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## A New Record for the Flora of Turkey: *Ambrosia tenuifolia* Spreng. (*Compositae*)

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**Abstract:** *Ambrosia tenuifolia* Spreng. (*Compositae*) is a new addition to the flora of Turkey from Malatya (in the East Anatolia region). The specimens collected from Malatya have different properties from the known diagnostic characteristics of the species. *A. tenuifolia* is a monoecious plant without glands. Its female capitula are in the axils of the upper leaves in its original description, but some of our specimens have only female capitula (female capitula in terminal racemes and lower parts of the racemes bracteate, but upper parts ebracteate) and there are many glands particularly on the tops of their fruits. The diagnostic characteristics, ecology of the species and important aspects of variation in our specimens are given.

**Key Words:** Flora, New Record, *Compositae*, *Ambrosia*, Turkey.

### Türkiye Florası İçin Yeni Bir Tür: *Ambrosia tenuifolia* Spreng. (*Compositae*)

**Özet:** *Ambrosia tenuifolia* Spreng. Türkiye florasına, Malatya'dan (Doğu Anadolu Bölgesi) yeni ilave edilmiştir. Malatya'dan toplanan örnekler türün bilinen tanımından bazı farklı özelliklere sahiptirler. *A. tenuifolia* monoik bir tür olup; salgı taşımamakta ve bilinen tanımında dişi kapitulalarının üst yaprak koltuklarında olduğu belirtilmektedir. Fakat bizim bu türe ait bazı örneklerimiz sadece dişi kapitula taşımakta (dişi kapitulalar uç salkımlarda; salkımların aşağı kısımları bırakteli, en üst kısımları bıraktesizdir) ve bitki, başta meyvanın uç kısımları olmak üzere salgı taşımaktadır. Burada türün tanıttıcı özellikleri, geliştiği ekoloji ve örneklerimizdeki varyasyon durumları üzerinde durulmaktadır.

**Anahtar Sözcükler:** Flora, Yeni kayıt, *Compositae*, *Ambrosia*, Türkiye.

### Introduction

In 1999, a student of our Biology Department brought some plant specimens from Malatya to the herbarium (VANF) of the Faculty of Science and Arts of Yüzüncü Yıl University. One of the specimens brought could not be identified using the Flora of Turkey (Kupicha, 1975; Davis et al., 1988). On 10 August, 2000, I went to the locality where the specimens were collected, observed the population and recollected a significant number of specimens. By means of the Flora of Turkey (Kupicha, 1975), the specimens were determined to be members of the genus *Ambrosia* L. However, our specimens were different from the two species (*A. maritima* L. and *A. elatior* L.) of *Ambrosia* whose distributions are known in Turkey (Kupicha, 1975; Güner et al., 2000). *A. maritima* is a Mediterranean element distribute along the shoreline of

the Mediterranean region (around Antalya [C3, C4 squares], Adana [C5 square] and Hatay [C6 square]) in Turkey, in a perennial shrub form (in Turkey). *A. elatior*, which was first recorded in 1995 around Trabzon (A7 square) in the Black Sea region, is native to North America (Byfield & Baytop, 1998). Our specimens were identified as *Ambrosia tenuifolia* Spreng. by means of Flora Europaea (Hansen, 1976). Although in the known description of *A. tenuifolia* it is monoecious, as in all other *Ambrosia* species (Kupicha, 1975; Hansen, 1976), some of our specimens have only female capitula (i.e., dioecious), though many of them have both male and female capitula.

The localities of the new record, where the populations consist of hundreds of the plants, and other information about the collection of the species follows.

*Ambrosia tenuifolia* Spreng. (Compositae)

Turkey, East Anatolia, B7 Malatya: Yukarı Banazlı, in apricot (*Armeniaca vulgaris* Lam.) garden, wheat (*Triticum aestivum* L.) field where the effect of humidity is continuous, field, corn (*Zea mays* L.) field and areas of cultivated vegetables (such as cucumber [*Cucumis sativus* L.], tomato [*Lycopersicon esculentum* Mill.]), pepper (*Capsicum annuum* L.), and uncultivated humid ruderal areas, 800 m, 10 viii 2000, L. Behçet (B 6390).

