strict geographic distributions and very specific niches or habitats (Cantó 2011).

During our field excursions in Iran, we collected some specimens of *Klasea* around Radkan in the Khorasan Province, NE Iran, and attepted to identify them according to *Flora Iranica* (Rechinger 1980). In addition, several sheets were examined from the following herbaria: BASU, FUMH, G, P, PR, W and WU. A preliminary list of the characters that were useful in delimiting *Klasea* taxa was developed. The utility of these characters to distinguish species was assessed by examining specimens across the range of the genus in NE Iran as well as the plants grown in the field.

Our specimens resembled *K. latifolia*, but there were several differences that justify describing a new species.

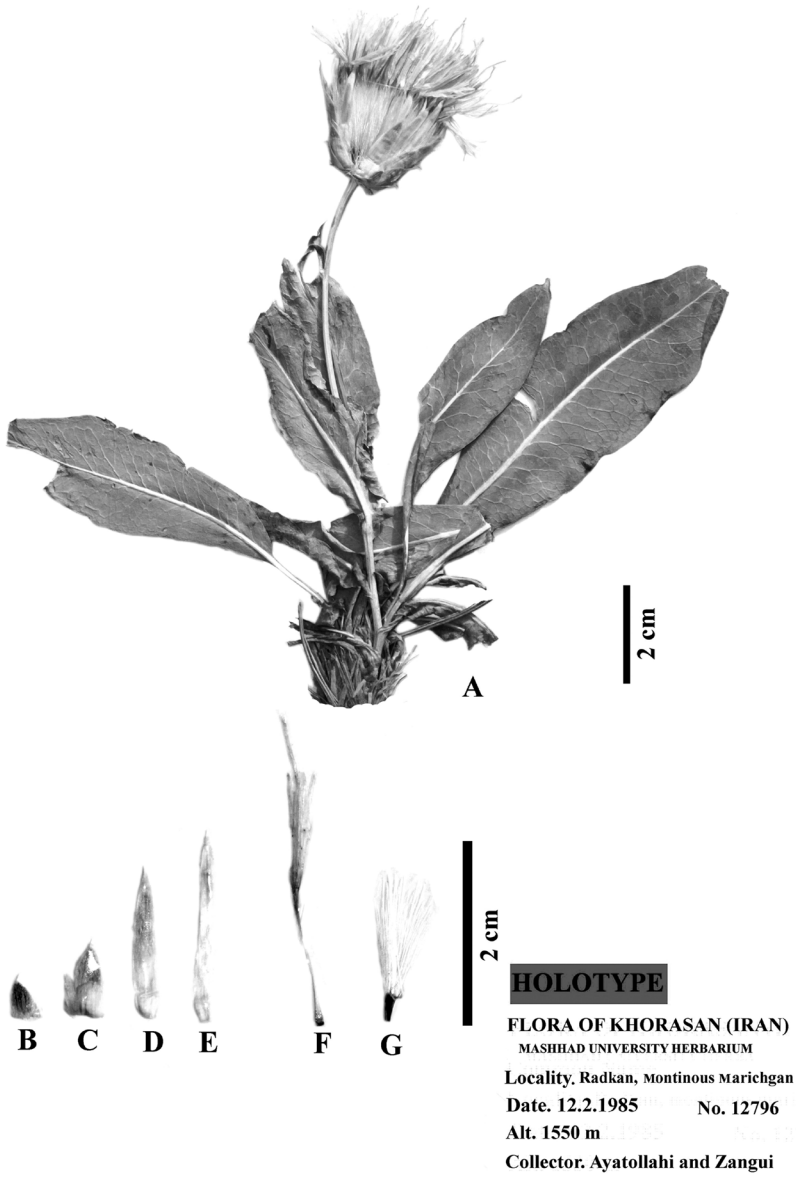

Fig. 1. *Klasea nana* (from the holotype). — **A**: Habit. — **B**: Outer phyllary with a short spine. — **C**: Spiny median phyllary. — **D** and **E**: Inner phyllaries. — **F**: Flower. — **G**: Immature achene with pappus.

