

SHORT COMMUNICATION

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Cortinarius rubellus, a poisonous species new to Japan

Received: March 12, 2004 / Accepted: July 30, 2004

Abstract *Cortinarius rubellus* is reported for the first time from Japan. It has been found in Yamanashi Prefecture (Mt. Yatsugatake), central Japan, growing in subalpine coniferous forests from August to September. A description and illustrations based on the Japanese material are given.

Key words Coniferous forest · Cortinariaceae · *Cortinarius rubellus* · Distribution · New record

Recently, a *Cortinarius* species was collected by the author in subalpine coniferous forests on Mt. Yatsugatake in Yamanashi Prefecture, central Japan, and identified as *Cortinarius rubellus* Cooke following the concept of Melot (1987) and Brandrud et al. (1990). It is well known as a deadly poisonous species in Europe (Michelot and Tebbet 1990) but, to the best of my knowledge, has not been reported in Japan.

Macroscopic and microscopic descriptions are based on fresh specimens. Color nomenclature refers to *Manual of Color Names* (Japan Color Research Institute 1973), and color codes in parentheses are from *The Munsell Book of Color* (Munsell Color 1963). Microscopic characters were examined on the material mounted in 5% KOH. A total of 50 basidiospores from mounted lamellae were examined for size. All specimens are deposited in the herbarium of Yamanashi Forestry Research Institute (YFH), Yamanashi, and a part in the herbarium of Tottori Mycological Institute (TMI), Tottori.

Cortinarius rubellus Cooke, Grevillea XVI(78): 44, 1887.
= *C. orellanoides* Rob. Henry, Bull. Soc. Mycol. Fr. 53(1): 61, 1937.
= *C. speciosissimus* Kühner et Romagnesi, Fl. Champ.: 287, 1953.

= *C. orellanoides* var. *speciosissimus* G. Consiglio, D. Antonini et M. Antonini, Il genere *Cortinarius* in Italia Parte primo: A109, 2003.

Figs. 1–3

Pileus 40–70 mm in diameter, conical to campanulate, then convex, often acutely umbonate with age; reddish-orange (2.5 YR 5/14); surface fibrillose, appressed squamulose toward margin, dry; margin at first inrolled with cortina, decurved with age; context light yellow (2.5 YR 8/16) when young, yellowish-orange (5 YR 6/14) when old. Lamellae adnexed, subdistant, at first yellowish-orange (7.5 YR 6/14), then deep brownish-gold (5 YR 5/12) with age. Stipe 40–100 mm long, 5–15 mm broad, cylindrical to clavate, sometimes subbulbous at base, solid; surface silky fibrillose, dry, reddish-orange (2.5 YR 5/14) with light yellow (2.5 Y 8/16) wooly bands, apex often more yellowish; context light yellow (2.5 Y 8/16) to bright orange (5 YR 6/14). Cortina light yellow (2.5 Y 7/12) or bright orange (5 YR 5/12). Taste mild; odor faintly radish-like. KOH (20%) reactions on the pileus and stipe context are grayish-brown (10 YR 4/4). Spore print brownish-gold (7.5 YR 5/10).

Basidiospores 8–11(–13) × 6.5–8.5(–10) μm (mean 9.6 × 7.6 μm, *n* = 50), length/breadth ratio 1.2–1.5, broadly elliptical to subglobose, densely verrucose, pale yellowish-brown in KOH. Basidia 45–60 × 9–12 μm, clavate, 4-spored. Cheilocystidia 20–35 × 5.5–12 μm, clavate, hyaline. Hymenophoral trama parallel, of hyphae 3–10 μm in diameter, often inflated. Pileipellis on epicutis up to 25 μm thick, of narrow hyphae 3–7 μm in diameter, reddish-brown to hyaline walls, sometimes with yellowish-brown incrustation and orange-brown content in KOH; hypodermium well-differentiated, made up of inflated cells 15–30(–45) μm in diameter, with yellowish-brown to hyaline walls, yellowish to reddish-brown incrustation in KOH solution. Clamp connections frequent.

