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Note

The genus *Verbascum* L. ın European Turkey

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ABSTRACT: The study summarizes the chorology of *Verbascum* L. species in European Turkey. An identification key is prepared for these species. Generalized chorological data on the genus *Verbascum* from EDTU (Herbarium of Trakya University), ISTE (Herbarium of Istanbul University) and Huber Morath's records in the Flora of Turkey are given on the maps.

Key Words: *Verbascum,* chorology, flora of European Turkey.

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The genus *Verbascum* L. (Scrophulariaceae) comprises some 360 species around the world (Heywood 1993). In Turkey, the genus is represented by 243 species (including 129 hybrids). The endemism ratio of the genus is very high, with 193 endemic species (80%) (Huber-Morath 1978; Davis *et al.* 1988; Vural & Aydoğdu 1993; Karavelioğullari *et al.* 2004, 2006, 2009, 2011; Karavelioğullari & Aytaç 2008, Karavelioğullari 2009; Sutory 2001, 2004; Özhatay *et al.* 1996; Kaynak *et al,* 2006; Parolly & Tan 2007; Parolly & Eren 2008; Yilmaz & Dane 2008; Bani *et al.* 2010). The first revision of *Verbascum* belonging to Turkey was made by Huber-Morath for the *Flora of Turkey* (Huber-Morath 1978). Later, eight species and six hybrids were described (Vural & Aydoğdu 1993; Karavelioğullari *et al.* 2004, 2006, 2008, 2009, 2011; Sutory 2001, 2004; Kaynak *et al.* 2006; Parolly & Tan 2007; Parolly & Eren 2008; Yilmaz & Dane 2009), and three new species were recorded (Dane & Yilmaz 2005; Yilmaz & Dane 2008; Karavelioğullari 2009). The genus is classified in 13 artificial groups: A, B, C, D, E, F, G, H, I, J, K, L, M (Huber-Morath 1978), and 9 of these (not C, F, G and J) are in European Turkey (Table 1).

One hundred and fourteen natural hybrids are recognized in the *Flora of Turkey* and five of them are in European Turkey (Huber-Morath 1978). These are: *V. blattaria* L. x *sinuatum* L., *V. bugulifolium* Lam. x

Table 1. *Verbascum* species in European Turkey (Özhatay *et al.* 1996)

Group (A)	*V. orientale* (L.) All. *V. bugulifolium* Lam., *V. roripifolium* (Halacsy) I.K. Ferguson
Group (B)	*V. blattaria* L., *V. phoeniceum* L., *V. xanthophoeniceum* Griseb.,
Group (D)	*V. purpureum* (Janka) Hub.- Mor., *V. ovalifolium subsp. ovalifolium* *V. ovalifolium subsp. thracicum* (Velen) Murb.
Group (E)	*V. macrurum* Ten, *V. densiflorum* Bertol., *V. phlomoides* L., *V. lagurus* Fisch & Mey., *V.georgicum* Bentham in DC., *V. samniticum* Ten
Group (H)	*V. sinuatum* L. and *V. bithynicum* Boiss.
Group (I)	*V. pinnatifidum* Vahl, *V. degenii* (Hal), *V. gnaphalodes* Bieb.
Group (K)	*V. mucronatum* Lam.
Group (L)	*V. lasianthum* Boiss ex Bentham in DC.
Group (M)	*V. banaticum* Schrader, *V. speciosum* Schrader

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xanthophoeniceum Griseb., *V. phlomoides* L. x *sinuatum* L. *V. phlomoides* L. x *thapsus* L. , *V. pinnatifidum* Vahl x *sinuatum* L. In addition to this, three new hybrids has been added (Sutory 2001; 2004). These are:

- *Verbascum* × *edremiticum* K. Sutorý « nothosp. nova (=*V. gnaphalodes* Bieb., × *V. parviflorum* Lam.,
- *Verbascum* × *obtusifoliiforme* Sutorý « nothosp. nova (=*V. obtusifolium* Hub.-Mor. × *V. sinuatum* L.)
- *Verbascum* × *kovadanum* Sutorý « nothosp. nova (=*V. glomeratum* Boiss. × *V. nudatum* Murb.)