Klasea nana Ranjbar & Negaresh, *sp. nova* (Figs. 1 and 2)

HOLOTYPE: NE Iran. Khorasan: Radkan, Marichgan mountains, 1550 m, 12 May 1985 *Ayatollahi & Zangui 12796* (holotype FUMH!; isotype BASU!; photo W!). — PARATYPES: Iran. Khorasan, SW Gonabad, Kalat, 1734 m, 3 June 2008 *M. Ranjbar & Z. Toluei 28513* (BASU!); 20 km to Gonabad, between Disfan and Khanik, 13 May 1984, *M. Ranjbar 28499* (BASU!); *M. R. Joharchi & H. Zangui 12806* (FUMH).

ETYMOLOGY: The specific epithet *nana* (Latin) means tiny or dwarf.

Perennial plants, usually pale green, root robust, woody, glabrous, internodes very short, 0.5–1.5(–5) mm long, remains of stems and leaf bases of previous year present, usually 2/3 of long stem leafless, up to 13 cm tall. Stem simple, cylindrical, thinly white striate, erect, ca. 1.5 mm in diam. at base. Leaves rigid coriaceous, glabrous, with a whitish midrib and reticulate venation, divided. Basal leaves simple, 8–10 × 2–2.5 cm, lanceolate-oblong, narrowed at base

