

# A new alien species for the flora of European Turkey: *Galinsoga parviflora* (Asteraceae)

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**Abstract.** The alien genus *Galinsoga* with the species *G. parviflora* (Asteraceae) was added to the flora of European Turkey with the specimens collected from A1(E) Edirne. The specimens are deposited in EDTU. Given are the new geographical distribution, description of the species and illustrations. *G. parviflora* was investigated palynologically. The pollen grains are spherical, tricolporate, with echinate exine.

**Key words:** alien species, European Turkey, *Galinsoga parviflora*, pollen

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## Introduction

*Asteraceae* is one of the largest families of the plant kingdom, with approximately 23 000 species (Bremer 1994). The genus *Galinsoga* Ruiz & Pav. belongs to the tribe *Heliantheae* of *Asteraceae* (Davis & al. 1988) and comprises about 13 species of annual herbs distributed in the subtropical region (Cronquist 1980). Two species of the genus are found in Europe: *G. parviflora* Cav. and *G. ciliata* (Rafin) S. F. Blake (Hansen 1976). In the flora of Turkey the genus has been recorded for the first time with *G. parviflora* by Güner & al. (2000) from Rize (A8). More recently, *G. ciliata* was recorded by Kaya & Nemli (2003) from İzmir: Ödemiş (B1). Specimens of these two species were collected in Anatolia and none of them has been so far recorded from European Turkey (Webb 1966; Hansen 1976; Davis & al. 1988; Alpınar 1993; Özhatay & al. 1994, 2000; Byfield & Baytop 1998; Güner & al. 2000).

The paper presents a short morphological description and illustrations of the species based mainly on the collected specimens, as well as the distribution and pollen characteristics of the taxon.

## Material and methods

The species was collected at Edirne during field research into the *Asteraceae*. Voucher specimens were deposited in the Herbarium of the Trakya University (EDTU). Identification of the specimens was done according to Polunin (1969), Hansen (1976) and Güner & al. (2000).

Pollen slides were prepared according to Wodehouse (1935) and Erdtman (1964) and was measured with a micrometric ocular. All measurements were taken under an oil immersion objective ( $\times 100$ ) of an Olympus photomicroscope. Polar axis, equatorial diameter, exine and intine thickness, and colpi length of approximately 100 pollen grains were measured. The terminology used is according to Erdtman (1964). Photographs were taken by the same photomicroscope.

## Results and discussion

### *Galinsoga* Ruiz & Pav. (Tribe *Heliantheae*)

Annual herbs. Leaves opposite. Capitula heterogamous radiate, small, globose to subglobose, arranged in dichasial cymes. Phyllaries 1–2 seriate, few. Receptacle

conical, paleaceous. Ray flowers female, disc flowers hermaphrodite. Achenes obconical or obovoid-prismatic, the outer one compressed; pappus with several scales (Hansen 1976; Güner & al. 2000)

***G. parviflora* Cav.**, Icon. Descr. 3:41, t. 281 (1795)

(Figs 1–3)

An annual herb, 12–80 cm tall, stem erect, strongly branched, branches opposite. Leaf petioles up to 2 cm long; lamina ovate to lanceolate-ovate, 3.5–4.5 × 1.5–2.5 cm, apex acute, base cuneate to rounded, margin denticulate to coarsely serrate. Peduncles with short erecto-patent hairs (less than 0.5 mm) and a few short glandular hairs. Capitula heterogamous, 4–5 mm in diameter, globose to subglobose, arranged in dichasial cymes. Phyllaries broadly ovate, c. 4 mm, persistent. Receptacle conical, paleaceous. Ray flowers female, usually five in number, corolla white, obovate with 2–3 acute lobes; achenes four-sided, slightly curved, dark-brown to black, 1.5–2.5 × 0.5–0.9 mm, strigose at the apex. Disc flowers 10–40, hermaphrodite, yellow, 1.2–1.5 mm long. Achenes obconical, four-sided, the outer compressed, dark-brown to black, apex usually obtuse.

Pollen grains are tricolporate (colpus length is  $17.16 \pm 1.4 \mu\text{m}$ ; pore diameter  $5.00 \pm 0.71 \mu\text{m}$ ), spherical, with echinate exine and thin intine; pollen diameter:  $21.45 \pm 1.43 \mu\text{m}$  (Figs 4a, 4b).

Flowering in April–September. An alien species, growing in disturbed habitats.

Described from Paris & Madrid (Cult.). Grows on sandy fields, waste places and cultivated fields, 700 m (Hansen 1976; Güner & al. 2000).

Distribution in European Turkey (Fig. 3): A1(E) Edirne – Center, Karaağaç, at the roadside, 17.08.2004, coll. F. Dane, det. C. Meric, EDTU 8524; Center, Trakya University, Gullapoğlu Campus, at the roadside, 20.09.2004, coll. & det. C. Meric, EDTU 8525.

Distribution in Turkey: European Turkey, A1(E) Edirne (present study); N. E. Anatolia, on the islands, A8 Rize. It has been observed by Davis on Samos Island (Güner & al. 2000).

General distribution: *G. parviflora* originates from South America and is a weed growing in disturbed habitats and agricultural areas (Warwick & Sweet 1983; Byfield & Baytop 1998). It is widely naturalised in Europe (Hansen 1976), Asia, Africa and Australia.



Fig. 1. *G. parviflora*: general view.

