



**Notes on *Schistidium brunnescens* subsp. *griseum* (Nees, Hornsch. & Sturm) H.H. Blom (Grimmiaceae) from Aladağlar National Park (Turkey)**

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**Abstract**

In the present study, *Schistidium brunnescens* subsp. *griseum* (Nees, Hornsch. & Sturm) H.H. Blom was recorded for the second time from Turkey. The specimens collected from Aladağlar National Park, one of the largest national parks in Turkey. The taxonomical characters of taxon was photographed by imaging system.

**Key words:** Aladağlar National Park, Moss, *Schistidium brunnescens* subsp. *griseum*, Turkey

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**Aladağlar Milli Parkından (Türkiye) *Schistidium brunnescens* subsp. *griseum* (Nees, Hornsch. & Sturm) H.H. Blom (Grimmiaceae) Üzerine Notlar**

**Özet**

Bu çalışmada *Schistidium brunnescens* subsp. *griseum* (Nees, Hornsch. & Sturm) H.H. Blom Türkiye'den ikinci kez kaydedilmiştir. Örnekler Türkiye'nin en büyük milli parklarından birisi olan Aladağlar Milli Parkından toplanmıştır. Taksona ait taksonomik karakterler görüntüleme sistemi ile fotoğraflandırılmıştır.

**Anahtar kelimeler:** Aladağlar Milli Parkı, Karayosunu, *Schistidium brunnescens* subsp. *griseum*, Türkiye

**1. Introduction**

Although the investigations of *Pteridophyta* and *Spermatophyta* in Turkey have been thoroughly researched in 11 volumes (Davis *et al.*, 1965-1988; Güner *et al.*, 2000), the floristic and ecological studies about bryophytes of our country are still insufficient. However, the majority of floristic studies on bryophytes have focused on the western, southern and northern Anatolia (Can *et al.*, 2013; Arıöz *et al.*, 2012; Düzenli *et al.*, 2011; Batan and Özdemir, 2011; Cangül and Ezer, 2010; Ezer *et al.*, 2009; Uyar *et al.*, 2007; Savaroğlu and Tokur, 2006; Özdemir, 2001). However, as it can be seen in published studies; these studies still can not explain floristic condition of most parts of Anatolia.

Although the knowledge is not satisfactory enough to write a comprehensive flora (bryophyte flora), it is sufficient to display a general view of flora of our country. The study is aimed to contribute to bryophyte flora of our country to remove the determined deficiency for the research area by researching bryophyte flora of Aladağlar National Park.

**2. Materials and methods**

**2.1. Study area**

Aladağlar National Park, one of the largest national parks in Turkey is situated in the middle part of the Taurus mountain range. It has many different habitats and ecosystems because of it's phytogeographical location joining Mediterranean and Irano-Turanian.

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The Irano-Turanian which occupies the north-western and western parts are within Niğde province and the northern parts are within Kayseri province. The Mediterranean which forms the southern and eastern parts are within Adana province. These phytogeographical regions have given Aladağlar National Park the richness of floristic diversity. Inside this huge park of around 55.000 hectares, the summit of Demirkazık at 3756m is the highest point in the middle Taurus mountain range.

The climate of the research area is Mediterranean characterised by dry summers and warm temperatures. The annual mean precipitation is 707.2 mm in Pozantı, 451.2 mm in Yahyalı, and 388.7 mm in Çamardı. This is a typical first variant of the East Mediterranean climate in Pozantı and second variant of the East Mediterranean climate in Yahyalı and Çamardı stations. According to Emberger's Mediterranean Bioclimate layers classification, the study area is semi-arid and Mediterranean (Akman, 1999; Halıcı and Aksoy, 2009).

In Aladağlar National Park, mainly forest vegetation, steppe vegetation, and rock vegetation are seen. It is located in the C13 square in the grid system adopted by Henderson in 1961 (Figure 1).