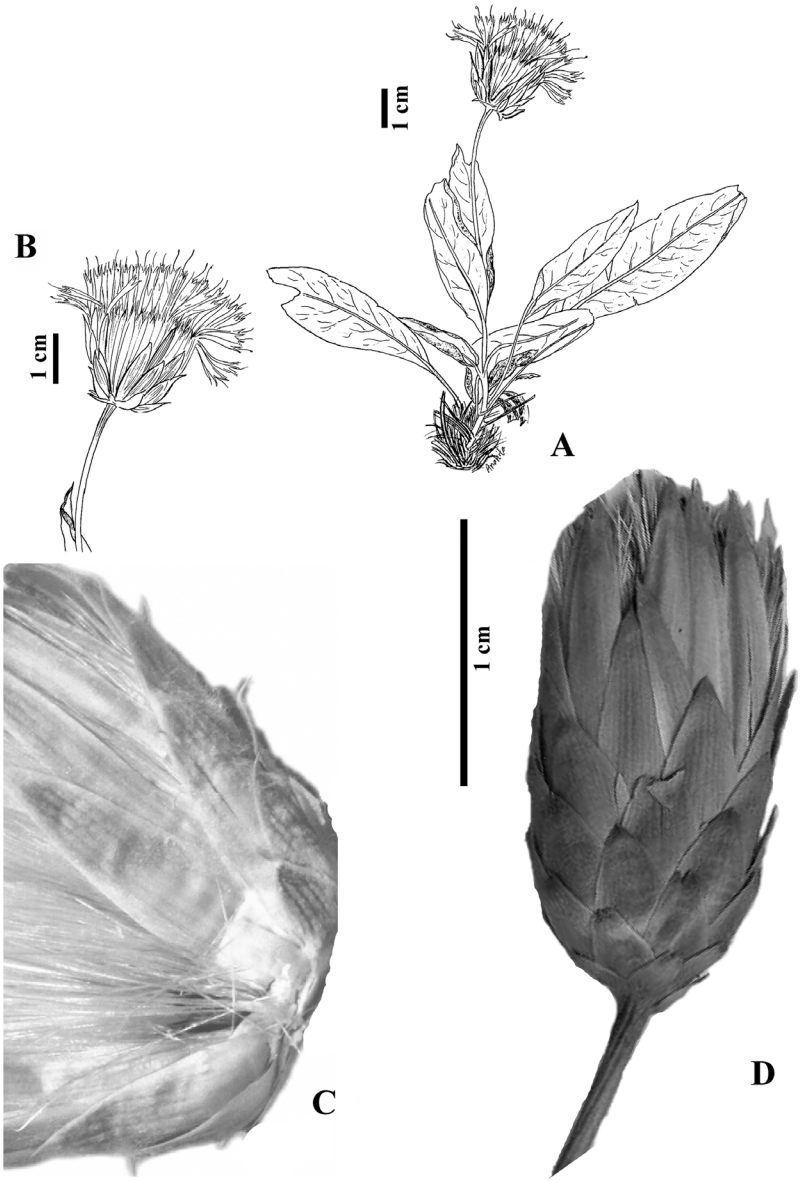

Fig. 2. A–C: *Klasea nana* (from the holotype). — **A**: Habit. — **B**: Capitule with peduncle. — **C**: Close-up of capitula in *K. nana*. — **D**: *K. latifolia*, close up of capitula (from the holotype).

and suboblique, rounded at apex, entire or rarely entire and serrate, petioles grooved, up to 2.2 cm long. Lower stem leaves simple, 6–7.5 × ca. 2 cm, lanceolate-oblong, narrowed at base, entire, acuminate at apex, margin sometimes subscabrous, petioles grooved, up to 2.3 cm long. Median stem leaves sessile, 4.4–4.8 × ca. 1.3 cm, oblong, narrow decurrent, suboblique at base, entire. Upper stem leaves strongly reduced, sessile, ca. 1.2 × 0.3 cm, narrowly lanceolate, not decurrent, mucronate at apex, entire. Capitula solitary at tip of stem, peduncle short, up to 2 cm long; involucres oblong, up to 24 mm long, up to 16 mm wide. Phyllaries yellow-greenish, coriaceous, moderately imbricate, almost constricted at apex, margin subscabrous in upper part. Outer phyllaries deltoid, 3.2–7 × 2.1–3.5 mm, subglabrous, or sparsely covered with arachnoid hairs, mucronate or cuspidate at apex, with distinctive veins, spine small, ca. 0.8 mm long. Median phyllaries ovate-oblong, 8.8–11 × ca. 4 mm, median to upper parts loosely covered with long arachnoid appressed hairs, cuspidate or acuminate at apex, spine small, ca. 1.2 mm long. Inner

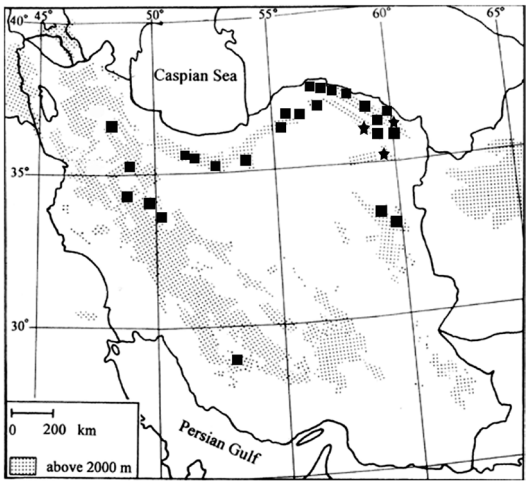

Fig. 3. Distribution of *Klasea nana* (stars) and *K. latifolia* (squares) in Iran.

phyllaries oblong, oblong-linear, 13–21.5 × 1.8–3.5 mm, median to upper parts densely covered with ± arachnoid appressed hairs, acuminate at apex, appressed above. Receptacle setose, with long smooth bristles. Flowers lemon-yellow, ca. 28 mm long, corolla tube narrow, ca. 15 mm long, lobes ca. 6 mm long; anthers cuneate in tube, slightly shorter than or equal to corolla, apical appendages broadly rounded to slightly emarginated, sometimes subobtuse, filaments glabrous; style shorter than corolla, stigma strongly exserted from corolla, up to 6 mm long, bifid, ca. 0.3 mm long. Achenes immature. Pappus deciduous, multiseriate, plumose, with unequal bristles, white, up to 14.5 mm long, innermost series not longer than others. Flowering in May to August and fruit ripening from August to September.

