

Cenchrus longispinus (Poaceae), a new record from coastal sands of Caspian Sea (N Iran)

Received: 22.09.2012 / Accepted: 21.10.2012

Ali Reza Naqinezhad: Assistant Prof., Department of Biology, Faculty of Basic Sciences, University of Mazandaran, Babolsar, Iran (anaqinezhad@gmail.com)

Abstract

In the framework of collection and determination of coastal sand dune plants of S Caspian Sea in Gilan and Mazandaran provinces (N Iran), a new species of the family Poaceae, *Cenchrus longispinus* (Hack.) Fernald, was determined in coastline of Babolsar, Mazandaran. *Cenchrus longispinus* is closely resembles *C. spinifex* and *C. echinatus*. From the latter it is best distinguished by the absence of a basal ring of numerous flexible, retrorsely barbellate bristles. However, most problematic is the distinction of *C. longispinus* and *C. spinifex*. *Cenchrus longispinus* always has more spines, the inner being terete to slightly flattened and the outer (lowermost) often bristle-like and relatively slender.

Keywords: Babolsar, *Cenchrus echinatus*, *Cenchrus spinifex*, grasses, Poaceae, sand dune plants

Cenchrus longispinus, گزارشی جدید از ماسه‌های ساحلی دریای خزر، شمال ایران

دریافت: ۱۳۹۱/۷/۱ / پذیرش: ۱۳۹۱/۷/۳۰

علیرضا نقی‌نژاد: استادیار گروه زیست‌شناسی، دانشکده علوم پایه، دانشگاه مازندران، بابلسر (anaqinezhad@gmail.com)

خلاصه

در چارچوب جمع‌آوری و شناسایی گیاهان ماسه‌رست سواحل جنوبی دریای خزر در استان‌های گیلان و مازندران، یک گونه جدید از تیره گندمیان به نام *Cenchrus longispinus* (Hack.) Fernald از سواحل ماسه‌ای بابلسر در استان مازندران شناسایی و تعیین نام شد. *Cenchrus longispinus* بسیار نزدیک به گونه‌های *C. spinifex* و *C. echinatus* می‌باشد و معمولاً با آن‌ها اشتباه می‌شود. از گونه *C. echinatus* به دلیل فقدان یک حلقه پایه‌ای از سیخک‌های کوتاه با پرزهای برگشته روی گریبان قابل تفکیک است. همچنین، به دلیل داشتن خارهای فراوانتر و خارهای داخلی گردتر و خارهای خارجی سیخکی‌شکل و باریک از گونه *C. spinifex* جدا می‌شود.

واژه‌های کلیدی: بابلسر، گندمیان، ماسه‌رست، *Cenchrus echinatus*، *Cenchrus spinifex*، Poaceae

Introduction

Cenchrus L. is a member of tribe *Panicaceae* and characterized with a cupuliform spiny involucre, mostly similar to other genera of this tribe, e.g. *Setaria* P. Beauv., *Pennisetum* L.C. Rich. *Cenchrus* has three species in Iran, i.e. *C. ciliaris* L., *C. pennisetiformis* Hochst. & Steud. and *C. setigerus* Vahl. The latter species are mainly confined in the south of Iran (Bor 1970). In the framework of collection and determination of coastal sand dune plants of south Caspian Sea in Gilan and Mazandaran provinces (N Iran), a new species of this genus was determined in coastline of Babolsar, Mazandaran and described in the paper.

Materials and Methods

During 2009–12, large numbers of plant specimens were collected from coastal line of Gilan and Mazandaran. Inside the bulk collections, one spiny poaceous plant was interesting which was examined using all local and neighboring flora books (Boissier 1881; Parsa 1950; Bor 1968, 1970; Tsvelev 1976; Clayton 1980; Cope *et al.* 1982; Davis 1985) and also Flora of North America (Stieber & Wipff 2003) as well as a new recent paper on *Cenchrus* distribution in Mediterranean area (Verloove & Sánchez Gullón 2012). All characters in the specimens were surveyed by striomicroscope (Nikon: SMZ-1). The material recorded here was deposited in Mazandaran University Herbarium.

Results and Discussion

Cenchrus longispinus (Hack.) Fernald

Specimen examined: Mazandaran province, Babolsar, Miroud coastal area, 36° 43.876' N, 052° 46.615' E, 20 m b.s.l., 12.09.2012, Naqinezhad (Herbarium of University of Mazandaran 3001, Babolsar, Iran).

