

A NEW SPECIES OF SCORZONERA (ASTERACEAE) FROM NATANZ, IRAN

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Received 2016. 02. 29; accepted for publication 2016. 04. 27

Safavi, S. R. 2016. 06. 30: A new species of *Scorzonera* (Asteraceae) from Natanz, Iran.-*Iran. J. Bot.* 22 (1):01-05, Tehran.

Scorzonera karkasensis Safavi is described as a new species. The new species is related to *S. tenax* Rech. f. from which it mainly differs in its rootstock, stems, leaves, bracts, ligules and achenes. The distribution map, illustration and photo of the new species are presented.

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Key words: Compositae; *Scorzonera*; new species; Karkas Mountain, Natanz, Iran.

گونه جدیدی از جنس *Scorzonera* تیره Asteraceae از نطنز، ایران

سیدرضا صفوی، مربی پژوهش، موسسه تحقیقات جنگلها و مراتع کشور

Scorzonera karkasensis Safavi به عنوان گونه جدیدی از ایران معرفی و نشان ویژه‌های ریختی آن با نزدیکترین آرایه مقایسه شده است.

گونه جدید از نظر ریختی نزدیک به *S. tenax* Rech. f. بوده و با توجه به تفاوت‌هایی که در یقه، ساقه‌ها، برگها، برکنه‌ها، گلچه‌ها و فندقه‌ها دارد از آن جدا می‌شود. نقشه پراکندگی، نقاشی و تصویرگونه جدید نیز آرایه شده است.

INTRODUCTION

The author has worked on the project "Flora of Iran (Asteraceae, Lactuceae)" in TARI since 2000. During one of the plant excursions in 2011, a new species of *Scorzonera* was collected from Karkas Mountain, in center of the country; this specimen has been compared with many specimens of *Scorzonera* species deposited in different herbaria in Iran and compared with descriptions of *Scorzonera* species in Iran and neighbouring countries flora; the studies showed that this specimen is a new to science. Since the genus *Scorzonera* was revised by Rechinger (1977) for the Flora Iranica, only one new species has been added to the Iranian flora (Safavi, 2006). This is the second addition to the *Scorzonera* species of Iran.

MATERIALS AND METHODS

During the work on taxonomy of Tribe Lactuceae in IRAN, some specimens of *Scorzonera* was collected from Esfahan province in central of Iran and deposited in TARI by author; after exact determination of the specimens, a new *Scorzonera* for the flora of Iran was recognized. The new specimen was compared with many specimens of *Scorzonera* species deposited in the

herbaria of TARI, Tehran University (THU) and Iran (IRAN), and compared with descriptions of *Scorzonera* species in Iran and other countries (Chamberlain, 1975; Komarov, 1964; Rechinger, 1955 and 1977; Safavi et al, 2013); After careful consideration, it was concluded that the specimen was a new species to the science.

In the following description, each numerical value of the new species is the average of eight measurements from different specimens. The specimens of new species were examined and compared with description of the related species *S. tenax* Rech. f. as an endemic species in Flora Iranica area (Rechinger, 1977). Diagnostic morphological characters from closely related taxon are discussed, and arranged in a table 1. [The author of plant name was checked with Brummitt and Powell (1992) too.]

RESULTS

New species

Scorzonera karkasensis Safavi, **Sp. nov.** (figs. 1 & 2)

Type: Iran. Esfahan, Natanz, Karkas protected area, N. Slope of Karkas Mountain, SE of Bidhend Village, E: 51° 46' 30"; N: 33° 29' 20", 2511m., 12 May 2012, rocky mountains, Safavi 97469 (TARI holotype)



Fig. 1. The image of the herbarium specimen of *Scorzonera karkasensis* Safavi (holotype–TARI).

