



Records of agarics: New to Jammu and Kashmir

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ABSTRACT

The present study has been documented to investigate the diversity of agarics which have been collected from various localities of North Kashmir. The two agaric taxa were described and identified to species level as first time reports from Jammu and Kashmir. The described agaric taxa viz. *Collybia chrysoropha* (Berk. & Br.) Sacc. and *R. albida* A. Blytt. Whereas, *C. chrysoropha* were first time recorded for India from the state of Jammu and Kashmir.

Key words: Agarics, taxonomy, new records, Jammu and Kashmir.

INTRODUCTION

Fungal forays were undertaken during spring and summer seasons in the year 2012 from various sub-localities of District Baramulla in North Kashmir. As a result numbers of wild agarics were collected with an interest to explore the agaric diversity of this District. Of these, two collections were first time records of agarics from Jammu and Kashmir whereas, *C. chrysoropha* constitutes a new record for India. The taxonomic description along with Camera Lucida drawings and habitat photographs of two agaric taxa viz. *Collybia chrysoropha* (Berk. & Br.) Sacc. and *R. albida* A. Blytt. are given.

MATERIALS AND METHODS

The samples for the study were collected from District Baramulla of North Kashmir. For this study extensive fungal forays were collected from various localities and sub-localities of District Baramulla in the year 2012. The sub-localities surveyed during the collection tours viz. Soyn (1771m), Tikaya Panzula (1943m), Penziwada (1896m), Boniyar (2124m), Boisin (2472m), Sheikhpura (1761m), Sain (1863m) and Logriwalpora (1593m) of the District Baramulla. The morpho-anatomical details

were recorded from fresh carpophores. The field characters like gross morphology were noted down on the 'Field Key', provided by Atri *et al.*, (2005) and the color terminology used is after Kornerup and Wanscher (1978). The fungal specimens were hot air dried and packed in cellophane envelopes containing crystals of 1-4, paradichlorobenzene or Naphthalene balls can also be used to in place of former one. The microscopic details were studied by cutting free hand sections of fresh as well as of revived part of the dried specimen and staining them in 1% Cotton Blue or 2% Congo Red. The spores were studied from the spore print as well as from the crush mounts of the gills, amyloid reaction was checked in Melzer's Reagent. The dried fungal specimens were deposited in the Herbarium, Department of Botany, Punjabi University, Patiala, (Punjab), India under the Accession No. PUN. for further reference. Taxonomical studies were done following methodology given by Pegler (1977), Roberts (2001), Schaeffer (1933) and Kirk *et al.* (2008) have been followed.

TAXONOMIC OBSERVATIONS

Collybia chrysoropha (Berk.& Br.) Sacc. *Syll. Fung.* 5: 213, (1887). **Fig. 1(A- F); 2(A-F)**

Pileus 8.1 cm broad, flattened depressed; surface moist; pastal yellow with olive yellow center, areolate. Lamellae broadly adnate, sub distant, unequal, broad, white, unchanging. Stipe central, upto 4cm long, upto 0.9cm broad near apex, upto 1.1cm broad at base, obclavate; flesh unchanging. Basidiospores $6.26 - 8.55 \times 4.47 - 6.26\mu\text{m}$

(excluding apiculus), subglobose to ellipsoid; inamyloid; verrucose, spore print yellowish white.

Collection examined - Jammu and Kashmir, Baramulla, village Boniyar Uri (2179 m) growing in groups in the temperate mixed coniferous forest during spring season, Hilal Ahmad Rather, PUN (5183), May 23th, 2012.

Remarks - The macroscopic and microscopic details of our specimen is in well agreement with *Collybia chrysoropha* Berk. & Br. (1887) as reported by Pegler (1977) from Tanzania. Presently, it has been reported for the first time from India from the state of Jammu and Kashmir.