Klasea nana is a rare endemic in NE Iran and known only from the dry-steppe zone in a mountainous region around Marichgan, near Radkan in Khorasan Province (Fig. 3). It is similar to *K. latifolia* in the shape of the basal and lower stem leaves and in the color of the flower (Fig. 4). *Klasea latifolia* is native to NE, N and W Iran with some populations occurring also in S Iran, Turkmenistan and Afghanistan. It is characterized by its glabrous habit (leaves and involucres), entire leaves or leaflets, decurrent stem leaves, spineless involucres, (7–)13–18 mm in diameter,

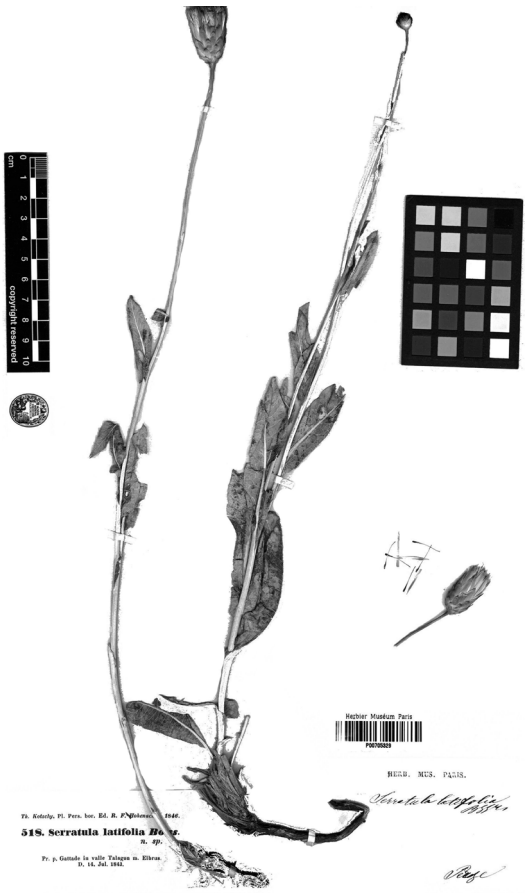

Fig. 4. *Klasea latifolia* (holotype); photograph through the courtesy of P.

and yellow corolla (Rechinger 1980, Martins 2006). *Klasea nana* differs from it by some important characters (*see* Appendix).

Acknowledgments

The help of Dr. Vitek, Dr. Wallnöfer, Dr. Till, Dr. Sida, Dr. Gautier and Mr. Fumeaux during our visits to W, WU, P, PR and G is much appreciated. We thank the director of the herbarium of Ferdowsi University of Mashhad (FUMH) for making the herbarium facilities available for our study. The field work in Iran was supported by grants from the Bu-Ali Sina University.

References

Boissier, E. 1875: *Serratula* L. — In: Boissier, E. (ed.), *Flora*

Orientalis, vol. 3: 585–591. A. Asher & Co., Genevae.

Borisova, A. G. [Борисова, А. Г.] 1963: *Serratula* L. — In: Bobrov, E. G. & Cherepanov, S. K. [Бобров, Е. Г. & Черепанов, С. К.] (eds.), [*Flora USSR*, vol. 28]: 259–301. Izdatel'stvo Akademii Nauk USSR, Moskva Leningrad. [In Russian].

Cantó, P. 1982: Números cromosómicos en algunos táxones del género *Serratula* L. (Asteraceae). — *Lazaroa* 3: 189–195.

Cantó, P. 1986: Números cromosómicos en *Serratula* L. — *Lazaroa* 8: 85–95.

Cantó, P. 1987: Estudió palinológico en las especies ibéricas del género *Serratula* L. (Asteraceae). — *Anales de la Asociatión de Palinológical de Lengua Española* 3: 49–62.

Cantó, P. 2009: New combinations in the *Klasea integrifolia* group (Asteraceae). — *Annales Botanici Fennici* 46: 435–438.

Cantó, P. 2011: Biogeographic and bioclimatic distribution of *Klasea* Cass. and *Serratula* L. — *Acta Botanica Gallica* 158: 239–249.