An identification key for the *Verbascum* species growing in European Turkey is prepared as follows:

1. Each bract with a single flower in its axil
  2. Flowers subtended by bracteoles as well as by a bract
    3. Anthers all reniform **1. *V. purpureum***
    3. Anthers of lower stamens decurrrent or obliquely inserted **2. *V. ovalifolium***
  2. Bracteoles absent
    4. Anthers all reniform
      5. Pedicels shorter than the subtending bract **3. *V. orientale***
      5. Pedicels longer than the subtending bract
        6. Basal leaves deeply crenate or weakly pinnatifid, crispate villous **4. *V. xanthophoeniceum***
        6. Basal leaves entire or slightly sinuate or weakly crenate, glabrous or sparsely pubescent **5. *V. phoeniceum***
    4. Anthers of lower stamens decurrent or obliquely inserted
      7. Pedicels 2-10 mm **6. *V. bugulifolium***
      7. Pedicels at least 12 mm
        8. Stamens 4 **7. *V. roripifolium***
        8. Stamens 5 **8. *V. blattaria***

1. At least the lower bracts each with a cluster of several flowers in its axil
    9. Anthers of lower stamens decurrent or obliquely inserted
      10. Upper cauline leaves distinctly decurrent
        11. Indumentum very dense, hard and rough **9. *V. macrurum***
        11. Indumentum ± sparse, often somewhat floccose, soft and smooth **10. *V. densiflorum***
      10. Upper cauline leaves not or scarcely decurrent
        12. Lower filaments glabrous **11. *V. phlomoides***
        12. Lower filaments villous, at least in part **12. *V. lagurus***
          13. Bracts linear – lanceolate **13. *V. georgicum***
          13. Bracts ovate to ovate – lanceolate **14. *V. samniticum***
    9. Anthers all reniform
        14. Basal leaves distinctly lobed
          15. Basal leaves lobed for c. 85% of distance to midrib. **15. *V. pinnatifidum***
          15. Basal leaves lobed for not more than 60% of distance to midrib **16. *V. sinuatum***
        14. Basal leaves not lobed
          16. Basal and lower cauline leaves cordate, truncate or very shortly cuneate at base **17. *V. banaticum***
          16. Basal and lower cauline leaves tapered gradually to the petiole
            17. Leaves densely and persistently whitish- or greyish- tomentose on both surfaces
              18. Pedicels longer than calyx **18. *V. speciosum***
              18. Pedicels not longer than calyx
                19. Flowers sessile **19. *V. mucronatum***
                19. Pedicels 2-8 mm **20. *V. lasianthum***
            17. Mature leaves sparsely tomentose to +- glabrous, green at least above
              20. Filament-hairs violet **21. *V. bithynicum***
              20. Filament-hairs whitish-yellow wool
                21. Inflorescence with numerous fastigiate branches; basal leaves linear-lanceolate, 10-20x1-4 cm **22. *V. degenii***
                21. Inflorescence simple or with few short branches; basal leaves lanceolate to elliptic, 10-50 x 3-15 cm **23. *V. gnaphalodes***

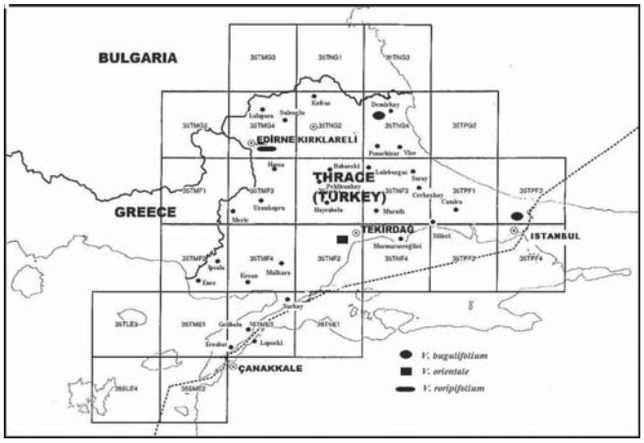

Fig.1. Localities of Group A (*V. orientale, V. bugulifolium, V. roripifolium*) in European Turkey.