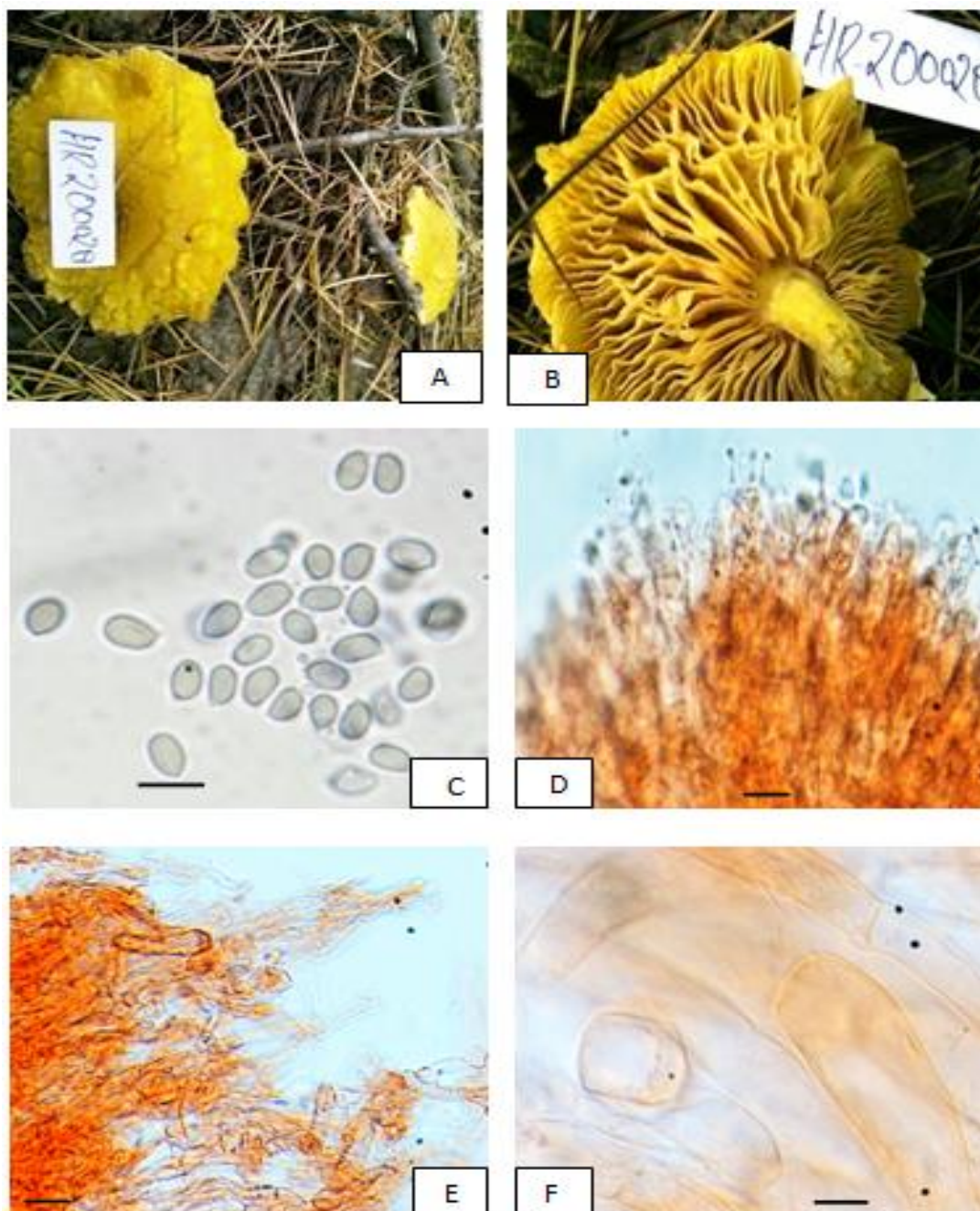


Fig. 1. A-F- *Collybia chrysoropha* (Berk.& Br.) **A.** Carpophore in its natural habitat. **B.** Carpophore showing broadly adnate, subdistant lamellae. **C.** Basidiospores smooth, inamyloid. **D.** Basidia. **E.** C.S through pileus cuticle. **F.** C.S through stipe cuticle showing hyphae with clamp connections.

