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Nomenclatural notes on *Echinops armatus* (Asteraceae, Cardueae)

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Abstract

The name *Echinops armatus* Boiss. & Haussk. is illegitimate, because there exists an earlier homonym. A new name, *Echinops rechingeri* Negaresh, is proposed for *E. armatus* Boiss. & Haussk. Two new combinations are proposed here. Images of type specimens of *E. rechingeri* var. *rechingeri*, *E. rechingeri* var. *cryptadenus* and *E. rechingeri* var. *papillosus* are provided.

Kew Words: Asteraceae, Cardueae, *Echinops*, new combinations, new name.

Introduction

Echinops L. is an Old World genus of armed perennial herbs. Its systematic position has been determined within the subtribe Echinopsinae, tribe Cardueae and family Asteraceae (Susanna & Garcia-Jacas 2007, 2009). Members of the genus are characterized by single-flowered capitula arranged into secondary inflorescences appearing as globose heads, which are easily distinguished from other genera of the family Asteraceae (Boissier 1875; Rechinger 1979). The genus *Echinops*, comprising about 120 species, is distributed in tropical Africa, the Mediterranean region, the temperate regions of Eurasia, reaching to Central Asia, Mongolia and north-eastern China (Susanna & Garcia-Jacas 2007; Sánchez-Jiménez et al. 2010; Montazerolghaem et al. 2016, 2017).

Whilst carrying out a nomenclatural revision of the genus *Echinops*, it was noticed that *E. armatus* Boiss. & Haussk. (Boissier 1875) is an illegitimate name because it is a later homonym of *E. armatus* Steven (Steven 1856) (Art. 53.1, McNeill et al. 2012). *Echinops rechingeri* is proposed here as new name for this species. This taxon is accepted as distinct species. Two varieties assigned to *E. armatus* are combined to *E. rechingeri*.

Nomenclatural treatment

Echinops rechingeri Negaresh, nom.n.

Replaced name: *Echinops armatus* Boiss. & Haussk. in Boiss., Fl. Orient. 3: 436 (1875), nom. illegit., non *E. armatus* Steven, Bull. Soc. Imp. Nat. Moscou 29 (4): 389 (1856).

Etymology: The specific epithet is given in honor of Dr. Karl Heinz Rechinger, who was the general editor of Flora Iranica.

Taxonomic notes: Boissier & Haussknecht in Boissier (1875) described *E. armatus* based on the collection Haussknecht 562 from Kirkuk in northern Iraq. In Flora Iranica, Rechinger (1979) accepted this species and recognized three varieties, namely: var.

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armatus, var. *cryptadenus* and var. *papillosus*. According to the same author (Rechinger 1979), var. *papillosus* differs from the two other varieties by having a papillose indumentum on the upper cauline leaves. Var. *cryptadenus* is differentiated from var. *armatus* in its upper cauline leaves, which have a dense arachnoid indumentum (vs. indumentum sparsely arachnoid mixed with glandular hairs). Nine years after the publication of the corresponding volume in Flora Iranica, Townsend (1988) treated *E. armatus* as a synonym of *E. haussknechtii* Boiss., based only on the shape of the heads. This treatment was not followed by subsequent workers such as Sheidai (2000), Mozaffarian (2006, 2008, 2010), Al-Musawi et al. (2017), Montazerolghaem et al. (2017). A detailed comparison of the original descriptions of *E. armatus* var. *armatus* and *E. haussknechtii* revealed many differences. *Echinops armatus* var. *armatus* is distinguished from *E. haussknechtii* by having a simple or only basally branched stem, which is densely leafy proximally and nearly leafless distally (vs. branched in the median part and densely leafy throughout). Further differences are: leaves coriaceous (vs. herbaceous), basal leaves petiolate (vs. sessile and amplexicaulous), terminal segments of the leaves equal with the other segments, 8–15 mm long (vs. triangular, up to 20 mm long), basal and lower cauline leaves 30 × 15 cm (vs. ca. 20 × 10 cm), receptacle globose, ± 10 mm in diameter (vs. subglobose, 6–8 mm in diameter), common involucres ca. 12 mm long, with long fimbriate-dentate tips (vs. ± 10 mm long, with short fimbriate-dentate tips), proximal capitula of a head ca. 25 mm long, cornigerous (vs. 20–23 mm long, not cornigerous), phyllaries greenish, towards the tip straw-colored or ivory, often towards the base deeply purple and striated (vs. pale bony), outer phyllaries linear, towards the tip broadly rhombic, rigid spinulate (vs. narrowly linear, towards the tip subrhombic-spathulate, long plumose), intermediate phyllaries ± abruptly rotundate, with a hyaline border, up to cuspidate, woolly, antrorsely pectinate-dentate on the margins (vs. broadly subrhombic, towards the tip attenuated, margins denticulate or nearly smooth). Moreover, Townsend (1988) failed to pay attention to the geographical distribution of these two species: *Echinops armatus* var. *armatus* is a narrow endemic in the northern part of Iraq, while *E. haussknechtii* is endemic in western and northwestern Iran. There is a gap of about 400 km between these two areas. In their account based on molecular data, Montazerolghaem et al. (2017) suggested that *E. haussknechtii* should be synonymized with *E. chorassanicus* Bunge. Thus *E. armatus* var. *armatus* should be considered as a distinct taxon.

