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## A new record of the rare *Notholirion koeiei* Rech.f. (*Liliaceae*) from NE Iraq

### Abstract

Al-Khayat, A. H.: A new record of the rare *Notholirion koeiei* Rech.f. (*Liliaceae*) from NE Iraq. – Willdenowia 29: 155-158. 1998. – ISSN 0511-9618.

A population of *Notholirion koeiei*, so far incompletely known from only four collection from Central Iran, W Iran and E Iraq, has been found in NE Iraq near the border with Turkey. A full description, based on herbarium material and life plants, and a distribution map of the species are provided.

*Notholirion* is a small genus close to *Lilium* and *Fritillaria* and distinguished from both in particular by the presence of scarios coats surrounding the fleshy store scales of the mature bulb (Stapf 1934). This scarios coats represent the bases of former leaves, as has been shown in a detailed study of the bulb of *Notholirion* by Duchartre (1872). The anthers of *Notholirion* are medifixed like in *Lilium*, whereas basifixed in *Fritillaria*.

The genus comprises five closely related species, of which three are distributed in China (Haw 1986) and partly farther westwards. A fourth species, *N. thomsonianum* (Royle) Stapf, is distributed from the NW Himalaya to E Afghanistan, the fifth species, *N. koeiei* Rech.f., has been described from W Iran (Rechinger in Köie & Rechinger 1955) and collected also in Central Iran and E Iraq (Wendelbo 1985, 1990).

Only four collections of *Notholirion koeiei* have been known so far (Wendelbo 1990: 60). The two collections from Central Iran were collected in gardens in the town of Yasd. On the label of the specimen collected by Bornmüller in 1892 (*Bornmüller 4768*, B [photocopy!]) the note “aus den Gebirgen bei Yesd” is added, apparently indicating that the garden plants were said to originate from the mountains around Yasd. The type collection is from Shah Bazan (32°47'N, 48°39'E), gathered at 1000 m in the lower mountain zone of the W Zagros range, and the single collection from Iraq is from the Persian foothill district (FPF) near Khanaqin, which is situated close to the border with Iran.

The hitherto known specimens of *Notholirion koeiei* “are so poorly preserved that it is difficult to make a complete description” (Wendelbo 1990: 61). In particular the bulb and fruits of this species were not known.



Fig. 1. *Notholirion koeiei* Rech.f. – a: inflorescence; b: habit; c: coat of the tunica; d: portion of the leafy stem; e: capsule; f: flower buds; g: pistil; h: tepal, dorsal (1) and ventral (2) side; i: seed. – Scale = 1 cm; drawing after plants of the population from near Aqrah.