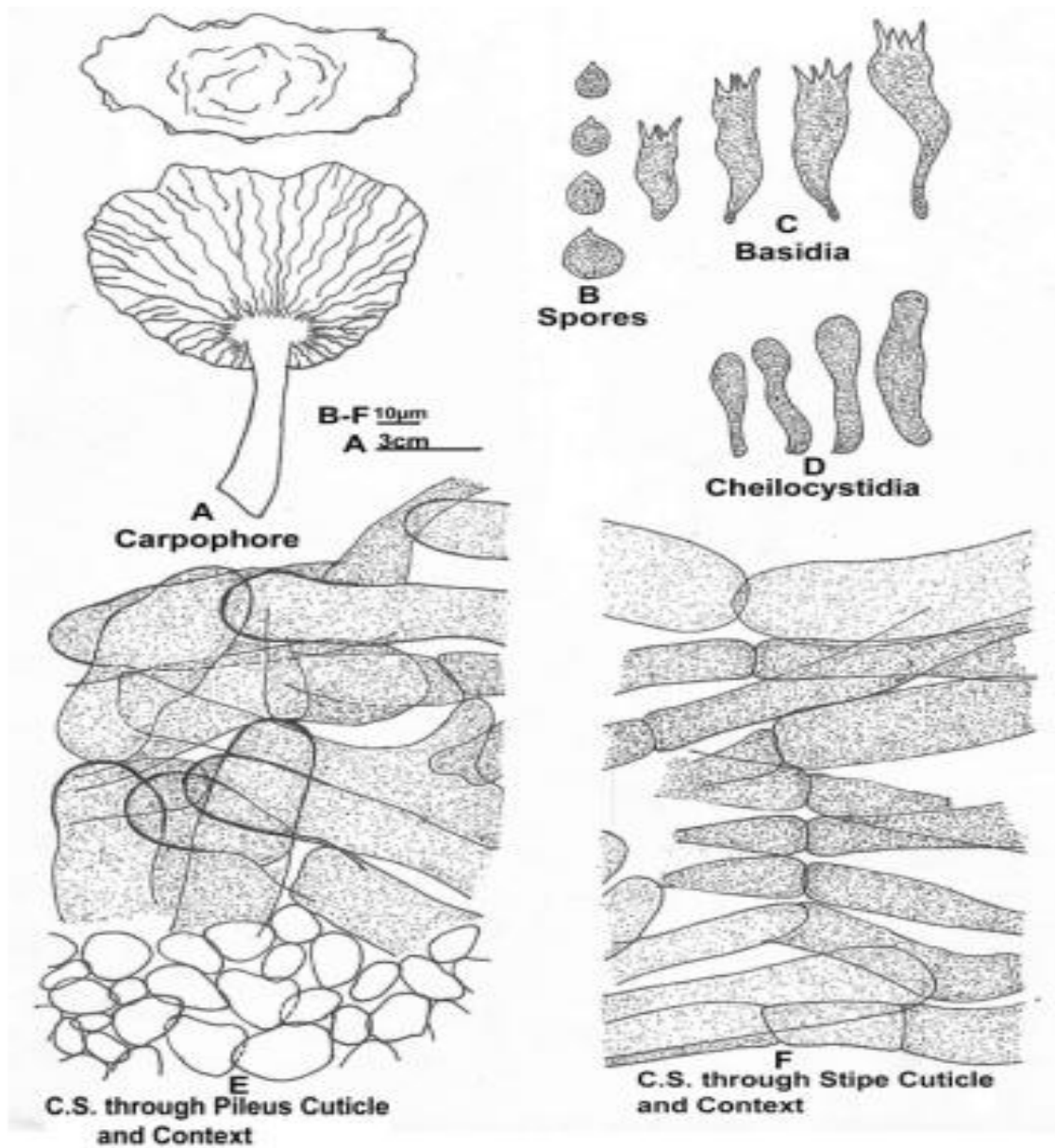


Fig. 2. A-F. *Collybia chrysoropha* (Berk. & Br.) A. Carpophores. B. Basidiospores. C. Basidia. D. Cheilocystidia. E. C.S. through pileus cuticle & context. F. C.S. through stipe cuticle & context.

Russula albida A. Blytt, skr. Vidensk Selsk. Christiania, Kl. I, Math. – *Natur.* 6: 104, 1905.

Fig. 3(A-F); 4(A-G)

Pileus 3.7 – 7.3 cm broad, plano convex; finally flattened, umbo absent; surface silver to pale grayish with center light brown. Lamellae adnate; distant; broad, light yellow when young, yellowish at maturity. Stipe central, upto 10.5 cm long, upto 2 cm broad near the apex, 2.7 cm broad in the middle and 2.1 cm at base, cylindric; creamy white; unchanging; flesh white, changing to pale brown on exposure. Basidiospores $9 - 11 \times 7 - 9 \mu\text{m}$ (excluding ornamentation), (Q = 1.2) subglobose to broadly ellipsoid; warty, warts blunt, $0.3 - 0.5 \mu\text{m}$ high, mostly isolated with 2 – 3 warts connected,

catenulate, reticulum not formed, spore print yellowish white.

