

Scutellaria columnae All. (Lamiaceae), a new record for the flora of Turkey

Türkiye florası için yeni bir kayıt, *Scutellaria columnae* All. (Lamiaceae)

Bilge TUNÇKOL¹ 
Hasan HAŞAYACAK² 

¹ Bartın Üniversitesi, Ulus Meslek Yüksekokulu, Bartın

² 10. Doğa Koruma ve Milli Parklar Bölge Müdürlüğü, Sinop

Sorumlu yazar (*Corresponding author*)

Bilge TUNÇKOL
btunckol@bartin.edu.tr

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Şükrü Teoman GÜNER
stguner@gmail.com

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Abstract

Plant specimens belonging to the *Scutellaria* genus of the Lamiaceae family were collected from Zonguldak (Ereğli), Bolu (Gölcük), Bartın (Ulus-Uluyayla), Kastamonu (Azdavay-Cide) and Sinop (Ayancık) provinces in the north of Turkey between 2018-2021. The collected plant samples were dried in accordance with herbarium techniques. After detailed herbarium studies and literature reviews, it was determined that this species does not take place in the flora of Turkey, and it is *Scutellaria columnae* All. With this new record added to the *Scutellaria* genus in our country, the number of taxa belonging to this genus in Turkey has increased to 41. In this study, there are descriptions, detailed photographs, and distribution areas of *Scutellaria columnae*, as a new species record for Turkey. With new studies to be carried out in different regions, it is thought that new endemic, natural and invasive species records will be added to the floristic richness of our country, which has not been fully revealed yet.

Key words: Scutellarioideae, skullcap, identification key, new floristic record, Northern Turkey.

Öz

Lamiaceae familyasının *Scutellaria* cinsine ait bitki örnekleri Türkiye'nin kuzeyindeki Zonguldak (Ereğli), Bolu (Gölcük), Bartın (Ulus-Uluyayla), Kastamonu (Azdavay-Cide) ve Sinop (Ayancık) illerinden 2018-2021 yılları arasında yapılan arazi çalışmalarında toplanmıştır. Toplanan bitki örnekleri herbaryum tekniklerine uygun olarak kurutulmuştur. Sonrasında yapılan detaylı herbaryum çalışmaları ve literatür taramalarında bu türün Türkiye florasında yer almadığı ve *Scutellaria columnae* All. olduğu tespit edilmiştir. Ülkemiz *Scutellaria* cinsine eklenen bu yeni kayıt ile Türkiye'de bu cins ait takson sayısı 41'e yükselmiştir. Bu çalışmada Türkiye için yeni bir tür kaydı olarak verilen *Scutellaria columnae* ile ilgili türün betimi, ayrıntılı fotoğrafları ve yayılış alanları yer almaktadır. Farklı bölgelerde yapılacak yeni çalışmalarla ülkemizin halen tam olarak ortaya çıkarılmamış floristik zenginliğine yeni endemik, doğal ve istilacı tür kayıtlarının ekleneceği düşünülmektedir.

Anahtar Kelimeler: Scutellarioideae, skullcap, tanı anahtarı, Türkiye'nin kuzeyi, yeni floristik kayıt.



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1. Introduction

Lamiaceae is one of the biggest families of flowering plants with about 236 genera and 7.200 species (Stevens, 2017). The genus *Scutellaria* L. contains about 471 species, and it is the third largest genus of Lamiaceae (Paton, 1990a; Harley et al., 2004). Commonly known as skullcaps, *Scutellaria* is widespread in Europe, the United States, and East Asia. The genus reaches its largest diversity in the Irano-Turanian phytogeographic region of Asia (Willis, 1966; Paton, 1990a; Paton, 1990b; Bruno et al., 2002; Çiçek and Yaprak, 2013; Govaerts et al., 2021).

Many *Scutellaria* species possess medicinal uses, and some species are of economic importance (Lee et al., 2018; Zhao et al., 2020).

Most *Scutellaria* species are annual or perennial from 5 cm to 1 m tall, but a few are subshrubs, and some are aquatic. The stems are four-angled, leaves opposite. The flowers have an upper and a lower lip. The genus is identified by the typical shield (scutellum) on the calyx (Harley et al., 2004).

In the genus *Scutellaria*, 37 taxa have been reported from Turkey (Edmondson, 1982; Greuter and Raus, 1984; Greuter et al., 1986; Tan and Sorger, 1987; Davis et al., 1988; Khokhrjakov, 1997; Duman, 2000). Three more *Scutellaria* species were added to Flora of Turkey recently (Çiçek and Ketenöglü, 2011; Çiçek and Yaprak, 2011; Çiçek and Yaprak, 2013; Yıldırım et al., 2021). Consequently, with one synonymization and the description of a new species, the total number of *Scutellaria* taxa in Turkey has risen to 41.