Townsend (1988) described the new species *E. fraudator* and considered *E. armatus* var. *cryptadenus* and *E. armatus* var. *papillosus* as synonyms of it. It seems that the opinion of Townsend is not acceptable because these varieties have only one difference in comparison to var. *armatus*, i. e. the indumentum of the upper cauline leaves. My study showed that there are no diagnostic differences between *E. armatus* and *E. fraudator*, which are considered here as synonyms. It can be assumed that the main reason for the description of this species by Townsend (1988) was that he compared *E. fraudator* with *E. cephalotes* DC. instead of *E. armatus*.

Rechinger (1979) recognized two varieties in *E. armatus*, which are here transferred to *E. rechingeri*.

Echinops rechingeri var. *rechingeri*

Type: Iraq, in arenosis graminosis inter Kirkuk et Sulimanieh, 7.1867, H.C. Haussknecht 562 [holotype: G-BOIS!: two sheets (comprising one specimen), isotype: JE!]; Fig. 1.

Fig. 1: *Echinops rechingeri* NEGARESH var. *rechingeri* [G-BOIS, holotype].

Additional specimens seen: Iraq. Arbil province: Arbil, E. Hadač 5753 (PR!). – Kirkuk province: Kirkuk, R.W. Haines s.n. (E!).

Echinops rechingeri var. *cryptadenus* (Rech.f.) Negaresh, comb.n.

Basionym: *E. armatus* Boiss. & Hausskn. var. *cryptadenus* Rech. f., Fl. Iranica 139a: 44 (1979).

Type: Iraq, Diyala, in collibus conglomeraticis ab oppido Mandali ca. 10 km orientem versus, 2.6.1957, K.H. Rechinger 9638 [holotype: W!: two sheets (comprising one specimen)]; Fig. 2.

= *Echinops fraudator* C.C.Towns., Kew Bull. 43 (1): 113 (1988), syn.n.

Type: Iraq. Baba Gurgur, near Kirkuk, alluvial soil on sandstone bluff, 303 m, 8.7.1933, E.R. Guest in Rustam 4009 [holotype: K!, isotype: BAG].

Additional specimens seen: Iran. Kermanshah province: Rijab, M. Iranshahr 13134E (IRAN, W!); Sar Pol-e Zahab, E Qasr Shirin, K.H. Rechinger 14583 (W!). – Lurestan province: Mehran, M. Iranshahr 13143E (IRAN, W!). – Iraq. Kirkuk province: Arbil, E. Hadač 1267 (PR!); near Tank, S of Kirkuk, Uvarov 24 (BM!); Mahmour Dagh, J.M. Gillett 11246 (K!); Injana, Rawi 22872 (K!); Koma Sang, Rawi 20590 (K!). – Diyala province: Jabal Hamrin inter Baquba et Khanaqin, E. Hadač 4660 (PR!); in collibus conglom. 10 km E Mandali, K.H. Rechinger 9638 (W!); prope Mandali, R.W. Haines s.n. (E!); Shahraban, E. Hadač s.n. (PR!); Koma Sang prope Mandali, E. Hadač 4596 (PR!).

Echinops rechingeri var. *papillosus* (Rech.f.) Negaresh, comb.n.

Basionym: *E. armatus* Boiss. & Hausskn. var. *papillosus* Rech. f., Fl. Iranica 139a: 45 (1979).

Type: Iraq, Kirkuk, in collibus arenaceis prope Kirkuk, ca. 400 m, 13.6.1957, K.H. Rechinger 9968 [holotype: W!]; Fig. 3.

