

Chenopodium pumilio (Chenopodiaceae) new to the flora of Iran

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Chenopodium pumilio (*Chenopodiaceae*) new to the flora of Iran

Abstract

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The Australian species *Chenopodium* (sect. *Orthosporum*) *pumilio* is reported from Iran for the first time. Several populations were discovered in the eastern and central part of the Caspian Sea Basin in the province of Mazandaran. Chromosome counts reveal $2n = 18$.

In his account of the genus *Chenopodium* in Iran, Parsa (1949) recognised 10 species: *C. vulvaria* L., *C. ficifolium* Sm., *C. album* L., *C. opulifolium* Schrad., *C. murale* L., *C. urbicum* L., *C. glaucum* L., *C. botrys* L., *C. rubrum* L. and *C. foliosum* Asch. Uotila (1997) added five more: *C. chenopodioides* (L.) Aellen, *C. sosnowskyi* Kapeller, *C. novopokrovskianum* (Aellen) Uotila, *C. giganteum* D. Don and *C. ambrosioides* L. Assadi (2001) recognised these 15 species in the most recent account of the genus in Iran.

As a result of recent field work we report here the discovery of a 16th species, *Chenopodium pumilio* R. Br., which is a native of Australia (Wilson 1983, 1984).

Several populations of *Chenopodium pumilio* were found in the eastern and central part of the Caspian Sea Basin in the province of Mazandaran in 2002. Between Ramsar and Chaboksar populations were observed along paths in the country side on wasteland and in disturbed sites on rocky or sandy soil. Also *C. ambrosioides* occurs there in dense populations. Other occurrences of *C. pumilio* were found between Behshahr and Galoogh along roadsides.

Description of Chenopodium pumilio in Iran. – Annual or short-lived perennial, glandular, weakly aromatic herb. *Stems* slender, dark green to reddish, prostrate to ascending, with several branches, arising from the base and up to 50 cm long. *Leaves* and stems covered with both slender, segmented hairs and subsessile to stipitate gland-tipped hairs; lamina rhombo-ovate in outline, 5-15 × 3-10 mm, cuneate and entire proximally, sinuate to lobed distally, densely hairy on both sides with both simple and gland-tipped hairs, the yellow glands best seen on the lower leaf surface. *Inflorescence* of compact axillary cymes or clusters, pedicels 0.2-0.5 mm long. *Flowers* female or hermaphrodite, plants gynodioecious. *Perianth* segments 5, shortly united at base, thin, white,

