

Allium elmaliense (Alliaceae), a new species from SW Anatolia, Turkey

Ismail Gökhan Deniz & Hüseyin Sümbül

Akdeniz University, Faculty of Science and Arts, Department of Biology, 07058 Antalya, Turkey

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Allium elmaliense I.G. Deniz & Sümbül *sp. nova* (Alliaceae) is described and illustrated from SW Anatolia, Turkey. It is compared with the morphologically fairly similar species *A. cyrilli*, *A. orientale* and *A. asclepiadeum*.

Key words: *Allium*, Alliaceae, taxonomy

During an expedition carried out in April 2001 in connection with the project named *An Investigation on the Flora of Elmalı Cedar Research Forest (Antalya)*, we found some interesting specimens of *Allium*. On further visits to the same locality in May 2001, April 2002, May 2002, and May 2003, more material was gathered providing a range of specimens with flowers and fully mature fruits.

The specimens were checked in the herbaria of ANK, GAZI, HUB and ISTE, against *Flora of Turkey* (Kollmann 1984, Davis *et al.* 1988, Özhatay & Tzanoudakis 2001), Koyuncu (1978) and *Flora Europaea* (Stearn 1980). After comparison with material of morphologically similar taxa, we decided that the present specimens belong to a new species close to *Allium cyrilli*, *A. orientale* and *A. asclepiadeum*.

Allium is one of the largest genera in the Turkish flora. It was revised by F. Kollmann for the *Flora of Turkey and the East Aegean Islands*. Kollman (1984) recognized 141 species in Turkey (Kollmann 1984). Subsequently, twenty new species were described from Turkey and three further species were added to the flora

(Davis *et al.* 1988, Özhatay & Tzanoudakis 2001). With the species described here, the total number of *Allium* species known from Turkey is 165.

Allium elmaliense I.G. Deniz & Sümbül, *sp. nova* (sect. *Melanocrommyum*) (Fig. 1)

Affinis *A. cyrilli*, *A. orientale* et *A. asclepiadeum*, sed *A. orientale* differt foliis latis 2–6 mm (non latis 10–20(–40) mm), perianthiis segmentatis incurvis apice per anthesim (non incurvis apice), segmentatis primo erectis, posterior tote reflexis per anthesin (non erectis vel leviter reflexis), seminibus rugosis (non levibus et undulatis parietibus), et *A. cyrilli* caule 12–25(–30) × 0.15–0.25 cm (non 50–60(–90) × 0.7–0.9 cm), foliis latis 2–6 mm et clare undulatis in margine (non latis 10–40 mm et planis margine), floribus fragrantibus sunt (non fragrantibus), perianthiis segmentatis 3.5–4.5 × 0.8–1.1 mm (non 6–7 × 1–1.75 mm), et *A. asclepiadeo* foliis ad marginem integrum (non dentatum), perianthiis segmentatis incurvis at apice per anthesin (non incurvis

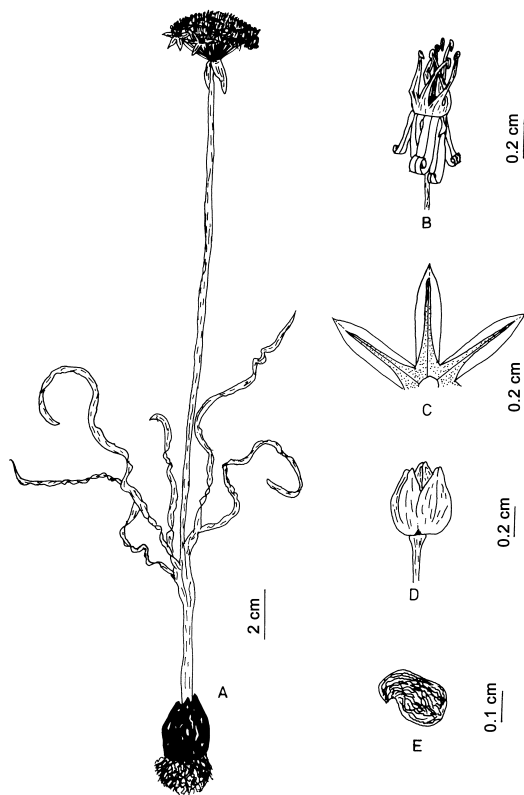


Fig. 1. *Allium elmaliense*. — **A:** Habit. — **B:** Flower with reflexed and inrolled perianth segments. — **C:** Perianth segments and filaments. — **D:** Capsule. — **E:** Seed.

