



## A new record for Turkish mycota from Akdağmadeni (Yozgat) province: *Russula decolorans* (Fr.) Fr. Epicr.

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## Türkiye mikotası için Akdağmadeni (Yozgat)'den Yeni Bir Kayıt: *Russula decolorans* (Fr.) Fr. Epicr.

**Abstract:** In this study, macrofungi samples identified as *Russula decolorans* were collected in Akdağmadeni (Yozgat) province and recorded for the first time for the Turkish mycota. A short description of new record, illustrations, locality, collection date and habitat are provided.

**Key words:** Akdağmadeni, biodiversity, new record, *Russula decolorans*, Turkey

**Özet:** Bu çalışmada *Russula decolorans* olarak teşhis edilen makrofungus örnekleri Akdağmadeni (Yozgat) yöresinden toplandı ve Türkiye mikotası için ilk kez kaydedildi. Yeni kaydın kısa bir açıklaması, fotoğrafları, konumu, koleksiyon numarası ve habitatı verildi.

**Anahtar Kelimeler:** Akdağmadeni, biyoçeşitlilik, *Russula decolorans*, Türkiye, yeni kayıt

### 1. Introduction

The *Russula* Pers. (*Russulaceae*, *Russulales*, *Basidiomycota*) which was erected by Persoon (1796), is an important genus with high diversity in the *Russulaceae* family. The members of the genus are ectomycorrhizal symbionts and have great ecological and economical importance. They are an important food source for insects and larger animals. Many species are also collected for nutritional purposes by people. Species of *Russula* are identified easily looking at some macroscopic and microscopic features such as: amyloid warty spores, mostly sphaerocysts (spherical cells in a heteromerous trama), absence of latex, the hyphae without clamp connections, colorful brittle pileus (Miller and Buyck, 2002, Liang et al. 2015).

As it is the case worldwide, studies on determining the fungal diversity in Turkey have increased. According to Sesli and Denchev (2014), 2158 macrofungi species were recorded from Turkey. Of these, 215 are Ascomycota and 1943 are Basidiomycota. Some biodiversity studies were also carried out in recent years (Kaya and Uzun, 2015; Akata and Doğan, 2015; Kaya, 2015; Kaya et al., 2015; Türkekul and Işık, 2016; Doğan and Kurt, 2016; Sesli et al., 2016a, Sesli et al., 2016b, Kaya et al., 2016; Sesli and Topcu Sesli, 2017; Sesli and Vizzini, 2017; Demirel et al., 2017; Akata et al., 2017; Kaya et al., 2017; Aktaş et al., 2017).

Akdağmadeni is a district of Yozgat province where the *Pinus sylvestris* L. populations are concentrated. *Pinus nigra* J.F. Arnold and members of the genera *Quercus*, *Rosa*, *Crataegus*, *Populus*, *Pyrus*, *Corylus*, *Salix* and *Juniperus* are some other components of forest vegetation.

### 2. Materials and Method

Macrofungi samples were collected from Davulbaz village-Akdağmadeni (Yozgat) district in spring 2014. Specimen were photographed and morphological and

ecological characteristics were recorded in their natural habitats. Then the samples were brought to the laboratory and spore print was obtained. Some chemical reagents (KOH 5%, melzer's reagent, cotton blue, safranin etc.) were used for the examination of microscopic structures. Characteristic features related to lamellae, structure of pileipellis, basidium, basidiospores, and cheilocystidia were obtained. The taxon was identified with the aid of Phillips (1981), Moser (1983), Kränzlin (2005), and Jordan (1998). All materials were stored in the fungarium in Department of Biology, Gaziosmanpaşa University, Tokat.

### 3. Results

The systematic of the new species is in accordance with Kirk et al. (2008) and Index fungorum (<http://www.indexfungorum.org>: accessed 04 October 2017). Short description locality, collection date, habitat, photograph of basidiomata, microphotographs of basidiospores, cheilocystidia, elements of pileipellis, basidia of the newly recorded species are provided below.

#### Fungi

#### Basidiomycota

#### Russulaceae

*Russula decolorans* (Fr.) Fr. Epicr. syst. mycol. (Upsaliae): 361(1838)

Syn: *Agaricus decolorans* Fr., Syst. Mycol. (Lundae) 1: 56 (1821) = *Myxacium decolorans* (Fr.) P. Kumm., Führ. Pilzk. (Zerbst): 91 (1871) = *Russula rubriceps* (Kauffman) Singer, Mycologia 35(2): 151 (1943) = *Russula decolorans* var. *albida* A. Blytt & Rostr., in Blytt, Skr. Vidensk Selsk. Christiania, Kl. I, Math.-Natur.(no. 6): 107 (1905) = *Russula decolorans* var. *cichoriata* Melzer & Z. Schaef., Holubinky (Praha): 21 (1944) = *Russula decolorans* var. *cinnamomea* Melzer, Holubinky (Praha): 21 (1944) = *Russula decolorans* var. *tenera* Melzer, Holubinky (Praha): 20 (1944).