The specimens are deposited at VANF.

## Results and Discussion

All species of the genus *Ambrosia* are known to be monoecious, having unisexual capitula (Hansen, 1976). It has also been reported that male capitula are in terminal and ebracteate racemes, while female capitula are in the axils of the uppermost leaves alone or in clusters of 2-4 for all species of the genus with respect to inflorescence (Hansen, 1976). Some of our specimens, which we determined to be *A. tenuifolia*, deviated from the monoecious characteristic of the genus by having only female capitula. Our specimens belong to *A. tenuifolia*, which has different properties from species of the genus distributed in Turkey. Our specimens also differ from the known description of the species.

The following description of the species was based on the specimens collected from the localities mentioned above.

*Ambrosia tenuifolia* Spreng., Syst. Veg. 3: 851 (1826).

Annual up to 100 cm, usually monoecious, some individuals with only female capitula (like dioecious). Stem erect, branched, with long spreading-patent and short adpressed hairs and sparse short glands. Leaves bipinnatisect, up to 11 cm; lower ones opposite with up to 32 mm long petiole; upper leaves alternate, shortly petiolate or sessile, with dense short adpressed hairs, short glands and long spreading hairs mainly on basal portion. Most individuals with both staminate and pistillate capitula. Staminate capitula in spike-like, bractless (sometimes bracteate pistillate capitula may also occur among staminate capitula), terminal racemes, elongating at anthesis up to 20 cm, width 4-8 mm;

capitula hemispherical, drooping, to 30-flowered, pedicel 1-3 mm; involucre gamophyllous, cup-shaped 2-5 mm broad, crenately lobed, shortly hairy and glandular; receptacle with narrowly linear scales; corolla usually yellow, rarely purplish-red, tubular, glandular, 1.5 mm, with acuminate teeth, anthers c. 1 mm with a triangular appendage. Pistillate capitula usually solitary in axils of uppermost leaves just beneath male inflorescence, rarely in spike-like terminal racemes (lower parts of racemes bracteate, upper parts usually ebracteate), elongating at anthesis up to 8 cm (as racemes with staminate capitula) or among staminate capitula. Each pistillate capitulum with a single floret; involucre in flower 2 mm, corolla and pappus absent, style with 2 filiform elongate lobes. Involucre in fruit obovoid, 4-5 mm, weakly angled, glandular-pubescent with 7-8 mm spinose teeth; beak 1-1.2 mm, glandular-pubescent.

*A. maritima*, which is an element of the Mediterranean phytogeographic region, is distributed in certain places along the shoreline of the Mediterranean Sea up to 500 m altitude in the Turkish provinces of Antalya (C3, C4), Adana (C5) and Hatay (C6) (Kupicha, 1975). The distribution of *A. elatior* in Turkey was recorded in North-East Anatolia (on the shores of the Black Sea around Trabzon province [A7]), which has the climatically oceanic characteristics (Byfield & Baytop, 1998). The distribution of *A. tenuifolia*, which originated from temperate South America, is also known in southern France, north-east Spain and close to the Italian coast (Hansen, 1976). Since our specimens were found as a weed among various cultivated plants in Malatya (B6), which is located in the East Anatolia region far from the sea, with a long-lasting, harsh winter season, the existence of the species in Malatya is very interesting when considering the known the distribution area of the species. As in the above-mentioned description, our specimens show some important variations (inflorescence, bract, gland etc.) from known description of the species. It is possible that the species adapted to an ecology far from its places of origin. *A. tenuifolia* may have arrived in this region by means of cultivated plants such as cereal (wheat, barley, corn), vegetable (cucumber, tomato, pepper, eggplant) and sugar beet seeds as *A. tenuifolia* usually shows up as a weed among various cultivated plants.

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