Davis, P. H. & Kupicha, F. K. 1975: *Serratula* L. — In: Davis, P. H. (ed.), *Flora of Turkey and East Aegean Islands*, vol. 5: 452–460. Edinburgh University Press, Edinburgh.

Dittrich, M. 1977: Cynareae. Systematic review. — In: Heywood, V. H., Harborne, J. B. & Turner, B. L. (eds.), *The biology and chemistry of the Compositae*: 999–1015. Academic Press, London, New York, San Francisco.

Garcia-Jacas, N. & Susanna, A. 1998: New chromosome counts in the subtribe Centaureinae (Asteraceae, Cardueae) from West Asia, III. — *Botanical Journal of the Linnean Society* 128: 413–422.

Garcia-Jacas, N., Susanna, A., Garnatje, T. & Vilatersana, R. 2001: Generic delimitation and phylogeny of the subtribe Centaureinae (Asteraceae): a combined nuclear and chloroplast DNA analysis. — *Annals of Botany* 87: 503–515.

Häffner, E. & Hellwig, F. H. 1999: Phylogeny of the tribe Cardueae (Compositae) with emphasis on the subtribe Cardueae: an analysis based on ITS sequence data. — *Willdenowia* 29: 27–39.

Hidalgo, O., Garcia-Jacas, N., Garnatje, T. & Susanna, A. 2006: Phylogeny of *Rhaponticum* (Asteraceae, Cardueae-Centaureinae) and related genera inferred from nuclear and chloroplast DNA sequence data: taxonomic and biogeographic implications. — *Annals of Botany* 97: 705–714.

Löve, A. & Löve, D. 1961: Chromosome numbers of central and northwest European plant species. — *Opera Botanica* 5: 1–581.

Martins, L. & Hellwig, F. H. 2005: Systematic position of the genera *Serratula* and *Klasea* within Centaureinae (Cardueae, Asteraceae) inferred from ETS and ITS sequence data and new combination in *Klasea*. — *Taxon* 54: 632–638.

Martins, L. 2006: Systematic and biogeography of *Klasea* (Asteraceae–Cardueae) and a synopsis of the genus. — *Botanical Journal of the Linnean Society* 152: 435–464.

Mozaffarian, V. 1992: New species and interesting plant records from Iran. — *Iranian Journal of Botany* 5: 83–90.

Mozaffarian, V. 2006: Studies on the flora of Iran, four new species and a short note on an interesting Rubiaceae. — *Iranian Journal of Botany* 12: 107–113.

Ranjbar, M., Negaresh, K. & Karamian, R. 2012: Taxonomic notes on the *Klasea calcarea* group (Asteraceae) from Iran. — *Feddes Repertorium* 122: 1–7.

Rechinger, K. H. 1980: Cynareae. — In: Rechinger, K. H. (ed.), *Flora Iranica*, vol. 139b: 289–290. Akademische Druck- und Verlagsanstalt, Graz.

Susanna, A., Garcia-Jacas, N., Soltis, D. E. & Soltis, P. S. 1995: Phylogenetic relationships in tribe Cardueae (Asteraceae) based on ITS sequences. — *American Journal of Botany* 82: 1056–1068.

Wagenitz, G. 1955: Pollen morphologie und systematik in der Gattung *Centaurea* L. *s.l.* — *Flora* 142: 213–279.

Appendix. Diagnostic morphological characters of *Klasea nana* and *K. latifolia*.

Species	*K. nana*	*K. latifolia*
Plant height	up to 13 cm	25–90 cm
Internode length	0.5–1.5(–5) cm	2.5–7 cm
Basal leaf size	8–10 × 2–2.5 cm	12–20 × 4–8 cm
Median stem leaf base	oblique	cordate
Upper stem leaf	mucronate, not decurrent	acute or acuminate, narrowly decurrent
Peduncle length	up to 2 cm	6–12 cm
Phyllaries indumentums	± loosely arachnoid	glabrescent
Outer phyllaries	deltoid	ovate
Outer phyllaries veins	distinctive	none
Spine length	0.8–1.2 mm	spineless