

NEW RECORD AND NEW COMBINATION OF CAREX L. FROM IRAN

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Received 2015. 05. 09; accepted for publication 2015. 08. 19

Amini Rad, M. 2015. 12. 31: New record and new combination of *Carex* L. from Iran.- *Iran. J. Bot.* 21 (2): 86-90. Tehran.

During identification of the new collection of the Cyperaceous specimens from N. W. Iran, *Carex tristis* was identified and is reported as a new record for the flora of Iran. *Kobresia humilis* and *Carex medwedewii* are other interesting species among the collected materials. A new combination, *Carex popovii* subsp. *brunneola* (Kukkonen) Amini Rad is introduced. Morphological characteristics, habitats and distribution for each species are presented.

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Key words. Cyperaceae; *Carex*; new combination; new record; Iran

گزارش گونه جدید و ترکیب جدید از جنس *Carex* L. از ایران

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طی جمع‌آوری نمونه‌های گیاهی تیره Cyperaceae از شمال غرب کشور، *Carex tristis* شناسایی گردید و به‌عنوان گزارش جدید برای فلور ایران معرفی می‌گردد و نیز توضیحاتی در رابطه با گونه‌های *Kobresia humilis* و *Carex medwedewii* ارائه می‌گردد. همچنین ترکیب جدید *Carex popovii* subsp. *brunneola* (Kukkonen) Amini Rad معرفی می‌گردد. خصوصیات مورفولوژیکی، رویشگاه‌ها و پراکنش گونه‌ها نیز ارائه می‌شود.

INTRODUCTION

Cyperaceae with about 130 species, is the largest monocotyledon family after Poaceae and Liliaceae in Iran. *Caricoideae* (including *Carex* L. and *Kobresia* Willd.) with having nearly half of the species in this family, is the largest subfamily in Iran.

Carex is the largest genus in this family in Iran with a total of 61 taxa already known which is 57 species, according to the Flora of Iran (Amini Rad 2011) and four species recently reported *C. diandra* Schrank (Amini Rad & Sharifi 2013), *C. pediformis* C. A. Mey (Amini Rad & al. 2014), *C. iraqensis* Kukkonen & Hooper and *C. disticha* Huds. (Amini Rad & al. 2014). Among newly collected specimens from N. W. Iran, *Carex tristis* was identified as new record from Iran and *C. medwedewii* Leskov as an interesting species. Also, *C. popovii* V. Krecz. subsp. *brunneola* (Kukkonen) Amini Rad is introduced as a new combination from Iran.

Kobresia species are quite similar to *Carex*

subgenus *Vignea* (P. Beauv. ex. Lestib.) Peterm. members in appearance. They occur mostly in alpine pastures in temperate regions of the N Hemisphere. The genus was known with two species *K. humilis* (Kerman, Lalehzar Mountain) and *K. schoenoides* (Sabalan Mountain) in Iran. Recently, some specimens have been collected from N. W. Iran, which shows a wide distribution of the species in Iran.

MATERIAL AND METHODS

The materials were studied and identified by different Flora and monographs, which have been presented in text and references. For studying of the specimens, stereomicroscope (Olympus SZH) was used. The distribution map was generated using the computer program DMAP (Morton 2009). Also, morphological characters, habitats and distribution of species are presented. The specimens are deposited in the Iranian Research Institute of Plant Protection, Department of Botany Herbarium (IRAN).

RESULT AND DISCUSSION

Carex tristis M. B., Fl. Taur. -Cauc. 3: 15 (1819).

Syn.: *C. sempervirens* Vill. subsp. *tristis* (M. B.) Kük. in Engler, Pflanzenr. IV. 20, 38: 569 (1909).

Specimens examined: W. Azarbaijan: Khoy, Qotur, Ghani Ziarat to Mirza Gol, 2950 m, Amini Rad & Torabi (58633-IRAN); Khoy, Pasak, Hesar Badalan to Avrin, 2790 m, Amini Rad & Torabi (60826-IRAN); Khoy, Pasak, Avrin Mountain, 3060-3636 m, Amini Rad & Torabi (60851-IRAN).