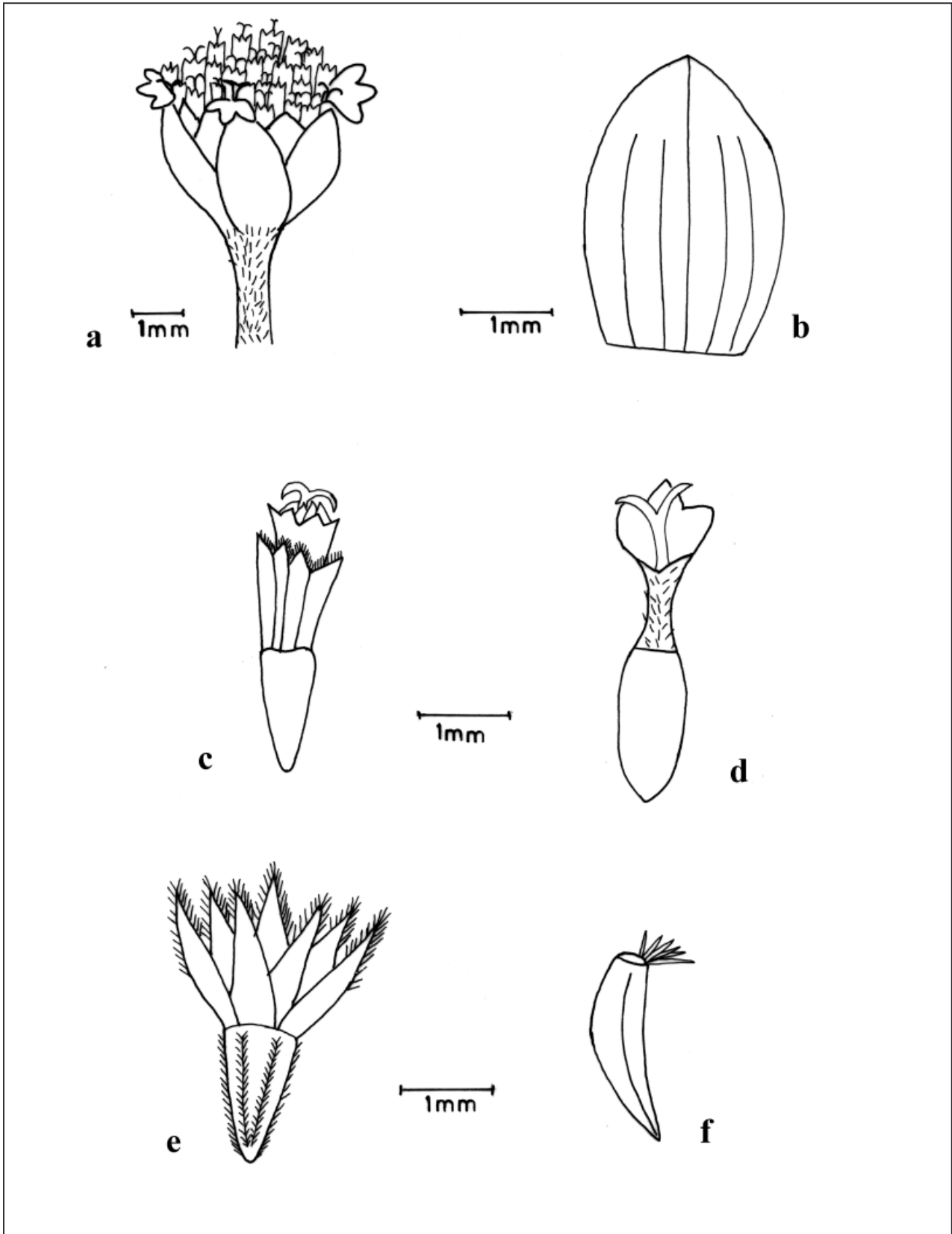


Fig. 2. Morphological characters of *G. parviflora*: a – capitula; b – involucral bract; c – tubulate floret; d – ligulate floret; e – tubulate achene; f – ligulate achene.



Fig. 3. Distribution map of *G. parviflora* in European Turkey.

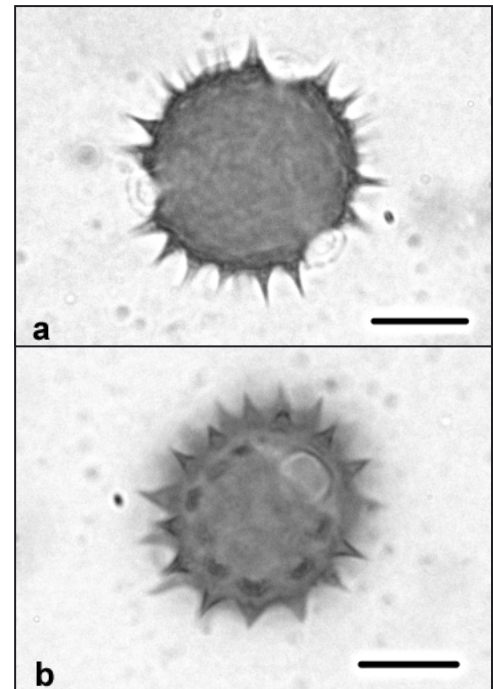


Fig. 4. Pollen grains of *G. parviflora*:  
a – polar view of tricolporate pollen grain;  
b – equatorial view of pollen grain (Bar = 10 µm).

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