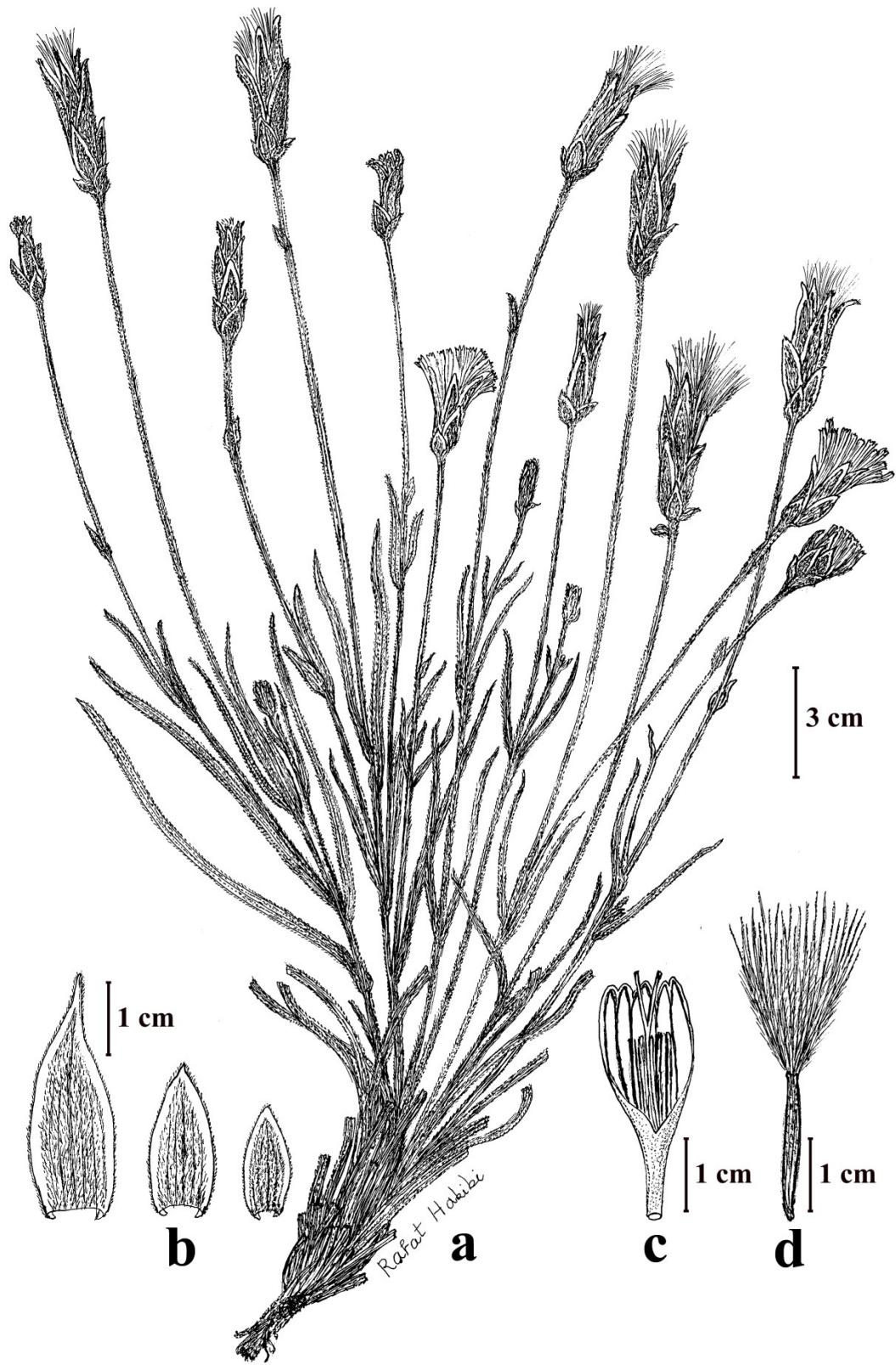


Fig. 2. *Scorzonera karkasensis* Safavi. a, general view; b, Phyllaries; c, floret; d, achene.

Paratype: Iran. Esfahan, Natanz, Karkas protected area, Ooreh Village, between Emamzadeh Aghasoltan and Waterfall, E: 51° 49' 40"; N: 33° 28' 19", 2464m., 14 Jun 2013, rocky mountains, Mahmoodi 99406 (TARI paratype).