Tufted perennial plant, 25 to 45 cm tall; rhizome sturdy, ascending, short creeping. Stem sharply to obtusely trigonous, smooth or slightly scabrous above, grooved. Leaves 1/3 to 1/2 of stem length; sheaths 20-40 mm, yellowish-brown to gray, disintegrating into fibrous, margin of scarios side depressed; ligule c. 0.2 mm long, with arch shorter than wide; blades 2 to 4 mm wide, keeled, margins revolute, adaxial side papillose, keel and margins scabrous. Inflorescence composed of 1-3 male spikes in above and 1-3 female spikes below; bracts shorter than their spikes, foliose, ligulate, with sheath 12-25 mm. Terminal male spikes 10-16 x 3-5 mm, clavate or fusiform, overlapping; male glumes 3.5-4 x 1.5 mm, oblanceolate, yellow to brownish, midnerve not reaching the apex, margins widely scarios. Female spikes 10-18 x 4-6 mm, cylindrical or clavate or slightly fusiform, erect, lowest with peduncle 10 to 70 mm; female glumes 4.5-4.9 x 2.5 mm, cymbiform, obtuse, margins widely scarios, reddish brown to dark reddish brown. Utricles 4.5-5.2 x 1.4-1.6 mm, fusiform, trigonous or plano-convex, reddish-brown in upper and yellowish-brown in lower part, with scabrous two main nerves, narrowly winged, base with stipe 0.5-0.6 mm, beak 1.6-2 mm, scabrous, ostiole oblique or obscurely bidentate, margins scarios. Stigma 3. Nut 2. 7 x 1-1.3 mm, obovoid, style base 0.2-0.3 mm and stipe 0.2-0.3 mm, trigonous, yellowish brown, finely reticulate and papillose (fig. 1).

Geographical distribution: Turkey, Caucasus and Iran.

Regardless the reported of this species from Iran (Kukkonen 1998), no specimen has been cited from Iran and the report was according to V. Kreczetowicz (1935) and Grossheim (1940). Meanwhile Amini Rad (2011) cited the species as doubtful record from Iran. In recent collection from N. W. Iran, the species has been collected from Iran and thus the occurrence of the species in Iran is confirmed.

Carex stenocarpa Turcz. ex V. Krecz. is very similar to *C. tristis*, as some authors (Kukenthal 1936, Egorova 1999) have considered the two as subspecies and others (Dietrich 1967, Govaerts & al. 2015, Nilsson 1985, Kreczetowicz 1935) have accepted them as two distinct taxa. Accordingly, decision on the

taxonomic status of the two taxa needs further studies. Differences between the two are: broader leaf blade and larger utricles in *C. stenocarpa* (eastern species) in comparison with *C. tristis* (western species).

Carex medwedewii Leskov, Zhurn. Russk. Bot. Obshch. 16(1): 70 (1931).

Syn.: *Carex aequivoca* V. I. Krecz., in V. L. Komarov (ed.), Fl. URSS 3: 600 (1935); *Carex kukkonenii* Ö. Nilsson, in P. H. Davis (ed.), Fl. Turkey 9: 622 (1985); *C. aterrima* Hoppe subsp. *medwedewii* (Leskov) Egor., Novosti Sist. Vyssh. Rast. 22: 54 (1985).

Specimens examined: W. Azarbaijan: Orumieh, Dizaj, Dalamper Mountain, 2670-2773 m, Amini Rad & Torabi (IRAN-58491 & IRAN-58488); Orumieh, Silvana, Khalil Kuh, 2600 m, Amini Rad & Torabi (IRAN-58490); Khoy, Qotur, Ghani Ziarat to Mirza Gol, 2950 m, Amini Rad & Torabi (IRAN-58492); Khoy, Pasak, Hesar Badalan to Avrin, 2790 m, Amini Rad & Torabi (60827-IRAN). Zanjan: Dandi to Takab, Anguran Mine, Belgheis Mountain, 2826 m, Amini Rad & Torabi (IRAN-58489).

The species has been previously reported under *C. kukkonenii* (specimen number 34459-IRAN) for the Flora of Iran (Amini Rad 2003). Recently, some newly collected specimens from N. W. Iran were identified as *C. medwedewii*. Due to the geographical separation of specimen no. 34459-IRAN (2km Shemshak to Tehran) and N. W. Iran specimens, the mentioned specimen was re-studied and the main differences were seen in utricle colour and pedicle length of female spike. The specimen with number 34459-IRAN had golden-brown utricle and peduncle of female spikes, 1.5 to 4 cm long, but newly collected specimens had black-brown utricle and peduncle with 0 to 1 cm (rarely longer). Thus, specimen with no. 34459-IRAN renamed under *C. caucasica* Stev.

Carex popovii V. Krecz. subsp. *brunneola* (Kukkonen) Amini Rad, **comb. nov.**

Basionym: *Carex decaulescens* V. Krecz. subsp. *brunneola* Kukkonen, Ann. Bot. Fennici 21: 388 (1984).