2. Materials and methods

During floristic studies in the Zonguldak, Bolu, Bartın, Kastamonu, and Sinop provinces of Turkey, specimens belonging to the genus *Scutellaria* were collected. Based on a detailed examination of available specimens and relevant literature (Boissier, 1879; Juzepczuk, 1954; Richardson, 1972; Bothmer, 1981; Rechinger, 1982; Federov, 2000), the specimens were identified as *Scutellaria columnae* All. As a result of the literature review (Edmondson, 1982; Davis et al., 1988; Duman, 2000; Çiçek, 2008; Çiçek, 2012), it was seen that this species has not been recorded previously in Turkey.

This study was carried out by personal field investigations, examination of the herbarium specimens kept in the Herbarium of the Royal Botanic Garden Edinburgh, and analysis of literature. The species were identified based on personal observations of

herbarium materials and living plants.

During field trips to Ereğli district of Zonguldak province, Lake Gölcük of Bolu province, Ulus district and Uluyayla Plateau of Bartın province, Ayancık district of Sinop, and Azdavay and Cide districts of Kastamonu province between 2018 and 2021, we encountered a noteworthy *Scutellaria* population. Then, it was determined that the samples collected from this population are different from *S. altissima* and were identified as *S. columnae* based on Flora of Europea.

Documenting specimens were deposited in the Düzce University Faculty of Forestry Herbarium (DUOF) and the Bartın University Ulus Vocational School Plant Samples Laboratory. Photographs were taken in the field using a Sony Alpha A6000 Camera, and morphological observations were made using an Olympus SZ61 stereo microscope.

3. Results and discussion

Taxonomic descriptions, a key to the genus *Scutellaria* in Turkey, plant habit photographs and photographic documentation of plant morphology, conservation status, and relevant notes are provided in this paper Figure 1.

Scutellaria columnae All., Fl. Pedem. 1: 40 (1785).

3.1. Description: Stems 40-70 cm, erect, simple or branched. Leaves 3-9 x 2-5 cm, ovate, crenate-serate, cordate at base, acute, subglabrous to sparsely pubescent. Flowers secund. Bracts 4-8 mm, shorter than the flowers, ovate to ovate-lanceolate, entire, acute, green. Corolla 18-28mm, strongly curved, purplish; lower lip whitish (white central band); tube pubescent outside (Richardson, 1972).

3.2. Phenology and habitat: Flowering in April to mid-June, fruiting from July to August. The habitat of this plant is deciduous woodlands, up to 1500 m. In each location, it was observed that 10-20 individuals were found growing on a 400 m² area of the forest floor in association with *Actaea spicata* L., *Carpinus betulus* L., *Clinopodium grandiflorum* (L.) Kuntze, *Fagus orientalis* Lipsky, *Galeopsis bifida* Boenn., *Gentiana asclepiadea* L., *Geranium robertianum* L., *Lactuca muralis* (L.) Gaertn., *Lathyrus venetus* (Mill.) Wohlf., *Potentilla micrantha* Ramond ex DC., *Rubus hirtus* Waldst. & Kit., *Salvia glutinosa* L., *Saxifraga rotundifolia* L., *Staphylea pinnata* L., and *Veronica chamaedrys* L.

3.3. Distribution and life form: Algeria, Albania, Bulgaria, Greece, Spain, Italy, Libya Romania, Tunisia (Richardson, 1972) and now Turkey (Western Black Sea Region, Figure 2). In Turkey, it grows on

