

Agaricales of West Bengal, India. II. Agaricaceae: *Chlorophyllum*

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Chlorophyllum rhacodes, a member of Agaricaceae was collected from Kumirmari Island under Gosaba block of South 24 Pargana district and was reported for the first time from West Bengal. A detailed macro and microscopic features were presented in this paper.

Key words: Agaricaceae, *Chlorophyllum rhacodes*, new record, West Bengal

Gosaba block, one of the main deltaic islands in the Sundarban region, includes 14 villages among which Kumirmari (22.1865705 N/ 88.9253783 E) is one of the farthest. This village sees a juncture between typical coastal vegetation and adjoining Sundarban core region, where soil is medium to highly saline with low fertility. Rising sea levels and recent incidences of cyclones e.g., Aila have added to the vulnerability of the region to natural catastrophes. It was therefore felt necessary to inventorize the cryptogamic population like macrofungi which directly or indirectly are driving various ecological processes for the sustenance of the region. Literature suggests that the macrofungal diversity of this area has not been explored in the past. After the incidence of cyclone Aila, a macrofungal survey was conducted in Kumirmari village and interestingly many species were found growing, sometimes luxuriant and tolerant to the miasms of nature. Our laboratory is in the process of surveying macrofungal diversity of West Bengal and has so far succeeded in unveiling the existence of many unknown macrofungal species of this state (Acharya and Acharya, 2001; Acharya and Bhutia, 2003a; Acharya *et al.*, 2003b, 2004a, 2004b, 2010; Rai *et al.*, 2005, Dutta *et al.*, 2011).

In this communication, we are reporting *Chlorophyllum rhacodes* (Vittad.) Vellinga as a new

record from West Bengal, India. Literature survey reveals that in India, it was reported earlier from Tamil Nadu, Madras (Manjula, 1980; Natarajan and Manjula, 1981).

The study material was collected during the field trip of 26th June, 2010 from Kumirmari Island under Gosaba Block, South 24 Pargana district, West Bengal. The morphological as well as ecological features of the fresh specimens were studied and colour photographs were taken in the field. Latitude/ Longitude of the place were noted with Garmin etrex GPS machine. The specimens were brought to the laboratory and microscopic features were determined by using Carl Zeiss AX10 Imager A1 phase contrast microscope. Microscopic studies were carried out on dry samples, mounted in 5% KOH and Congo red. For spore measurement, 30 spores from two matured collections (n=30) were studied. Line drawings were made with the rotring 0.1 mm pen; microscopic line drawings were drawn with the help of camera lucida. The specimens were identified according to Pegler (1986) and Vellinga (2002), and they are deposited with the accession code AMFH in the Mycological Herbarium of University of Calcutta, Kolkata, West Bengal, India.

***Chlorophyllum rhacodes* (Vittad.) Vellinga**

Common name†: Shaggy Parasol.

Basionym**: *Macrolepiota rhacodes* var. *rhacodes*

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Synonyms*

Agaricus procerus b *rhacodes* (Vittad.) Rabenh. [as 'rachodes'], *Deutschl. Krypt.-Fl.* (Leipzig) 1 (1844)
Agaricus procerus var. *rhacodes* (Vittad.) Rabenh., *Deutschl. Krypt.-Fl.* (Leipzig) 1: 574 (1844)
Agaricus rhacodes Vittad. [as 'rachodes'], *Descr. fung. mang. Italia*: 158 (1835)
Agaricus rhacodes Vittad., *Descr. fung. mang. Italia*: 158 (1835) var. *rhacodes*
Lepiota procera var. *rhacodes* (Vittad.) Masee, *Brit. Fung.-Fl.* 3: 234 (1893)
Lepiota rhacodes (Vittad.) Quél. [as 'rachodes'], *Mém. Soc. Émul. Montbéliard*, Sér. 2 5: 70 (1872)
Lepiota rhacodes (Vittad.) Quél., *Mém. Soc. Émul. Montbéliard*, Sér. 2 5: 5 (1872) f. *rhacodes*
Lepiota rhacodes (Vittad.) Quél., *Mém. Soc. Émul. Montbéliard*, Sér. 2 5: 5 (1872) subsp. *rhacodes*
Lepiota rhacodes (Vittad.) Quél., *Mém. Soc. Émul. Montbéliard*, Sér. 2 5: 70 (1872) var. *rhacodes*
Lepiophyllum rhacodes (Vittad.) Locq., *Bull. mens. Soc. linn. Lyon* 11: 40 (1942)
Lepiophyllum rhacodes (Vittad.) Locq., *Bull. mens. Soc. linn. Lyon* 11: 40 (1942) var. *rhacodes*
Leucocoprinus rhacodes (Vittad.) Pat., *Essai Tax. Hyménomyc.* (Lons-le-Saunier): 171 (1900)