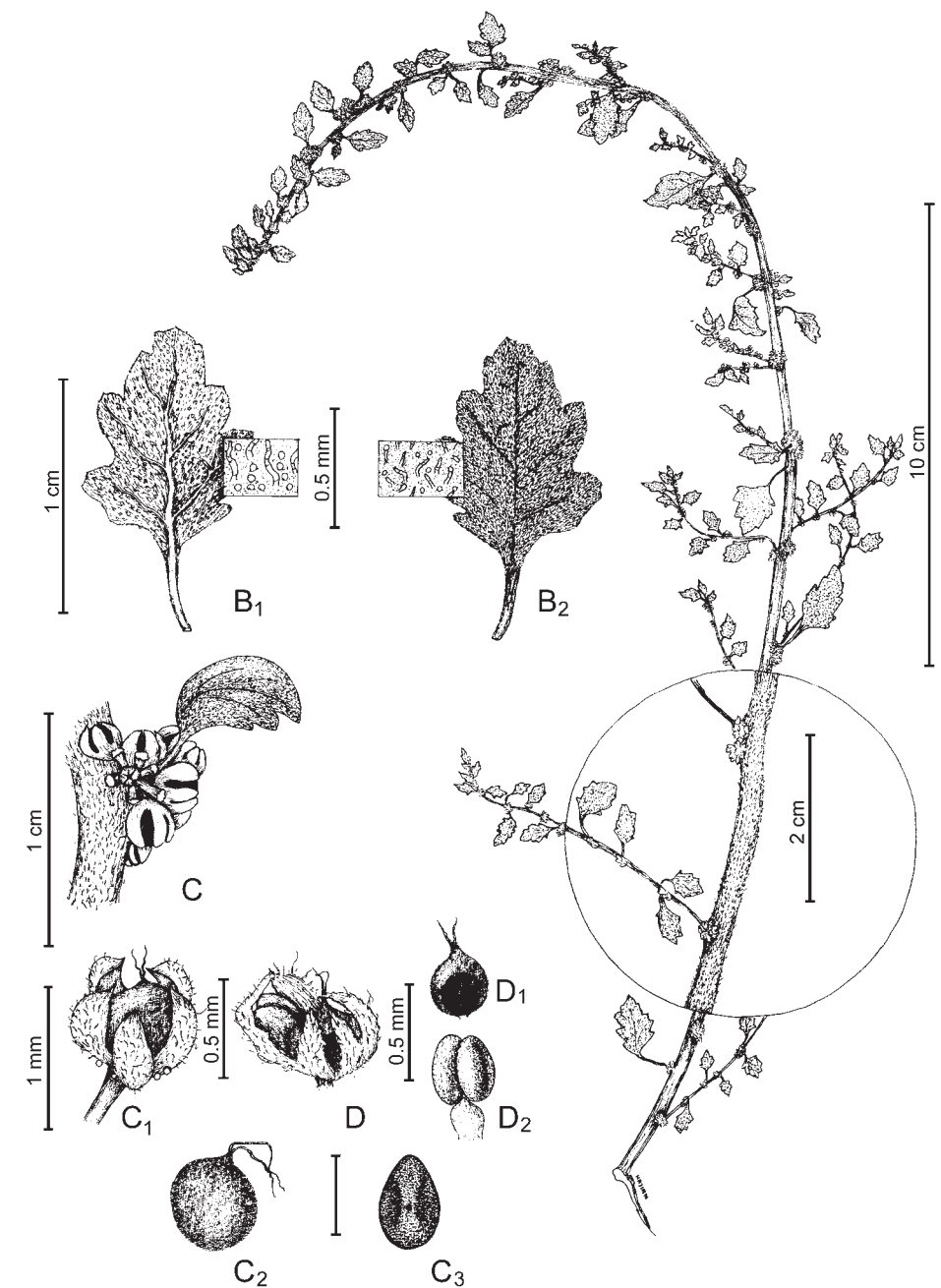


Fig. 1. *Chenopodium pumilio* – A: habit; B: leaf, (1) lower surface, (2) upper surface; C: compact axillary cyme with shortly pedunculate flowers, (1) female flower, (2) pistil, (3) seed; D: hermaphrodite flower, (1) pistil, (2) stamen.

rounded dorsally, contiguous at apex but often disjunct in the middle to expose the fruit. *Stamen* 1. *Stigmas* 2, thread-like. *Pericarp* easily scraped off seed. *Seeds* vertical, lenticular, red-brown to black, shiny, 0.5-0.75 mm, bluntly or sharply keeled. *Testa* almost smooth. – Fig. 1.

Chromosome number. – Squashes of root-tips from germinating seeds of the population documented by the voucher no. 13522 and prepared according to the protocol by Gornall & Wentworth (1993) revealed a chromosome number of $2n = 18$, which is in accordance with other counts published (W3Tropicos 2004).

Voucher specimens. – Iran, Mazandaran province, Behshahr towards Galoogah, 10 km east of Behshahr, 1-5 m, 8.7.2002, J. Sahebi (Isfahan University Herbarium no. 13522).