Holotype: Persia, Tehran, in declivibus ad pedes Montium Elburz supra vicum Darband et declivia montis Kuhha-ye Touchal, 2000-3800 m, in pratis montanis, 29. IV. 1973, J. Sojak 7079 (PR)

Specimen examined: Tehran: Touchal Mountain, 2500-2600 m, Amini Rad & Torabi 43411-IRAN.

V. I. Kreczetowicz introduced two species *Carex popovii* (Byull. Sredne-Aziatsk. Gosud. Univ. 21: 181) and *C. decaulescens* (Fl. URSS 3: 477) almost simultaneously in 1935. Then he (1941) kept the species separate according to some distinctions



Fig. 1. *Carex tristis*. A, Habit; B, female glume; C, utricle; D, nut.

between two species, e. g. the size of utricles. Egorova (1976) considered *C. popovii* as a synonym of *C. decaulescens* after examination of their type specimens and all the available herbarium materials. Then, she (Egorova 1999) again regarded the two taxa as synonyms but used the name *C. popovii*, as *C. decaulescens* that had been published a month later than *C. popovii*. Although the author could not see the type specimens, but based on the descriptions of the two species, it seems the two species should be regarded as synonyms.

Carex popovii subsp. *brunneola* is a distinct taxon, based on a single locality in Alburz Mountain. Egorova (1999) stated that the taxon is probably *C. aterrima* subsp. *medwedewii*, but our specimen is distinguished by having utricles golden-brown and shorter, about 3-3.5 (-4) mm long from *C. atrata* subsp. *aterrima* for having utricles reddish-brown to dark brown and 3-5 mm long.

Kobresia humilis (C. A. Mey.) Serg. in Schischk., Fl. URSS. 3: 111 (1935).

Syn.: *Elyna humilis* C. A. Mey. ex Trautv., Trudy

Imp. S. -Peterburgsk. Bot. Sada I: 21 (1871); *K. persica* Kük. & Bornm., Österr. Bot. Zeitschr. 47: 133 (1897).

Specimens examined: W Azarbaijan: Khoy, Avrin Mt., western slope, 2700-2771 m, Amini Rad & Torabi, (IRAN-57457); the same region, eastern slope, 3060-3636 m, Amini Rad & Torabi (60852-IRAN); Piranshahr, Silveh, Chighidarreh Mt., 3225 m, Amini Rad & Torabi (IRAN-57458) & 3278 m, (IRAN-57467); Orumieh, Dizaj, Kisian village, Buz-e Sin amt., 2910 m, Amini Rad & Torabi (IRAN-57459); Orumieh, Dizaj, Kisian village, Dalamper mt., 2773 m, Amini Rad & Torabi (IRAN-56706). Kerman: Baft, Lalehzar mt., 3550-4000 m, Amini Rad (IRAN-43410).

Recent collections from N. W. Iran is the westernmost area of distribution of this species in Iran. Hooper (1985) and Kukkonen (1998) confirmed *K. humilis* (as *K. persica* in Flora of Iraq) from Iraq. In Flora of Turkey (Kit Tan 1980), only *K. simpliciuscula* has been reported from this country, but based on the specimen collected from the border areas of the three countries, Iran, Turkey and Iraq, it is expected that the species be also found in Turkey (fig. 2)