Collection examined - Jammu and Kashmir: Baramulla, village Penziwada Panzulla (1896m), growing in groups in temperate conifer mixed forest during spring season, Hilal Ahmad Rather, PUN (5190), 19th May, 2012.

Remarks - The external and internal details of the above examined collection match exactly with the description given for *Russula albida* by Roberts (2001). From India *R. albida* is earlier known from Paurvi Gharwal (Uttranchal) as reported in the listing of ectomycorrhizal mushrooms of Lesser Himalayas cited by the citation: biology.duke.edu/jeanmarc/mushrpics/html. This is a first record from the state of Jammu and Kashmir.

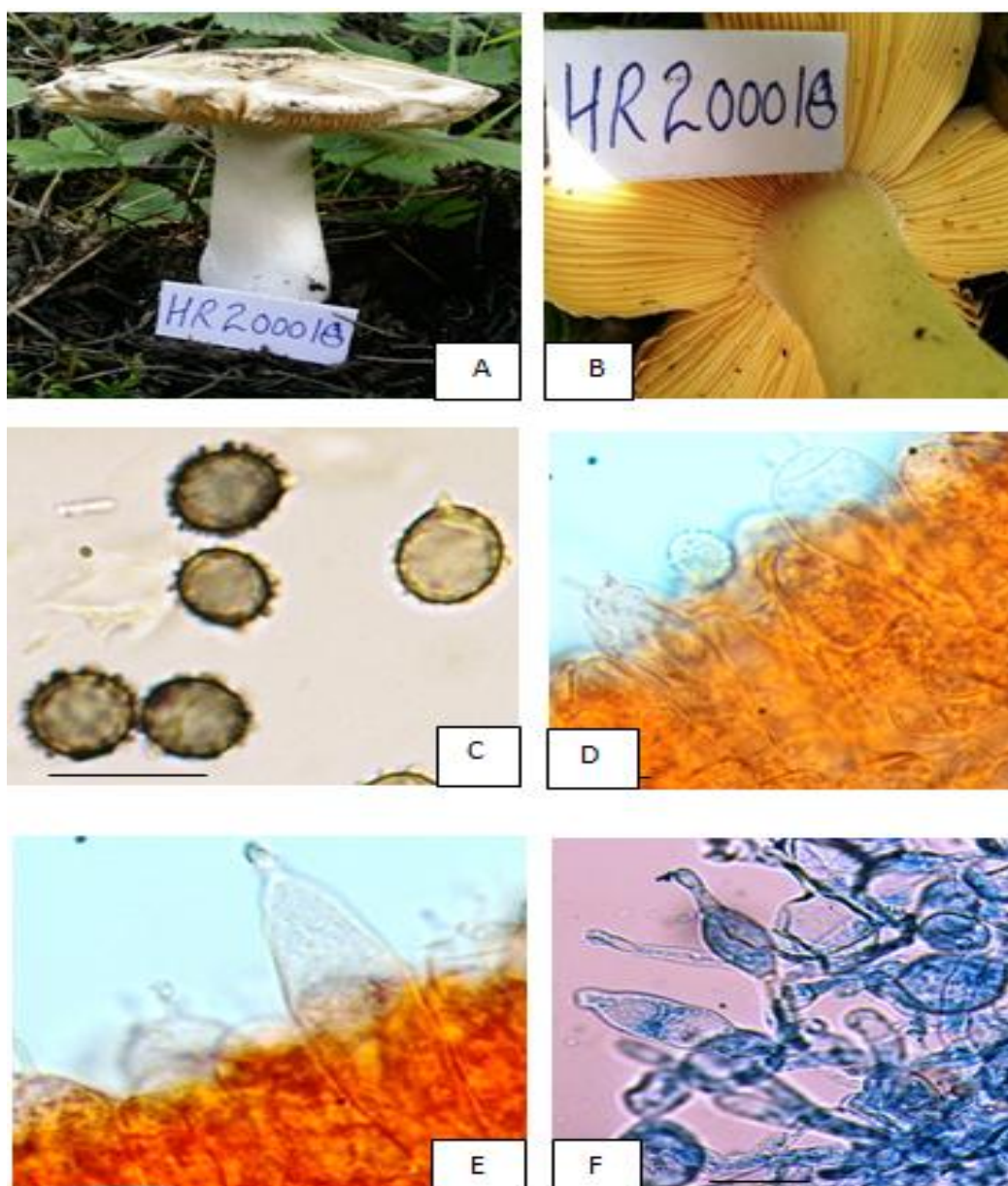


Fig. 3. A-F- *Russula albida* Blytt, skr. A. Carpophore in its natural habitat. B. Underview of carpophores showing adnate lamellae. C. Basidiospores. D. Basidia. E. Pleurocystidia claviform to versiform. F. C.S. through pileus and context.

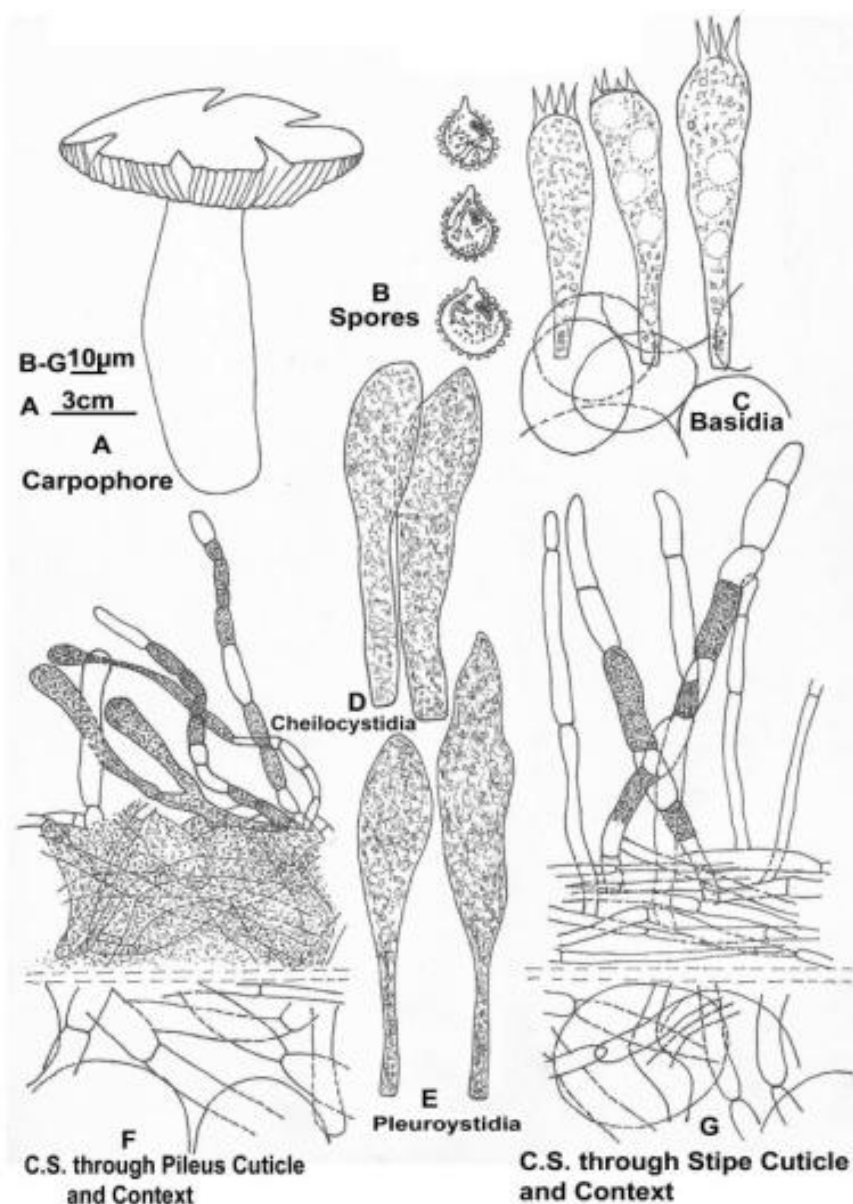


Fig. 4. A-G - *Russula albida* Blytt, skr. **A.** Carpopore. **B.** Basidiospores. **C.** Basidia. **D.** Cheilocystidia. **E.** Pleurocystidia. **F.** C.S. through pileus cuticle & context. **G.** C.S. through stipe cuticle & context.

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