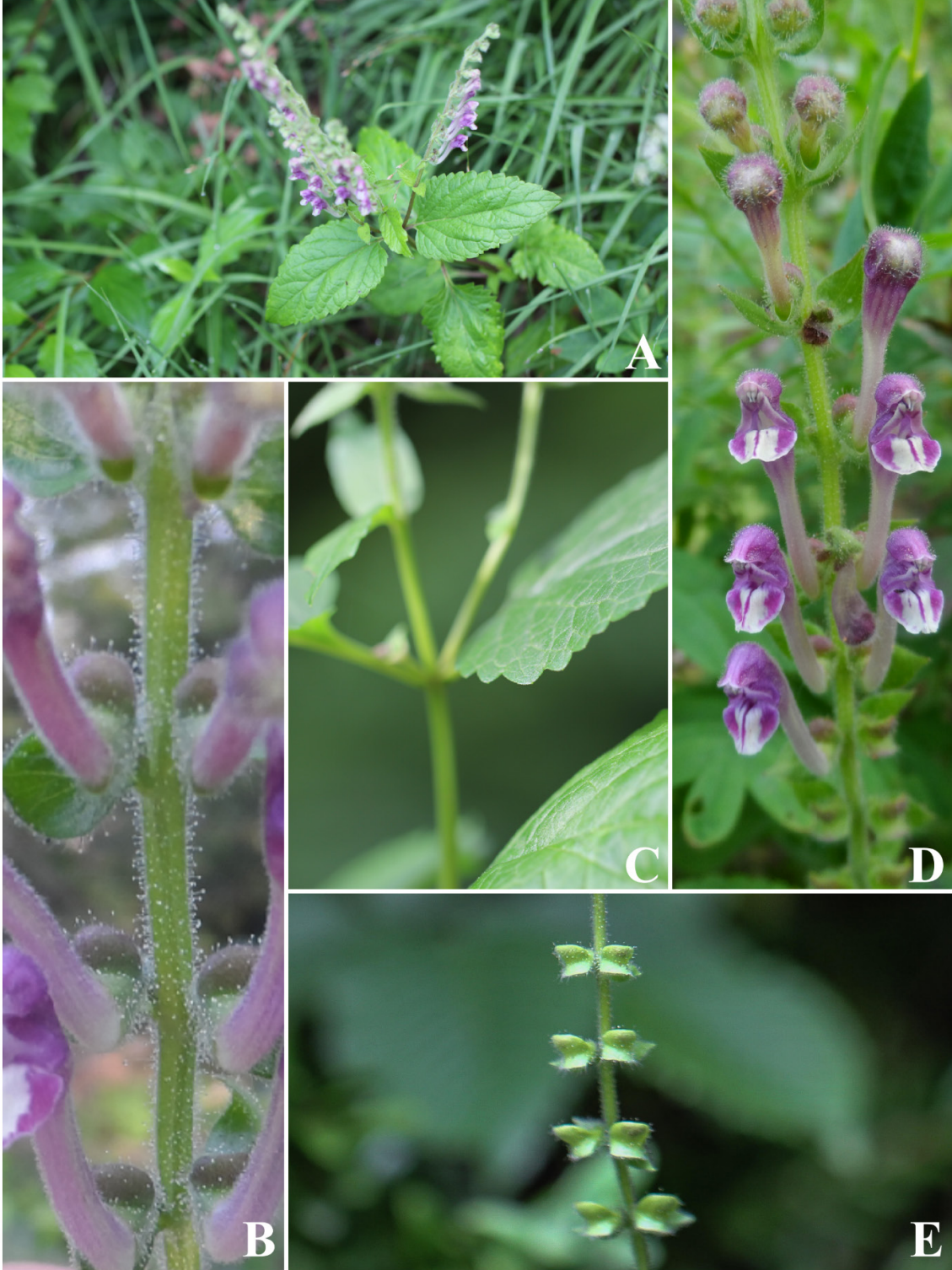


Figure 1. General appearance of *Scutellaria columnae* All.: a. plant habit, b. stem, c. leaf (adaxial surface), d. inflorescence, e. mature calyx with scutellum in fruiting.
Şekil 1. *Scutellaria columnae* All. genel görünümü: a. bitki habitusu, b. gövde, c. yaprak (sapa yönelik), d. çiçek kurulu, e. olgun kaliks meyve veren scutellum.