Perennial. Rootstock \pm indurate, covered by remnants of dead petiole or brown leaves sheaths. Stems numerous, 25 – 45 cm, densely covered by simple to many branched hairs; in upper third naked, simple or bifurcated; in lower part densely leafy. Basal and lower stem leaves entire, 15 – 18 \times 0.4 – 0.6 cm, linear, \pm obtuse at the tip, widened into sheath at the base, densely canescent – hairy, sometimes undulate at the margins; upper stem leaves often reduced to \pm wide sheath, 6 – 50 \times 1 – 6 mm. Capitula 1 – 2 per stem; ligules dark yellow; lamina with dark veins and protruding considerably from the involucre. Involucres cylindrical, circular at the base; phyllaries non fleshy, tomentose – floccose; outer phyllaries ovate – triangular, 5 – 8 \times 7 mm, obtuse, with indistinct middle vein; middle bracts oblong; inner bracts oblong, narrowly membranaceous, 17 – 22 \times 6 – 7 mm at flowering time and 40 – 45 \times 8 – 9 mm at fruiting time. Ripen achenes 22 mm, smooth and striate, pale brown; pappus gray – brown to dark brown with numerous hairs; hairs as long as achenes, plumos, with bristles or serrulate scabrous at tip, central ones longer than marginal ones (fig. 1& 2).

Habitat: Low – gradient slopes of mountains with the rocky bed.

Etymology: The species was named karkasensis based on the name of Karkas Mountain in Iran, the location of

type specimen

Distribution: Endemic, only known from the type & paratype localities in central part of Iran, Esfahan province, (fig.3).

Ecology: *Scorzonera karkasensis* grows on low – gradient slopes of the mountains with the rocky bed in associations with *Acanthophyllum spinosum*, *Acantholimon scorpius*, *Bromus tomentellus*, *Corydalis rupestris*, *Nepeta persica*, *Scorzonera laciniata*, *Scorzonera phaeopappa*, *Scorzonera tortuosissima*, *Stachys inflata*, *Stipa hohenackeriana*, and *Tanacetum polycephalum*.

Scorzonera karkasensis is similar to *S. tenax*, which is an endemic species to Iraq (NE) and belongs to Sect. *Foliosa* (Boiss.) Lipsch. It differ from *S. tenax* in the following aspects: Rootstock is severely covered by remains dead petioles (not \pm squamose, with sparse squama). Stem covered by simple to many branched indumentums (not glabrous), 25 – 45 cm (not 15 – 40 cm). Leaves mainly in lower part of the stem (not throughout the stem); basal leaves 15 – 18 \times 0.4 – 0.6 cm (not 15 \times 0.4 cm); inner bracts 17 – 22 \times 6 – 7 mm at flowering time and 40 – 45 \times 8 – 9 mm at fruiting time (not 25 – 35 \times 5 – 7 mm). Involucral bracts tomentose – floccose and thin (not glabrous and fleshy). Ligule dark yellow with dark veins (not pale yellow) and conspicuously longer than phyllaries (not slightly longer than phyllaries). Ripen achenes 22 mm (not 12 mm in juvenile) and pale brown (not straw); pappus gray – brown (not white). It also differ from *S. tenax* in the features below (tab. 1).

Table 1. A comparison between the diagnostic characters of *Scorzonera karkasensis* and *S. tenax*.

Diagnostic characters	<i>Scorzonera karkasensis</i>	<i>Scorzonera tenax</i>
Rootstock	Severely covered by remains of dead petioles	Squamose, with sparse squama
Stem surface	Covered by simple to many branched hairs	Glabrous
Stem length	25 – 45 cm	15 – 40 cm
Leaves dispersion	Mainly in lower part of the stems	Throughout the stem
Basal leaves size	15 – 18 \times 0.4 – 0.6 cm	15 \times 0.4 cm
Leaves surface	Densely canescent – hairy	Glabrous
Inner bracts	17 – 22 \times 6 – 7 mm (at flowering time) 40 – 45 \times 8 – 9 mm (at fruiting time)	(25) – 30 – (35) \times 5 – 7 mm
Involucral bracts	Tomentose – floccose & non fleshy	Glabrous & fleshy
Ligule color	Dark yellow with dark veins	Pale yellow
Ligule size	Protruding considerably from the involucre	Protruding slightly from the involucre
Achene size	22 mm (mature)	12 mm (juvenile)
Achene color	Pale brown	Straw
Pappus color	Gray – brown	white

ACKNOWLEDGMENTS

The author wishes to thank Miss. T. Habibi the artist of Research Institute of Forests and Rangelands for preparing the illustration and Dr. M. Mahmoudi for preparing the distribution map and collecting the paratype specimen.

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