apice), longis 3.5–4.5 mm (non 6 mm), filamentis carnosis (non carnosis), albis in base (non purpureis), paene curtioribus quam perianthiis segmentatis (non $1/2 \times$ perianthiis segmentatis), ovario atro (non purpureo), etc.

TYPE: Turkey. C2/3 Antalya: Elmali, entering road of Cedrus Research Forest, openings in *Juniperus excelsa* and *Quercus coccifera* forests, 1150 m, 30.IV.2001 I. G. Deniz 1254 (holotype AKDU; isotypes HUB, GAZI, AIBU).

Bulb globose-ovoid, 1.3–2.8 cm in diameter, outer tunics papery, brownish black, inner white. Leaves 2–5, narrowly linear, 6–10(–13) \times 0.2–0.6 cm, flat, glabrous, with clearly undulate margins, with no above-ground sheaths. Stem 12–25(–30) \times 0.15–0.25 cm, terete, longer than leaves. Spathe persistent 2–3 lobes, lobes to 2 cm, acuminate at apex, creamy yellow with light purplish veins. Umbel hemispherical or fastigiate, 3–3.5 \times 1.5–2 cm, 15–35 flowered,

pedicels 10–15 mm, almost equal. Flowers fragrant. Perianth erect and cup-shaped at first, reflexed at anthesis; perianth segments in-rolled at apex during anthesis, linear to oblong, 3.5–4.5 \times 0.8–1.1 mm, obtuse to acute, segments white with green midvein. Filaments simple, white, fleshy, triangular at base, 3.2 \times 4.1 mm, somewhat shorter than perianth segments, gradually narrowed above. Anthers yellow. Ovary black at anthesis, 1.3 \times 1.6 mm, style filiform, stigma capitate. Capsule triquetrous, 4–5 \times 3.5–4.2 mm, green when fresh, light brown when dry, glabrous. Seeds black, 2–2.5 mm, rugose. Flowering and fruiting in April–May.

ADDITIONAL SELECTED SPECIMENS EXAMINED (paratypes). **Turkey.** C2/3 Antalya: Elmali, entering road of Cedrus Research Forest, openings in *Juniperus excelsa* and *Quercus coccifera* forests, 1150 m, 15.IV.2002 I. G. Deniz 1335, 1462, 2059, 2168, 2269; 1175 m, 16.V.2003 I. G. Deniz 2309 (AKDU).

The new species is morphologically relatively close to *Allium cyrilli* Ten., *A. orientale* Boiss. and *A. asclepiadeum* Bornm. but differs from them by the characters listed in Table 1.

DISTRIBUTION AND ECOLOGY: *Allium elmaliense* is known only from SW Anatolia (Fig. 2), and it represents East Mediterranean element. It grows in openings in *Quercus*–*Juniperus* forests and on open slopes in W Antalya between 1050 and 1175 m. Other important species of these habitats are *Juniperus excelsa*, *Quercus coccifera*, *Heli-anthemum salicifolium*, *Coronilla emerus* subsp. *emeroides*, *Geranium divaricatum*, *Arabis verna*, *Cruciata taurica*, *Valeriana dioscoridis*, *Asyneuma virgatum* subsp. *ciccoriiforme*, *Bupleurum sulphureum*, *Vincetoxicum canescens* subsp. *canescens*, *Lamium ehrenbergii* and *Descurainia sophia*.