**Pileus** 50-110 mm across, subspherical at first then flattened-convex with incurved margin and flattening, finally with a depression, surface even to slightly venose-tuberculate, dull to silky, ocher-orange to orange red, margin obtuse and margin slightly striate in old age. **Flesh** white, thick, quickly turning gray-black when cut, sometimes also turning orange-red in places, odorless, taste mild. **Lamellae** whitish at first, soon cream-colored with a green-yellow tone, lightly graying when bruising, narrow, close. **Stem** 45-90(100) × 10-25 mm cylindrical, firm, often with clubshaped base, solid when young, soon stuffed to hollow, surface longitudinally venosa, white when young, graying and then blackening with age and bruised or handled, ring absent. **Spores** hyaline, ovate to elliptical, 8.5-11.9 × 7-8.8 µm, ornamented with warts of varying height, spines of various heights up to 1.5 µm, spore print deep cream to pale ochre. **Basidia** clavate, 30-48 × 10-14 µm, with 4 sterigma. **Cheilocystidia** fusiform, 65-100 × 11-12 µm. **Pileipellis** cylindrical, generally flexuous and branched hairs with one or two septa, 2-4 µm across, Edible (Figure 1).

Habitat, solitary or in scattered groups in coniferous forests under coniferous trees, on moist to wet, nutrient-

and nitrogen-poor, chalk-free soils (Kränzlin, 2005; Jordan, 1998).

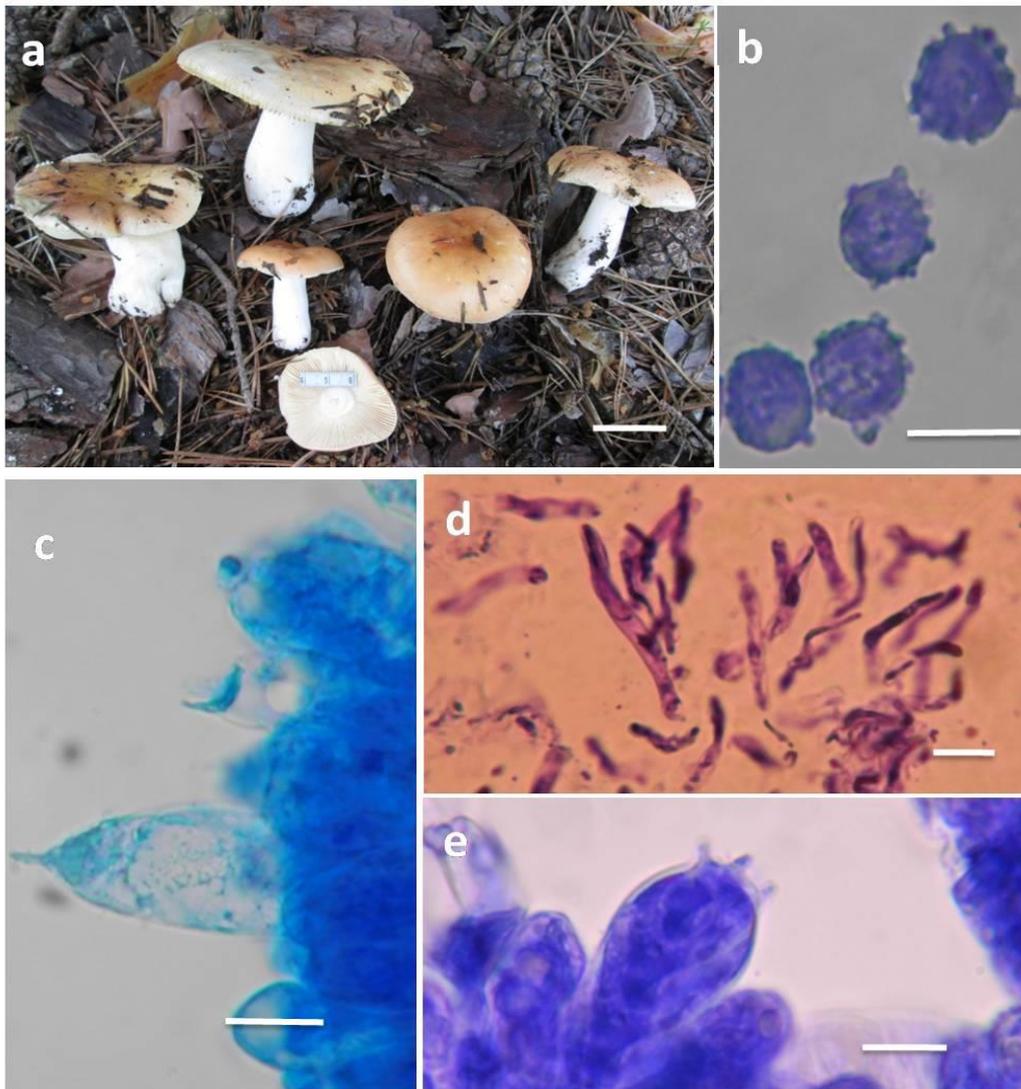
Akdağmadeni (Yozgat)-Davulbaz village, among needle litters in *Pinus sylvestris* forest, 39° 36' 246" K, 035° 52' 790" D, 17.06.2014, 1581 m, ISIK 713.

#### 4. Discussions

*Russula* is represented by more than 2000 species worldwide (Kirk et al., 2008) and with 100 taxa in Turkey (Sesli and Denchev, 2014). *Russula decolorans* grow on acidic, moist soils in montane coniferous forests or on high moors. This species may be confused with *R. paludosa* Britzelm. because of the similarity of pileal colors. *R. decolorans* can be distinguished from *R. paludosa* by having larger and more strongly ornamented spores. Though the flesh of *R. decolorans* quickly turns gray-black when cut (especially in the stipe), *R. paludosa* does not turn gray, spotting yellowish appearance on the bruised places (Kränzlin, 2005).

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**Figure 1.** *Russula decolorans*: a- basidiomata, b- basidiospores (in cotton blue), c- cheilocystidia (in cotton blue+KOH), d- elements of pileipellis (in safranin), e- basidia (in cotton blue) (scale bars: a= 30 mm; b,c,d and e= 10 µm).

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