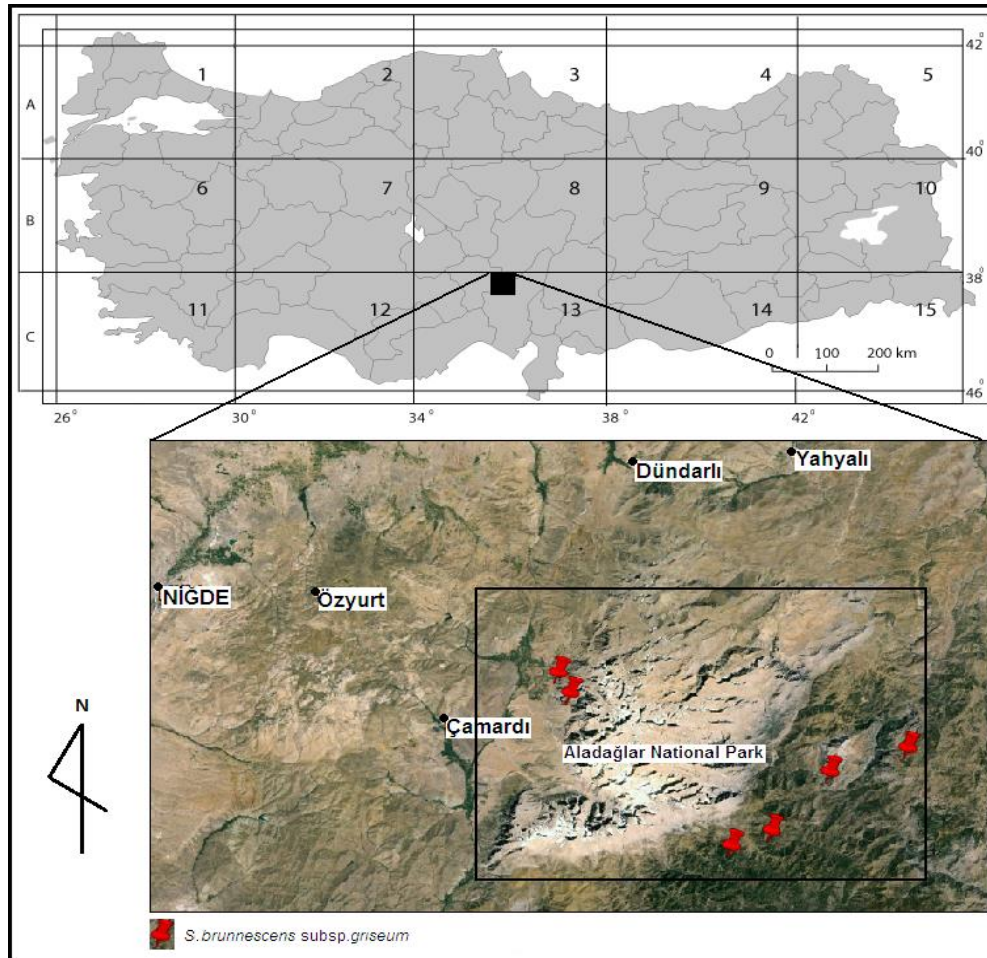


Figure 1. The Grid System of Turkey adopted by Henderson (1961) and Aladağlar National Park (changed from Google Earth)

## 2.2. Data source

The specimens collected from Aladağlar National Park. According to the grid-square in the system of Turkey Henderson (1961) study area is located C13 square. The specimens collected from the various localities were identified using appropriate literatures and then latest situations of the taxon for Turkey have been assessed using the related literature (Smith, 2004; Pedrotti, 2001; Heyn and Herrnstadt, 2004; Nyholm, 1986). Localities of samples collected are shown Table 1. The taxonomical characters of taxon was described and photographed by imaging system. All samples are stored in the herbarium of the Niğde University. The taxon was presented as poster presentation in International Conference on Environmental Science and Technology (ICOEST Cappadocia 2013).

Table 1. Locality details of collected samples

Taxon	Locality	GPS	Altitude (m)	Substrate	Light	Moisture
<i>Schistidium brunnescens</i> Limpr. subsp. <i>griseum</i> (Nees & Hornsch.) H.H.Blom	Kapuzbaşı Waterfalls Under the Elif waterfall	37°46'30" K 35°23'38" D	698	on rock	partial shade	moist
	The cliff at the upper slope of the Pınarbaşı village	37°52'753" K 35°06'608" D	1615	rock crevice	partial shade	moist
	Teke boynu place	37°46'629" K 35°19'152" D	1270	on rock	partial shade	Dry
	Hacer Forest, Fasıcı place	37°47'900" K 35°17'887" D	1608	on rock	partial shade	Moist
	Acıman plateau	37°43'811" K 35°17'584" D	1928	on rock	sunny	Dry
	Cimbar Valley	37°51'284" K 35°06'858" D	1930	on rock	partial shade	Dry

### 3. Results and Discussion

In this study, *Schistidium brunnescens* subsp. *griseum* (Nees, Hornsch. & Sturm) H.H. Blom was recorded for the second time from Turkey.

*Schistidium brunnescens* subsp. *griseum* was collected by Crundwell, Nyholm and Saenger from Isparta-Barla Mountain which located C12 square in 1972 (Krypto-S).

**Description.** Plants dark-green to brownish, robust or medium-sized, up to 2.5 cm. Leaves ovate to lanceolate, lamina often bistratose, Hair-point 0.22-1 mm and finely spinulose, Leaves of different shape and sometimes with ridge-like plicae, costa strong, 1µm wide at leaf base, 3-4 stratose in upper and 5-6 stratose in lower part. Capsule common but sporophytes sparse, reddish brown, oblong. Plants grows on calcareous rocks in the area. The taxonomical characters of taxon were given Figure 2.

**Distribution.** South Scandinavia, Central and Southern Europe, Turkey.

*Schistidium brunnescens* subsp. *griseum* is very similar to *S. elegantulum* in terms of leaf shape but differ from this species by shorter urn and with ridge-like plicae leaves.

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Figure 2. The taxonomical characters of *Schistidium brunnescens* subsp. *griseum*. 1. General view, 2-3. Capsule, 4. Cells on the capsule, 5-6. Leaves, 7-8. Cross section of leaves, 9. Leaf base cells, 10. Median leaf cells, Apical leaf cells

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