**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*

Received 4 Aug. 2003, revised version received 24 Oct. 2003, accepted 24 Oct. 2003


**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 Elmali 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 10–40 mm), perianthiis segmentatis incurvis apice per anthesin (non incurvis apice), segmentatis primo erectis, posterior tota 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...*
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) × 0.2–0.6 cm, flat, glabrous, with clearly undulate margins, with no above-ground sheaths. Stem 12–25(=30) × 0.15–0.25 cm, terete, longer than leaves. Spathes persistent 2–3 lobes, lobes to 2 cm, acuminate at apex, creamy yellow with light purplish veins. Umbel hemispherical or fastigate, 3–3.5 × 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 × 0.8–1.1 mm, obtuse to acute, segments white with green midvein. Filaments simple, white, fleshy, triangular at base, 3.2 × 4.1 mm, somewhat shorter than perianth segments, gradually narrowed above. Anthers yellow. Ovary black at anthesis, 1.3 × 1.6 mm, style filiform, stigma capitate. Capsule triquetrous, 4–5 × 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.

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).

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, 30.IV.2001 I. G. Deniz 1254; 1150 m, 30.IV.2001 I. G. Deniz 1335, 1462, 2059, 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 ECLOGY: 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, Helianthemum salicifolium, Coronilla emerus subsp. emeroides, Geranium divaricatum, Arabis verna, Cruciata taurea, Valeriana dosioridis, Asyneuma virgatum subsp. ciceriiforme, 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).

Acknowledgements

We thank Dr. M. Koyuncu (Yüzünçü Yil University, Van) for checking our specimens and paper, Dr. H. Duman (Gazi University, Ankara) for checking our specimens, Dr. O. D. Düşen...
Table 1. A comparison of *Allium elmaliense*, *A. cyrilli*, *A. orientale*, and *A. asclepiadeum*.

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

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

(Akdeniz University, Antalya) for her constructive comments on the manuscript and Dr. R. Tekoğlu (Akdeniz University, Antalya) for checking the Latin diagnosis. The project *An investigation on the Flora of Elmali Cedar Research Forest* is funded by Akdeniz University Scientific Research Projects Unit (Project Number 21.01.0121.23). We are indebted to the Akdeniz University Scientific Research Projects Unit for financial support.
References


This article is also available in pdf format at http://www.sekj.org/AnnBot.html