According to all relevant literatures, the specimens were determined as *Cenchrus longispinus* (Hack.) Fernald which is a new record for the flora of

Iran. The main morphological characteristics of the species are as following:

Plants annual, tufted. Stems 30–70 cm, geniculate. Sheaths compressed, glabrous or sparsely pilose, ligules 0.5–1 mm, blades 3–15 cm long, 3–7 mm wide. Panicles 4–8 cm, involucre 8–11 mm long, globose, spines 30–40, outer spines few downward pointing, the inner 3–5.5 mm long, 1 mm wide, fused at least 1/2 their length, forming a distinct cupule, involucre cleft on 2 sides, spines retrorsely scabrid and ciliate at the base, pubescent. Spikelets 2–4 per involucre, 6 mm long, glabrous. Lower glumes 2–3 mm, upper glumes 4–5 mm, 5–7- veined, lower lemmas 5–6 mm, 5–7- veined. Anthers 1.5–2 mm. Caryopses 3–4 mm long, ovoid (Fig. 1).

The studied specimens were collected on sand dune habitats including other accompanying species such as *Agriophyllum squarrosum* (L.) Moq., *Chrozophora tinctoria* (L.) Raf., *Digitaria sanguinalis* (L.) Scop., *Messerschmidia sibirica* (L.) L. and *Xanthium strumarium* L.

Cenchrus longispinus is one of 20 species of the genus *Cenchrus* which is a primarily tropical genus and most of which are readily recognized by their spiny involucre (Stieber & Wipff 2003, Verloove & Sánchez Gullón 2012). This species with English names of coastal sandbur is common throughout the southern United States and southwards into South America (Stieber & Wipff 2003). This was also naturalized in Australia, Southern Africa and Mediterranean areas (Verloove & Sánchez Gullón 2012). *Cenchrus longispinus* most closely resembles *C. spinifex* and *C. echinatus*. From the latter it is best distinguished by the absence of a basal ring of numerous flexible, retrorsely barbellate bristles. However, most problematic is distinction of *C. longispinus* from *C. spinifex*. *Cenchrus longispinus* always has more spines, the inner being terete to slightly flattened and the outer (lowermost) often bristle-like and relatively slender.



Fig. 1. *Cenchrus longispinus*. A view on its habitat, inflorescence and involucre of spikelets.

Acknowledgment

I am grateful to Dr. Filip Verloov, National Botanic Garden of Belgium, for confirmation of determination of the plant and the helpful advices. This

study was carried out with financial support of Research Deputy of the University of Mazandaran under the Project No. 6553/91/33 (28.04.1391).

References

- Boissier, E. 1881. *Flora Orientalis*. Vol. 5. 447–449. Genevae et Basileae: Georg.
- Bor, N.L. 1968. *Gramineae*. In: *Flora of Iraq*. Vol. 9 (Towensend, C.C., Guest, E. & Al-Rawi, A., eds). Ministry of Agriculture of the Republic of Iraq, Baghdad.
- Bor, N.L. 1970. *Gramineae*. In: *Flora Iranica*. Vol. 70 (Rechinger, K.H., ed.). Akademische Druck- und Verlagsanstalt, Graz.
- Clayton, W.D. 1980. *Cenchrus*. Pp. 264. In: *Flora Europaea*. Vol. 5 (Tutin, T.G., Heywood, V.H., Burges, N.A., Moore, D.M., Valentine, D.H., Walters S.M. & Webb, D.A., eds). Cambridge University Press, Cambridge.
- Cope, T.A., Nasir, E. & Ali, S.I. 1982. *Poaceae*. In: *Flora of Pakistan*. Vol. 143 (Ali, S.I., ed.). University of Karachi, Pakistan.
- Davis, P.H. (ed.) 1985. *Flora of Turkey and the East Aegean Islands*. Vol. 9. Edinburgh University Press, Edinburgh.
- Parsa, A. 1950. *Flore de l' Iran. Gramineae*. Vol. 5. Ministry of Education Publication, Tehran.
- Stieber, M.T. & Wipff, J.K. 2003. *Cenchrus*, Pp. 529–535. In: *Flora of North America*. Vol. 25 (editorial committee, eds). Oxford University, New York

-
- (<http://herbarium.usu.edu/webmanual/>on 19.09.2012
& <http://www.ars-grin.gov>).
- Tsvelev, N.N. 1976. Grasses of the Soviet Union. Part II.- Leningrad (English version 1983, New Delhi).
- Verloove, F. & Sánchez Gullón, E. 2012. A taxonomic revision of non-native *Cenchrus* s. str. (*Panicaceae*, *Poaceae*) in the Mediterranean area. *Willdenowia* 42: 67–75.