

NEW RECORD OF *MONTAGNEA ARENARIA* (FUNGI, AGARICALES) AND ITS DISTRIBUTION IN POLAND

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Abstract: *Montagnea arenaria* (DC.) Zeller, one of the rarest and most threatened fungi in Poland, was found in a new locality in xerothermic sward of Pomerania (NW Poland). The habitat, ecology and geographical distribution of *M. arenaria* in Poland are reviewed.

Key words: Gasteromycetes, agaricoid fungi, *Montagnea arenaria*, distribution, Pomerania, Poland

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The genus *Montagnea* Fr. includes terricolous, psammophilous and thermophilous fungi found on almost all continents. Of the two species of this genus known worldwide, only one, *Montagnea arenaria* (DC.) Zeller, has been noted in Europe (Reid & Eicker 1991; Rudnicka-Jeziarska 1991; Hawksworth *et al.* 1995; Kreisel 2001).

The taxonomic status of the genus *Montagnea* is formulated in various ways. For example, Šebek (1958) and Rudnicka-Jeziarska (1991) place it in the order Podaxales, whereas Jülich (1984) and Michael *et al.* (1988) include it in the order Agaricales. According to Hawksworth *et al.* (1995), the genus *Montagnea* belongs to the type Basidiomycota, class Basidiomycetes, order Agaricales and family Podaxaceae.

In Poland, *Montagnea arenaria* is a very rare fungus, known previously from only two localities (Skirgiełło 1977; Rudnicka-Jeziarska 1991), so the finding of a new locality in Pomerania is worth noting. This species appears on the 'red list' of Polish threatened macrofungi as endangered (E) (Wojewoda & Ławrynowicz 1992).

Montagnea arenaria (DC.) Zeller

Mycologia **35**: 418. 1943.

Agaricus arenarius DC., Flore France **6**: 45. 1815. – *Montagnites arenarius* (DC.) Morse, Mycologia **40**: 256. 1948.

Montagnites candollei Fr., Epicrisis p. 241. 1838. – *Montagnites pallasii* Fr., Epicrisis p. 241. 1838. – *Montagnea candollei* (Fr.) Corda, Icones Fung. **6**: 85. 1854. *Montagnea radiosa* (Pallas) Šebek, Česka Mykol. **8**: 144. 1954.

For other synonymy see Šebek (1958), Reid and Eicker (1991) and Kreisel (2001).

Basidiocarps initially egg-shaped, soft and surrounded by volva, mature with stipe and pileus-shaped peridium, solitary or gregarious. Top of stipe disk-shaped, pileiform, 1.2–3.0(3.5) cm across, disk yellow to yellowish brown, marginal zone with lamellae to ca 2/3 of the distance to the center when old; lamellae free, blackish-brown to black, not deliquescent; gleba between lamellae, black. Stipe 4.0–23.0 × 0.4–2.0 cm, equal, yellow-white to yellowish, fleshy when young, then hollow, becoming hard and ligneous with age, smooth when young, then furrowed and fibrillous-scaly (with small and yellow-white squamulae). Volva white to yellowish, united with base of stipe, free on top. Basidia clavate or pyriform, 4-spored, sterigmata short. Basidiospores dark brown (black in mass), broadly egg-shaped to ellipsoid, changing in shape, thick-walled, smooth, with ± conspicuous germ pore, (10.0–)12.4–16.3(–17.5) × 7.4–8.3(–10.0) μm (Fig. 1).

SPECIMEN EXAMINED. POLAND. POMERANIA. Nizina Szczecińska lowland: Stary Przylep Reserve, ca 1 km S of Stary Przylep village, ca 8 km NE of Pyrzyce,



Fig. 1. *Montagnea arenaria* (DC.) Zeller: basidiospores.

xerothermic sward (*Cirsio-Brachypodium pinnati* Hadač & Klika 1944 em. Krausch 1961 association), grid square Ca06, 28 June 2001, leg. B. Prajs (SZUB).