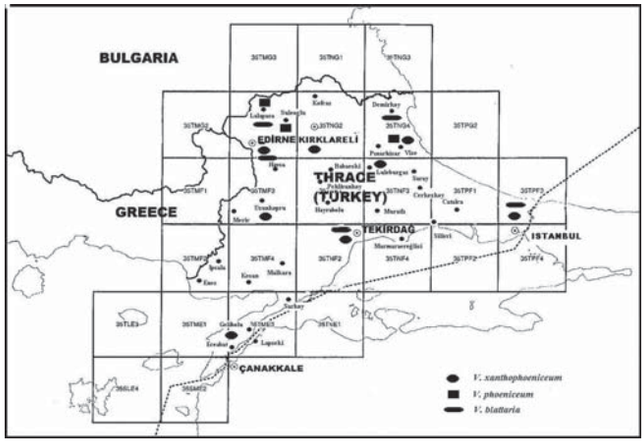

Fig. 2. Localities of Group B (*V. xanthophoeniceum, V. phoeniceum, V. blattaria*) in European Turkey.

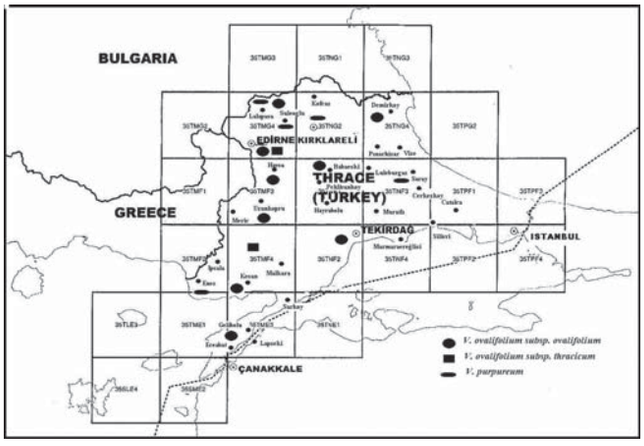

Fig. 3. Localities of Group D (*V. purpureum, V. ovalifolium subsp. ovalifolium, V. ovalifolium subsp. thracicum, V. purpureum*) in European Turkey.

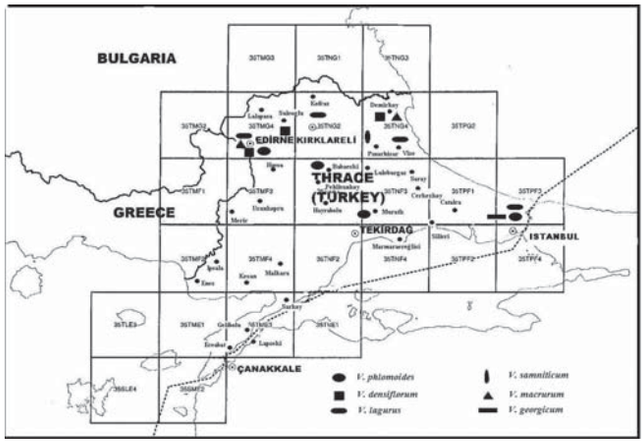

Fig. 4. Localities of Group E (*V. macrurum, V. densiflorum, V. phlomoides, V. lagurus, V.georgicum, V. samniticum*) in European Turkey.

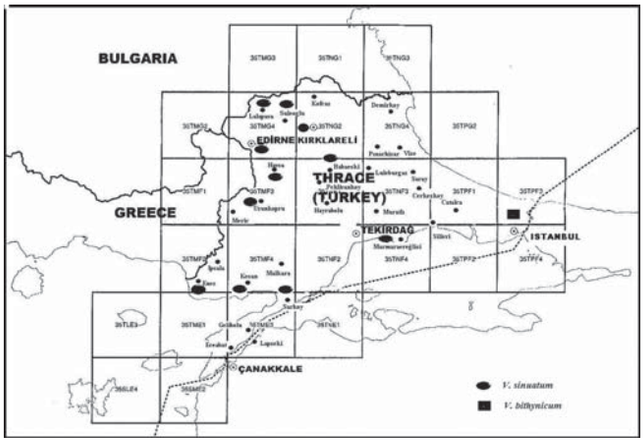

Fig. 5. Localities of Group H (*V. sinuatum* and *V. bithynicum*) in European Turkey