Macrolepiota rhacodes (Vittad.) Singer, *Lilloa* 22: 417 (1951) [1949]
Macrolepiota rhacodes (Vittad.) Singer, *Lilloa* 22: 417 (1951) [1949] f. *rhacodes*
Macrolepiota rhacodes (Vittad.) Singer, *Lilloa* 22: 417 (1951) [1949] var. *rhacodes*
Macrolepiota rhacodes var. *venenata* (Bon) Gminder, *Die Großpilze Baden-Württembergs*, 4. Ständerpilze: Blätterpilze II (Stuttgart): 443 (2003)
Macrolepiota venenata Bon, *Docums Mycol.* 9(no. 35): 13 (1979)

Position in classification:**

Fungi, Basidiomycota, Agaricomycotina, Agaricomycetes, Agaricomycetidae, Agaricales, Agaricaceae, *Chlorophyllum*, *Chlorophyllum rhacodes*

*<http://www.speciesfungorum.org/Names/SynSpecies.asp?RecordID=374433> (accessed on 26/09/2011)

**<http://mycobank.org/mycotaxo.aspx> (accessed on 26/09/2011)

†http://www.mushroomexpert.com/chlorophyllum_rhacodes.html (accessed on 26/09/2011)

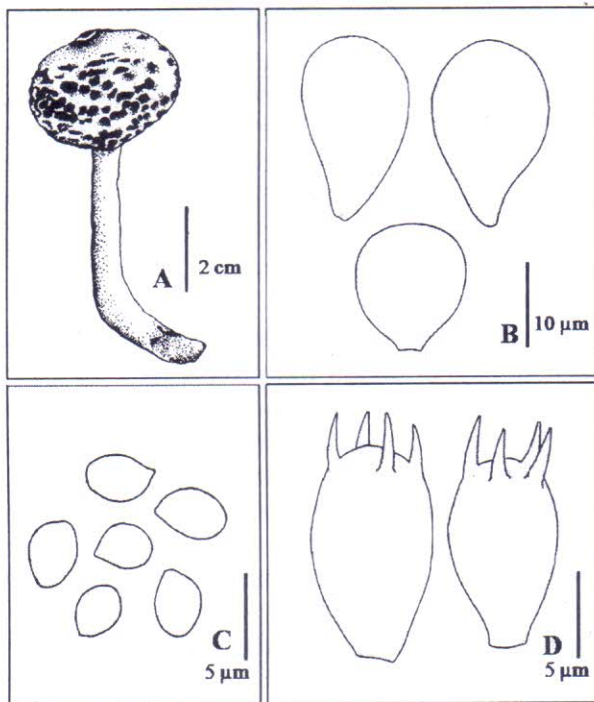


Fig.1: *Chlorophyllum rhacodes* (Vittad.) Vellinga. A. Basidiocarps, B. Pleurocystidia, C. Basidiospores, D. Basidium (A, bar=2 cm; B, bar=10 µm; C, bar = 5 µm, D, bar = 5 µm).

Pileus 16 cm broad, oval to convex, to slightly umbonate, surface dry, at first brown, soon breaking up into large, shaggy scales as the expansion of the cap, revealing the white background, margin fringed, flesh thick, white, fairly firm. *Gills* broad, free, white, close. *Stipe* central, 17.1 × 1.62 cm in diameter, enlarged below, white, brownish at the lower portion, smooth, dry, base mycelial pad. *Veil* membranous, white at the center, surrounded by brown colour, ragged margin, forming a large, thick, collar like, double-edged, superior ring on stalk. *Volva* absent. *Spore print* white.

Spores (6.69–)8.668–11.426(–11.82) × 7.092–7.486 (–7.88) µm, [Q=1.22–1.5, Q_{av}=1.398, n=30 spores, s=2 specimens], ellipsoid, smooth, hyaline, with a large apical pore, thick walled, dextrinoid. *Basidium* 13.79–17.73 × 11.032–11.82 µm in diameter, clavate, hyaline, tetrasterigmatic, sterigmata 5.122–7.486 × 2.758–3.152 µm, 4 spored. *Pleurocystidia* 23.64 × 16.942 µm, hyaline, wall 0.39 µm thick. *Pileal trama* consists of 27.58–27.58 × 6.698–7.88 µm, septate, hyaline, wall 0.39 µm thick hyphae, septa 0.39 µm thick.

Habitat: Solitary, growing near stables and compost piles.

Edibility: This species is thought to be edible (Arora, 1986).

Specimens examined : India, West Bengal: Kumirmari Island under Gosaba Block, 22°11.065' N, 088°55.482' E and 12 ft. near stables and compost piles, 26th June 2010, *Arun Kumar Dutta, AMFH 159*.

The best known characters of this mushroom are the large brown scales on the cap, free white gills, prominent collar like ring, and thickened stipe base. The poisonous *Chlorophyllum molybdites* looks very similar to this mushroom, but differs from its dull greenish spore colour. This specimen can also be mistaken as *Agaricus angustus*, but the white spores and gills distinguish it very easily.

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