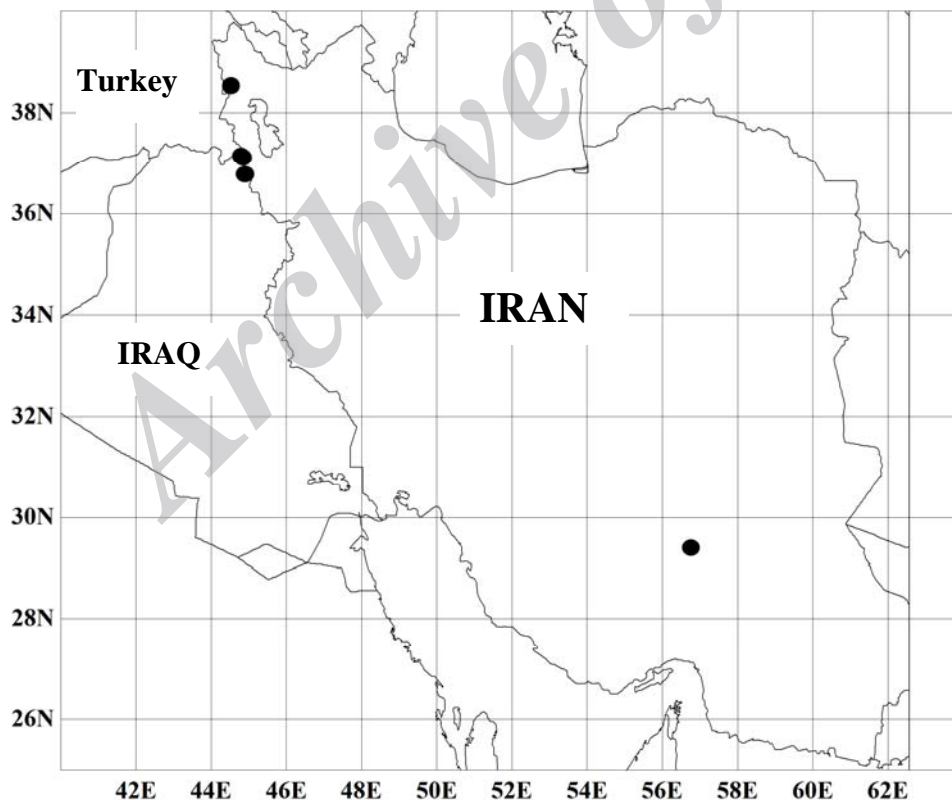


Fig. 2. Distribution of *Kobresia humilis* in Iran.

REFERENCES

- Amini Rad, M. 2003: Two new records of Cyperaceae family from Iran. -Iran. J. Bot. 10 (1): 31-34.
- Amini Rad, M. 2011: Cyperaceae in Assadi, M., Maassoumi, A. A., Babakhanlou, P. & Mozaffarian, V. (eds.) Flora of Iran, no. 71. -Research Institute of Forests and Rangelands.
- Amini Rad, M. & Sharifi, J. 2013: New report of *Carex diandra* (Cyperaceae) from Iran. -Iran. J. Bot. 19 (1): 54-56.
- Amini Rad, M., Musaev, S. & Karimov, V. 2014: Notes on *Carex* (Cyperaceae) sect. *Glandestinae* in Iran. -Iran. J. Bot. 20 (1): 20-24.
- Amini Rad, M., Musaev, S. & Karimov, V. 2014: A review of the genus *Carex* sect. *Ammoglochin* in Iran. -Rostaniha 15 (1): 1-5.
- Dietrich, W. 1967: Die Zytotaxonomie der Carex-Sektion Frigidiae in Europa. -Feddes Repertorium 75: 1-42.
- Egorova, T. V. 1976: Cyperaceae in Vvedensky, A. I. (ed.), Conspectus Florae Asiae Mediae 5: 6-98.
- Egorova, T. V. 1999: The sedges (*Carex* L.) of Russia and adjacent states (within the limits of the former USSR). St. -Petersburg & St. Louis. 1-772 p.
- Govaerts, R., Koopman, J., Simpson, D., Goetghebeur, P., Wilson, K., Egorova, T. & Bruhl, J. 2015: World Checklist of Cyperaceae. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; <http://apps.kew.org/wcsp/> Retrieved 2015-05-09.
- Hooper, S. S. 1985: *Kobresia* in Townsend, C. C. & Guest, E. (eds.), Flora of Iraq 8: 385-386.
- Kreczetowicz, V. I. 1935: Byull. Sredne-Aziatsk. Gosud. Univ. 21: 181.
- Kreczetowicz, V. I. 1935: *Carex* (Cyperaceae) in Komarov, V. L. & Schischkin, B. K. (eds.) Flora URSS, vol. 3. Translated to English by N. Landau, 1964.
- Kreczetowicz, V. I. 1941: Cyperaceae in Flora Uzbekistana, Tom 1: 313-376.
- Kukenthal, G. 1936: Cyperaceae-Caricoideae in A. Engler (ed.). Das Pflanzenreich IV. 20(38): 567-570.
- Kukkonen, I. 1998: Cyperaceae in Rechinger, K. H. (ed.), Flora Iranica, no. 173. -Akademische Druck, Graz.
- Morton A. 2009: DMAP for windows. Distribution map software 7. 3. - Berkshire.
- Nilsson, Ö. 1985: *Carex* in Davis, P. H. (ed.). Flora of Turkey 9: 73-158.
- Tan, K. 1985: *Kobresia* in Davis, P. H. (ed.), Flora of Turkey 9: 73.

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