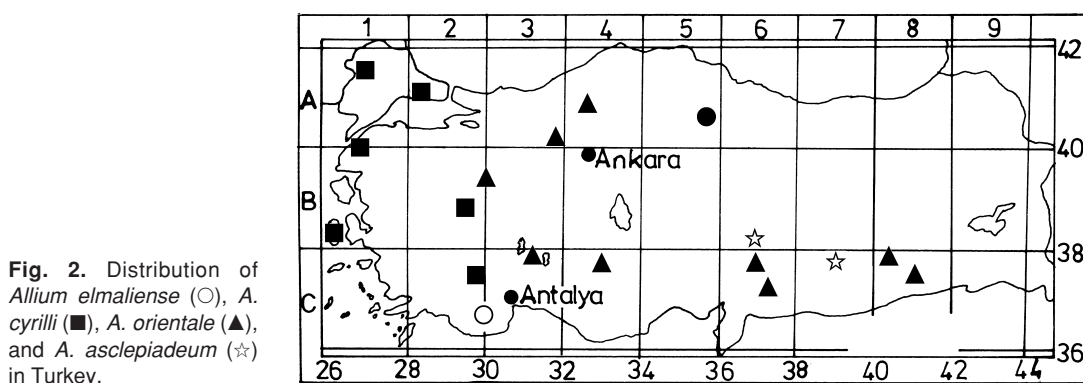
CONSERVATIONAL STATUS: Because *Allium elmaliense* is known only from one locality and the population is small, it should be regarded as belonging in the CR (Critically Endangered) category (IUCN 2001).

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Table 1. A comparison of *Allium elmaliense*, *A. cyrilli*, *A. orientale*, and *A. asclepiadeum*.

	<i>Allium elmaliense</i>	<i>Allium cyrilli</i>	<i>Allium orientale</i>	<i>Allium asclepiadeum</i>
Bulb	Outer tunics papery, brownish-black	Outer tunics membranous, black	Outer tunics membranous, greyish	Unknown
Stem	12–25(–30) × 0.15–0.25 cm	50–60(–90) × 0.7–0.9 cm	10–50 × 0.4–0.6 cm	10–20 cm
Leaves	Narrowly linear, 6–10(–13) × 0.2–0.6 cm, undulate margins without teeth	Broadly linear, 20–30 × 1–3 cm, plain margins without teeth	Linear to loriate, 15–25 × 1–3(–4) cm, often undulate margins without teeth	Linear to lanceolate, 0.7–2 cm broad, undulate margins with minute teeth
Flowers	Fragrant	Not fragrant	Fragrant	Fragrant
Pedicels	10–15 mm	15–25 mm	12–21(–29) mm	15–20 mm
Perianth	Segments reflexed, inrolled at apex at anthesis, linear to oblong, 3.5–4.5 × 0.8–1.1 mm, obtuse to acute	Segments reflexed, inrolled at apex at anthesis, linear, 6–7 × 1–1.75 mm, acute	Segments erect, not inrolled at apex at anthesis, oblong-elliptic, 6–7(–9) mm, obtuse	Segments reflexed, not inrolled at apex at anthesis, oblong, 6 mm long, slightly acute
Filament	Fleshy, whitish at base, somewhat shorter than perianth segments	Fleshy, whitish at base, somewhat shorter than perianth segments	Not fleshy, purple, yellowish or white at base, 3/4 × perianth segments	Not fleshy, purple at base, 1/2 × perianth segments
Ovary	Black	Green	Green	Purple
Capsule	Triquetrous, 4–5 × 3.5–4.2 mm	Triquetrous, 9–10 × 7–8 mm	Capsule globose, 5–6 × 5–6 mm	Shape unknown, 7 mm long
Seed	Rugose, 2–2.5 mm	Smooth, cell walls undulate, 4–4.5 mm	Smooth, cell walls undulate, 3–3.5 mm	Unknown

**Fig. 2.** Distribution of *Allium elmaliense* (○), *A. cyrilli* (■), *A. orientale* (▲), and *A. asclepiadeum* (☆) in Turkey.

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