Taxonomy. – Brown (1810) originally diagnosed *Chenopodium pumilio* with ‘foliis obovatis integerrimis’ but in the Iranian plants the leaves are pinnatifid or sinuate (Fig. 1), which is, however, within the range of variation of the species (Aellen & Just 1934). *C. pumilio* belongs to *C. subg. Ambrosia* A. J. Scott, which is diagnosed: “Glandular-pubescent herbs. Flowers in axillary cymes or clusters, sometimes arranged in leafy panicles. Embryo hippocrepiform or subanular. Stamen free.” (Scott 1978). Within this subgenus *C. pumilio* is assigned to *C. sect. Orthosporum* on the basis of its (sub)sessile flowers, which are borne in the Iranian material on very short, 0.2-0.5 mm long pedicels (Fig. 1).

Key to the species of *Chenopodium* subg. *Ambrosia* in Iran

1. Seeds always vertical, stamen 1, plants weakly aromatic . . . *C. (sect. Orthosporum) pumilio*
- Seeds usually horizontal, sometimes vertical, stamens (1-)5, plants strongly aromatic . . . 2
2. Flowers in dense glomerules, arranged in spikes or panicles *C. (sect. Ambrina Benth. & Hook. f.) ambrosioides*
- Flowers solitary or a few in loose dichasial cymes, arranged in panicles *C. (sect. Botryoides C. A. Mey.) botrys*

Origin of Chenopodium pumilio in Iran. – The species is native to Australia (Aellen & Just 1934, Scott 1978, Wilson 1983, 1984) and has been introduced with wool imports into Europe and North America. It is naturalized in northern, western and central Europe (Aellen 1965-66, Uotila 1990) and reported from Massachusetts, New Jersey, District of Columbia, Missouri, Texas and N California (Aellen & Just 1934). Its occurrence and naturalization in N Iran may be explained by introduction from Europe (likely Ukraine) through the Caucasian passage, although no report is known to us on its presence in the Caucasus region.

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References

- Aellen, P. 1965-66: *Chenopodiaceae*. – Pp. 597-598 in: Rechinger, K. H. (ed.), *Hegis Illustrierte Flora von Mitteleuropa*, ed. 2, **3(2)**. – Berlin & Hamburg. [[CrossRef](#)]
- & Just, T. 1934: Key and synopsis of the American species of the genus *Chenopodium* L. – *Amer. Midl. Naturalist* **30**: 47-76.
- Assadi, M. 2001: *Chenopodiaceae*. – Pp. 27-65 in: Assadi, M., Maassoumi, A. A. & Khatamsaz, M. (ed.), *Flora of Iran* **38**. – Tehran.

Boissier, E. 1879: *Flora orientalis* **4**. – Geneva.

- Brown, R. 1810: Prodrum florae Novae Hollandiae et insulae Van Dimen **1**. – London.
- Gornall, R. J. & Wendworth, J. E. 1993: Variation in the chromosome number of *Parnassia palustris* L. in the British Isles. – *New Phytologist* **123**: 383-388. [[CrossRef](#)]
- Parsa, A. 1949: Flore de l'Iran **4**. – Tehran.
- Scott, A. J. 1978: A review of the classification of *Chenopodium* and related genera (*Chenopodiaceae*). – *Bot. Jahrb. Syst.* **100**: 205-220.
- Uotila, P. 1990: *Chenopodium*. – Pp. 499-500 in: Castroviejo, S., Laínz, M., López Gonzáles, G., Montserrat, P., Muñoz Garmendia, F., Paiva, J. & Villar, L. (ed.), *Flora iberica, plantas vasculares de la Península Ibérica e Islas Baleares* **2**. – Madrid.
- 1997: *Chenopodium*. – Pp. 24-58 in: Rechinger, K. H. (ed.), *Flora iranica* **172**. – Graz.
- W3Tropicos 2004: Index to plant chromosome numbers (IPCN) Data Base. – Published on the Internet, <http://mobot.org/w3T/search/ipcn.html>.
- Wilson, P. G. 1983: A taxonomic revision of the tribe *Chenopodieae* (*Chenopodiaceae*) in Australia. – *Nuytsia* **4**: 135-262.
- 1984: *Chenopodiaceae*. – Pp. 148-150 in: George, A. S. (ed.), *Flora of Australia* **4**. – Canberra.

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