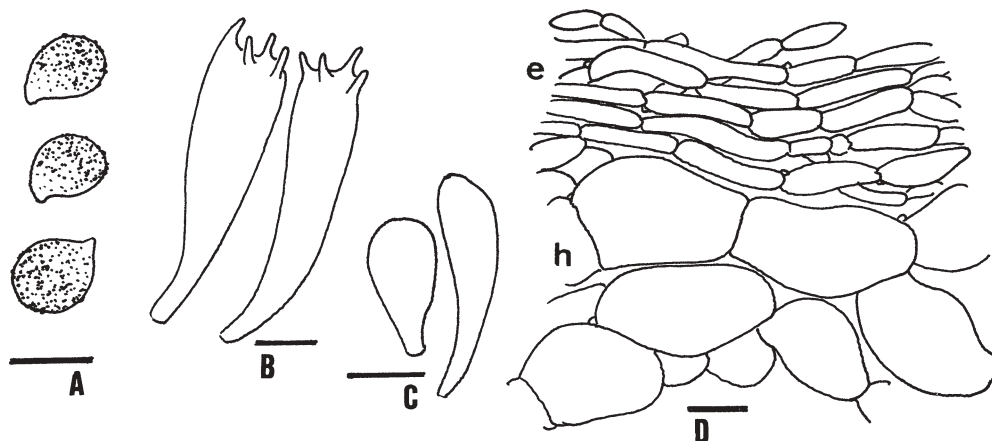
Habit and habitat: Often growing in small groups, on nutrient-poor and acid soils in subalpine coniferous forests near or under *Picea koyamae* Shirasawa, *Abies mariesii* Masters, or *Tsuga diversifolia* (Maxim.) Masters; August and September.

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Figs. 1, 2. 1 Basidiomata of *Cortinarius rubellus* (YFH010906) in habitat. 2 Basidiomata of *Cortinarius rubellus* (YFH010906). Bars 20 mm

Fig. 3. *Cortinarius rubellus* (YFH010906). **A** Basidiospores. **B** Basidia. **C** Cheilocystidia. **D** Hyphae of epicutis (*e*) and hypodermium (*h*). Bars 10 μ m



Distribution: Europe and North America. New to Japan.

Specimens examined: Yamanashi Pref., Oizumi-mura, Mt. Yatsugatake (Mitsugasira, 1800m above sea level), in *P. koyamae*-*T. diversifolia* forest, Aug. 30, 1998, coll. H. Shibata, YFH980901; Yamanashi Pref., Kobuchizawa-cho, Mt. Yatsugatake (Amigasadake, 1900m above sea level), in *P. koyamae*-*A. mariesii* forest, Sept. 2, 2001, coll. H. Shibata, YFH010906.

Japanese name: Jingasa-doku-fusentakake.

Notes: This is the agaric species that has been well known as *C. speciosissimus* (Høiland 1980; Thorn and Malloch 1994) in the European and North American literature. Melot (1987) and Brandrud et al. (1990) have adopted an older name, *C. rubellus*, for this species, treating *C. speciosissimus* as its synonym. The treatment is followed here. The Yamanashi collections coincide well with the de-

scriptions given by Brandrud et al. (1990), Breitenbach and Kränzlin (2000), Consiglio et al. (2003, as *C. orellanoides* var. *speciosissimus*), and Høiland (1980, as *C. speciosissimus*) based on European materials. The significant characteristics of *C. rubellus* include (1) reddish-orange umbonate pileus with fibrillose surface, (2) reddish-orange stipe with light yellow wooly bands, (3) broadly elliptical to subglobose basidiospores, and (4) growing in subalpine coniferous forests.

Cortinarius rubellus belongs to subgenus *Leproclybe* along with its close relatives, *C. orellanus* (Fr.) Fr. and *C. limonium* (Fr.: Fr.) Fr., both not known in Japan. *Cortinarius orellanus* is distinct in occurring primarily in hardwood forests and having a paler yellowish stipe without bands of veil remnants on the surface. *Cortinarius limonium*, also occurring in coniferous forests, is separable in having a

hygrophanous, non- or barely umbonate pileus colored brighter yellow to yellowish-orange. Among the five species of Japanese members of *Leprocybe* (Hongo 1987), *C. aureobrunneus* Hongo (Hongo 1977) somewhat resembles *C. rubellus*. However, *C. aureobrunneus* is clearly different in the following points: (1) a hardwood forest species, (2) the pileus lacking an acute umbo, (3) the stipe with bulbous base and lacking bands of veil remnants on surface, and (4) the spores being globose.

Cortinarius rubellus is well known as a deadly poisonous species in Europe (Michelot and Tebbett 1990) as well as its close relatives *C. orellanus* and *C. limonius*, causing many cases of fatal poisoning. However, no case of poisoning presumably caused by this species or its relatives has been reported in Japan so far.

Acknowledgments The author thanks Dr. Eiji Nagasawa, Tottori Mycological Institute (TMI), for his critical reading of the manuscript.

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