Additional specimens seen: Iran. Kkuzestan province: 60 km NE Dezful, M.E. Köie 1122 (C!). – Kerman province: Kerman to Baft, 90 km S of Sirjan road junction, at Sang-e Sayad, M. Assadi et al. 1819 (E!); Khabr va Rouchun protected region, 50 km SSW of Baft, 2 km N of Khabr village, M. Assadi et al. 1870 (E!). – Iraq. Kirkuk province: in collibus ad Kirkuk, 400 m, J.F.N. Bornmüller 1468 (B!); 4 km E Badrah, E. Hadač 9954 (PR!); 30 km SE Badrah, in collibus arenaceis, K.H. Rechinger 9168 (W!).

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Fig. 2: *Echinops rechingeri* var. *cryptadenus* (RECH. f.) NEGARESH [W, holotype].

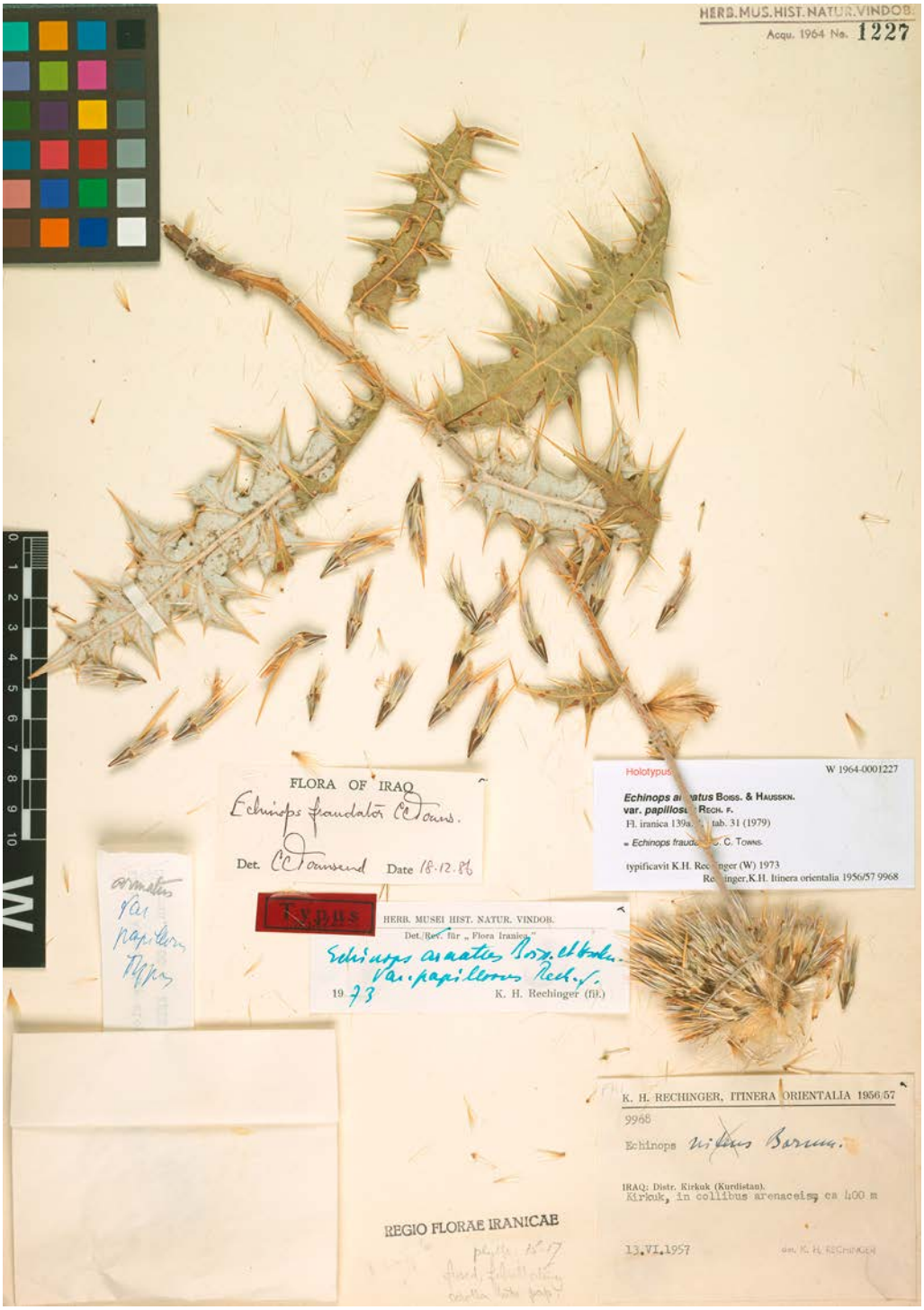

Fig. 3: *Echinops rechingeri* var. *papillosus* (RECH. f.) NEGARESH [W, holotype].

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