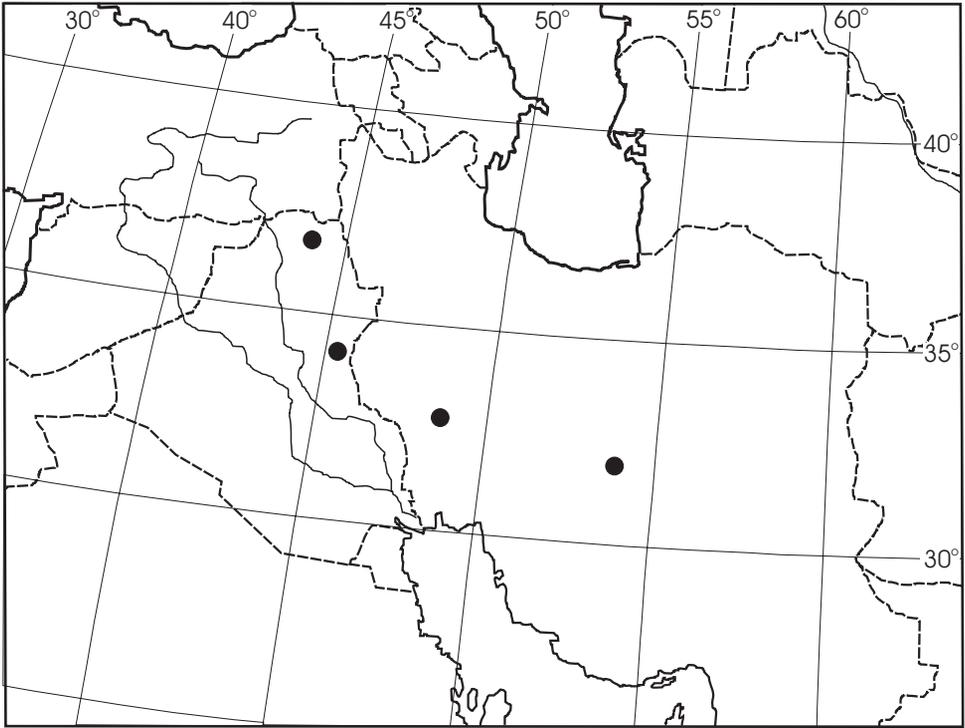


Fig. 2. Distribution of *Notholirion koeiei* Rech.f.

In 1988, the present author discovered a second population of *Notholirion koeiei* in Iraq. The locality of this population is in the northern mountain region (MAM), 10 km NE of Aqrah (36°46'N, 43°52'E), in the Amadiya District. The small population was found in the Galy-Zanta valley, at an altitude of c. 700 m, growing on a moist loamy shoulder by the stream. It is the westernmost occurrence of the genus, and since the new locality is close to the Turkish border, the presence of *N. koeiei* also in Turkey appears possible. The known distribution of *N. koeiei* is given in Fig. 2.

Specimens and bulbs were recollected in 1989 and plants were cultivated in Arbil. Based on the herbarium specimens and life plants of this population, a full description of *N. koeiei* is provided.

Description of *Notholirion koeiei* based on the population from near Aqrah

*Bulb* ovoid, 5 cm long, 3 cm wide, covered with several papery, scarios, black sulcate to plicate coats; *bulbils* numerous. *Stem* single, 8-9 mm in diameter at base, up to 100 cm high, erect, fistulose. *Cauline leaves* 12-13, alternate, linear, gradually attenuate towards the tip, canaliculate, entire, up to 40 × 2 cm, decreasing in size higher up the stem and passing into the bracts of the inflorescence. *Inflorescence* racemose, bracteate, of up to more than 20 flowers. *Bracts* similar to the cauline leaves but smaller, the lower up to 7 cm long, 4-5 mm wide and longer than the mature fruit, the upper only c. 1.5 cm long and c. 1 mm wide. *Pedicels* somewhat incurved-erect, at anthesis 1-1.5 cm long, at fruiting up to 3-3.5 cm long. *Flowers* erect in bud, towards anthesis spreading to nodding, towards fruiting erect again. *Perigon* pale lavender, campanulate with the tepals apically bent back; *tepals* free, spatulate, obtuse, c. 4 × 1 cm, basally with thin, longitudinal darker strips, on the midrib below the tip with an longish evagination. *Stamens* 6, free, the fila-

ments filiform, subequal in length, c. 4 cm long, of the same colour as the perigon, apically curved upwards; anthers medifixed, 4-5 mm to finally 7-9 mm long. *Style* filiform, slightly longer than the stamens, strongly curved upwards; stigma faintly three-lobed. *Capsule* 1.8-2 cm long, obovoid to almost funnel-shaped and apically 1-1.5 cm wide when opened, loculicidally dehiscent, the adjoining valves interconnected by broad fibrous meshwork of the endocarp. *Seeds* brown, compressed, c. 0.5 mm thick, in outline approximately ovate (applanate on one side), 5-6 × 3-4 mm.

#### Specimens

IRAQ: Amadiya District, c. 10 km NE of Aqra, Galy-Zanta valley, c. 700 m, on damp loamy shoulder by stream in a small population, 4.1989, *Al-Khayat & Anwar 975* (herbarium of Salahaddin University, Arbil, Iraq); *ibid.*, 1990, *Al-Khayat & Anwar 1404* (*id.*).

#### Acknowledgements

My thanks are due to Mr Najim A. Mustafa, Hanau, Germany for his assistance, to Mr S. L. Kaka, Department of Geology, University of Salahaddin, Arbil, Iraq, for valuable advice, to Dr K. Lenzian, Lehrstuhl für Botanik, Technische Universität München, Germany, for his cooperation, and to the library of the Botanic Garden and Botanical Museum Berlin-Dahlem for providing copies of literature on *Notholirion*.

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