Montagnea arenaria grows mostly in dry, open, sandy places, in dunes, deserts, semideserts and steppes. It is a widespread species found on almost all continents from the tropics up to warm regions of the temperate zone, where it is a relatively frequent fungus (Reid & Eicker 1991; Rudnicka-Jeziarska 1991; Kreisel 2001). It is known from North and South Africa (Algeria, Canary Islands, Egypt, Libia, Mauritania, Morocco, South Africa, Chad, Tunisia), North, South and Central America (Argentina, Cuba, Mexico, U.S.A.), Asia (e.g., Afghanistan, Armenia, China, Georgia, Iran, Iraq, Israel, Kazakhstan, Pakistan, Russia, Saudi Arabia, Tajikistan, Turkey, Turkmenistan, Uzbekistan, Yemen), Australia and Southern and Central Europe (e.g., Zeller 1943; Šebek 1958; Eckblad 1970, 1975; Guzmán & Herrera 1973; Saber 1986; McKnight & McKnight 1987; Illana *et al.* 1989; Reid & Eicker 1991; Kreisel 2001).

It has been noted in Europe, including Austria, the Czech Republic, France, Germany, Greece, Italy, Hungary, Poland, Rumania, Russia, Spain and Ukraine (e.g., Šebek 1958; Pilát 1969; Skirgiełło 1977; Pacioni & Lalli 1981; Malençon 1982; Kreisel 1987, 2001; Illana *et al.* 1989; Rudnicka-Jeziarska 1991). It has not been published from some regions of Europe; for example, it has not been noted in western Germany (Krieglsteiner 1991). In eastern Germany it has been found in only a few localities (Kreisel 1987).

In Poland *M. arenaria* was found for the first time in 1958 by Skirgiełło (1977) in the Bielinek

Reserve on the Odra river, where it grew on a strongly insolated hill between clusters of *Stipa* L. It was not found again at that locality in the 1970s and later (Friedrich 1991; Bujakiewicz 1997). The species was found for the second time in 1972 on a hill in Przemyśl, where it grew among grasses in a sandy place under *Robinia pseudoacacia* L. (Rudnicka-Jeziarska 1991).

A new locality of *M. arenaria* was found in the Stary Przylep xerothermic reserve situated in western Pomerania (Fig. 2). In June 2001, only one specimen was found (old and rather dry) on a steep slope with a southern exposure, in a dry sward with a substantial contribution of *Dianthus carthusianorum* L. and *Veronica spicata* L., developed on sandy-loam subsoil. The community is impoverished xerothermic sward of *Cirsio-Brachypodium pinnati* Hadač & Klika 1944 em. Krausch 1961 association (order *Festucetalia valesiaceae* Br.-Bl. & R. Tx. 1943).

The locality of *Montagnea arenaria* in the Stary Przylep Reserve is the third locality of this species in Poland, and probably the northernmost one in Europe.

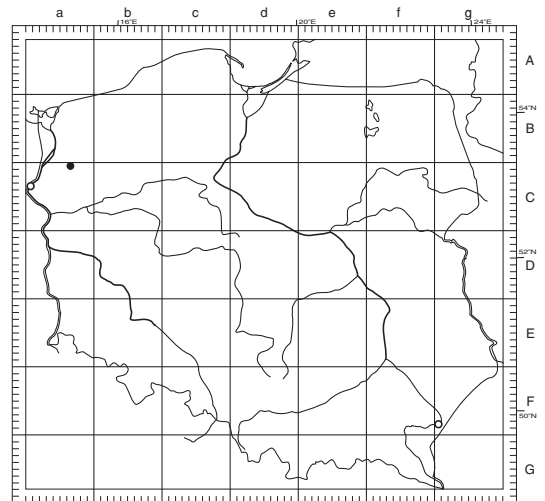


Fig. 2. Distribution of *Montagnea arenaria* (DC.) Zeller in Poland, using the grid square system of the *Atlas of the geographical distribution of fungi in Poland* (Wojewoda 2000): ● – new locality, ○ – known localities.

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