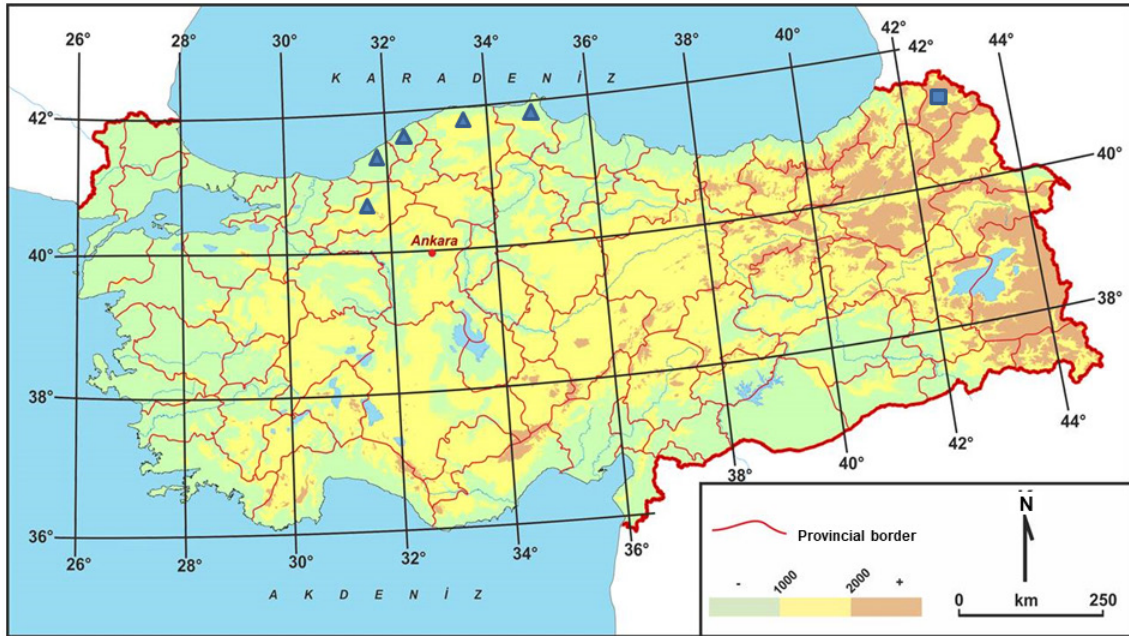


Figure 2. Localities of new record *Scutellaria columnae* in Turkey are denoted by triangles (Zonguldak, Bolu, Bartın, Kastamonu, and Sinop) and the locality of *S. altissima* is denoted by a square (Kars).

Şekil 2. Yeni kayıt *Scutellaria columnae*'nin Türkiye'deki lokaliteleri üçgenlerle (Zonguldak, Bolu, Bartın, Kastamonu ve Sinop), *S. altissima*'nın lokalitesi (Kars) kare ile gösterilmiştir.

forest floors and open forest habitats in Zonguldak, Bolu, Bartın, Kastamonu and Sinop provinces. Hemicryptophyte.

3.4. Examined specimens: TURKEY, from Ereğli district (41°14'44"K, 31°26'65"D) of Zonguldak province, to Lake Gölçük (40°39'18"K, 31°37'92"D) of Bolu province, to Ulus district and Uluyayla Plateau (41°32'68"K, 32°46'34"D) of Bartın province, to Azdavay and Cide districts (41°47'96"K, 33°24'22"D) of Kastamonu province and Ayancık district (41°56'90"K, 34°36'79"D) of Sinop, (B. Tunçkol 6100, DUOF).

3.5. Conservation status: Although newly discovered in Turkey, the species is widely distributed throughout the country. Specimens were collected in 5 provinces at 10 localities.

3.6. Key to distinguish the closely related *Scutellaria columnae* and *S. altissima*

1a Corolla 18-28 mm, purplish, lower lip white central band, strongly curved, tube pubescent, nutlets each wart with stelliform*S. columnae* All.

1b Corolla 12-18 mm, bluish, lower lip whitish, not strongly curved, tube glabrescens outside, nutlets each wart few short white hairlets.....*S. altissima* L.

We propose the following identification key to be inserted into the keys for the species of *Scutellaria* occurring in Turkey.

4. Conclusion

Scutellaria altissima was recorded in two localities as a rare species according to Flora of Turkey (Edmondson, 1982): N. Turkey; A2 (E) Istanbul, Cumani and A4 Kastamonu: 40 km from Azdavay to Cide, 800 m, D. 38693!). The *İstanbul*, Cumani locality was designated as doubtful. Because our recent field trip to these locations revealed that the habitat of the *İstanbul*, Cumani record has been deteriorated due to rapid urbanization, while the *Scutellaria* samples collected from the location between the Azdavay and Cide districts of Kastamonu province were identified as being *S. columnae*. Additionally, since the samples collected from Bolu, Zonguldak, Bartın, Kastamonu, and Sinop provinces were identified as *S. columnae*, it is obvious that *S. altissima* records in the Flora of Turkey need revision.

Apart from these records of *S. altissima*, the record given by Sorger A9 Kars: Umgebung von Posof, Buschwald, Feldrand, Trockenwiesen, 1500-1800 m, 05.08.1982, Sorger 82-106-67 (W), remains to be confirmed.

As a result of lots of flora and vegetation studies that have been conducted in Turkey, it is seen that the number of natural plants in Turkey has been

increased. It is predicted that this ongoing process of the new records for the natural species will continue.

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