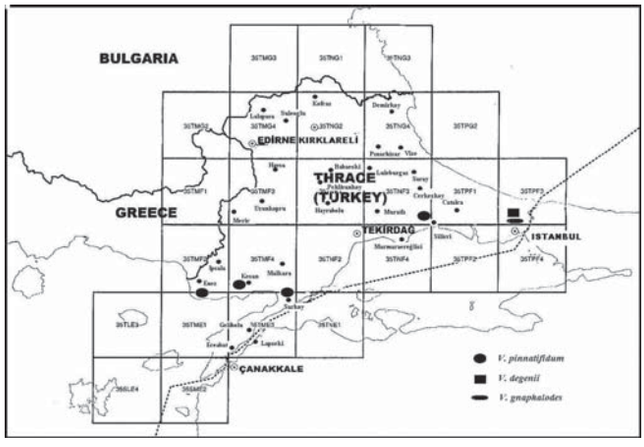

Fig. 6. Localities of Group I (*V. pinnatifidum, V. degenii, V. gnaphalodes*) in European Turkey.

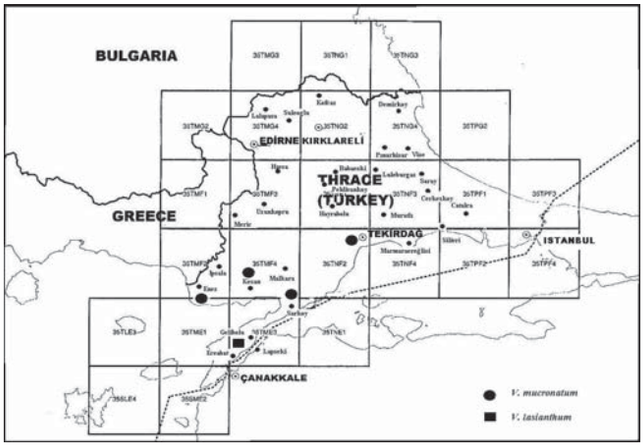

Fig. 7. Localities of Group K (*V. mucronatum*), Group L (*V. lasianthum*) in European Turkey.

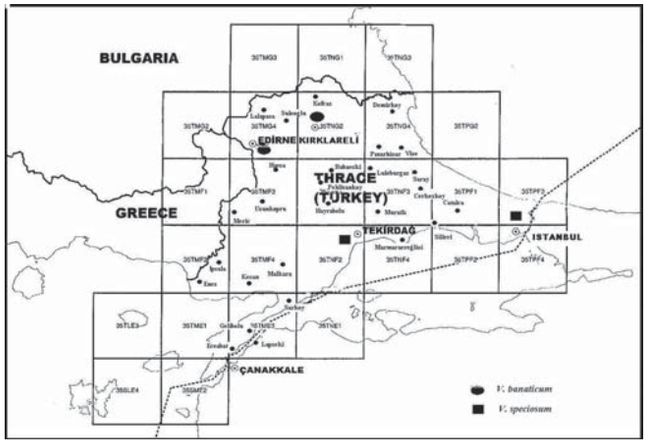

Fig. 8. Localities of Group M (*V. banaticum* and *V. speciosum*) in European Turkey.

In European Turkey, *V. bithynicum* is endemic and listed in [LR] (Lower Risk), *V. degenii* is endemic and listed in [CR] (Critically Endangered), *V. ovalifolium* subsp. *thracicum* is listed in [EN] (Endangered) and *V. banaticum* is listed in [VU] (Vulnerable) categories (Ekim *et al*. 2000).

Localities in the maps were given according to the records (Huber-Morath 1978) and the records in Trakya University Herbarium (EDTU) and Istanbul University Herbarium (ISTE) (Fig. 1-Fig. 8). As one can see from the localities given in the maps, all *Verbascum* species except *V. sinuatum* have limited distributional range in the region. Also, most of the species are under risk of extinction as most of the localities where they were found are along roads where agricultural and building construction activities are dense. On some occasions, it was impossible to find a given species in a locality where it had previously been collected. Considering all these facts which are negatively effecting the presence of *Verbascum* species in the region, it is clear that protection measures should be taken for these species.

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REZIME

Rod *Verbascum* L. u evropskom delu Turske

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Rad daje uvid u horologiju vrsta roda *Verbascum* u Evropskom delu Turske. U radu se daje ključ za identifikaciju vrsta. Horološki podaci iz herbarskih zbriki EDTU (Herbarium Univerziteta Trakija), ISTE (Herbarium Univerziteta Istanbul) i zbirke Flore Turske Huber-Morath-a predstavljeni su na mapama.

Ključne reči: *Verbascum,* horologija, flora Turske.