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AMANITA PORPHYRIA—A NEW RECORD FOR INDIA

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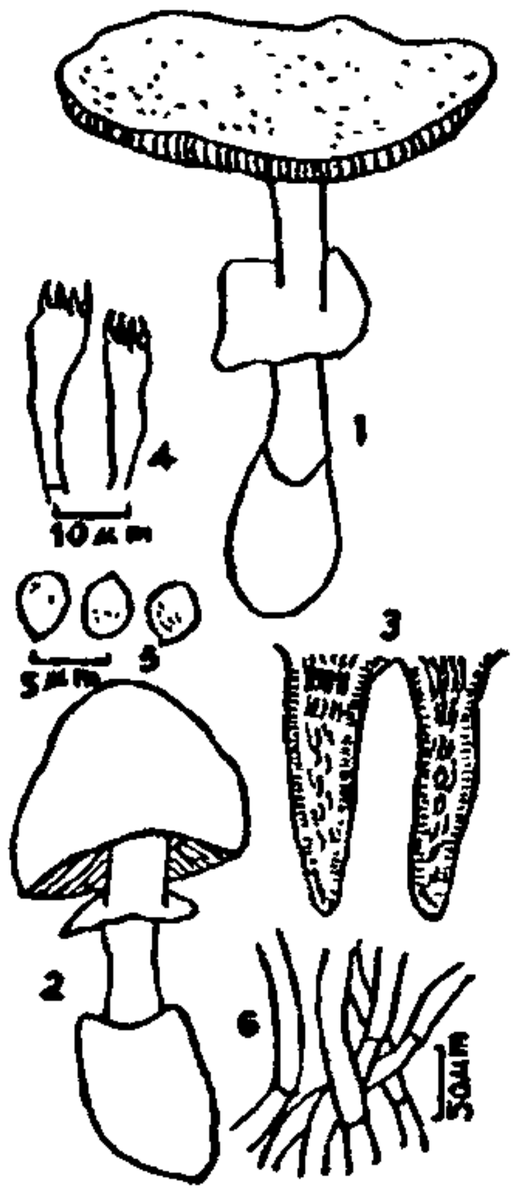
DURING the study on Agaricales of hills of Uttar Pradesh, many species of *Amanita* including poisonous forms have been recorded. Confusion with similar but edible fungi creates the danger of lethal mushroom poisoning. *Amanita porphyria* (Alb. & Schw) Fr. is suspected to be poisonous.[1] The fungus hitherto has remained unrecorded from India.[2-4]. The identification of the fungus was confirmed by the Commonwealth Mycological Institute, Kew, England (IMI 219653). The fungus is briefly described and illustrated here.

The young fungus in the initial stage is entirely covered by the universal veil and appears like a white egg. It is bell-shaped (figure 2) and on opening reaches a diameter of 12 cm. Pileus, 10–14 cm in height (figure 1), smoky brown, margin even, flesh thin, white. Gills, white, adnexed, close, medium in width, subventricose, thin (figure 3). Stipe, slender, 6–13 cm long, 1–2 cm diameter, soft, glabrous, hollow, whitish, with small bulb. Annulus, superior but distant, thin, membranous, white, pendent. Volva, flaccid, membranous, forming a thin cup, imbedded in the soil. Spores, spherical to ovate, 8–10 μm (figure 5), smooth, white. Basidia, clavate, four-spored, 20–30 × 6–8 μm (figure 4).



Figures 1–6. *Amanita porphyria.* **1.** Fruiting body; **2.** Unexpanded fruiting body; **3.** Section through gills; **4.** Basidia; **5.** Basidiospores, and **6.** Hymenophoral trama.

Habitat: Soil of Thalkedar Oak Forest, Pithoragarh, UP Hills, September 16, 1987.

The present collection shows close agreement with the description given by Kauffman[1] except for the somewhat larger size of stipe and of spores.

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AMMONIA LEVELS IN THE DEVELOPING LARVAL FAT BODY OF *SPODOPTERA MAURITIA* BOISDUVAL

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DESPITE the importance of ammonia as an intermediary metabolite in the elimination of nitrogen from the body, its presence has never been investigated in the insect fat body[1]. It is particularly interesting that the final instar larva of *Spodoptera mauritia* is ammonotelic in its feeding stages irrespective of its terrestrial habitat and that it maintains a relatively high titre of ammonia in its haemolymph[2-3]. Further, the levels of ammonia in the excreta and in the haemolymph show marked variation during larval development, being high in the active feeding stages and declining to low levels in the non-feeding stages. It was therefore of interest to examine the levels of ammonia in the larval fat body during development.

The final instar larvae of *S. mauritia* were used in these experiments. The larval period was divided into two stages: 0 to 72 h—feeding and excreting period; 72 to 120 h— non-feeding and non-excreting period. Fat body was removed from larvae of the same stage at 24 h intervals from the time of its moult until pupation. Ammonia was determined according to the method of Miller and Rice[4].

The ammonia content of the fat body in the developmental stages of the larva is presented in table 1.

There was a conspicuous variation of ammonia in the fat body level during the development of the larva. The ammonia content of the fat body in the non-feeding stages of the larva was comparable to that of the rat liver[5], but in the feeding stages of the larva, it was about two times higher than that

Table 1 *Ammonia content of the fat body*

Larval stages (h)	Ammonia, mean ± S.D.	
	μg/g fresh tissue	μg/total tissue
0	22.53 ± 6.74	0.34 ± 0.10
24	24.90 ± 7.72	0.42 ± 0.11
48	32.15 ± 6.51	1.18 ± 0.22
72	27.11 ± 4.20	1.07 ± 0.17
96	14.30 ± 3.63	0.57 ± 0.15
120	10.14 ± 3.26	0.42 ± 0.13

Five samples each were used in the measurements.

observed in the latter tissue. The changes observed in the fat body level of ammonia point to the metabolic status of the larva—the high level of the compound is an indication of active metabolism. The high titre of ammonia in the fat body in the feeding stages of the larva is in consonance with the ammonotelic nature of nitrogen excretion[3] and the high titre of free amino acids in the tissues[6]. The decline in the fat body level of ammonia in the non-excreting stages of the larva indicates its conversion to other metabolites. Attempts have been made by Staddon[7] to study the possibility of ammonia accumulation when the nitrogen excretion is prevented in the aquatic larva of *Sialis lutaria*. But he obtained no positive result and suggested that the ammonia would be stored as other metabolites like glutamine and uric acid. This is found to be true in the case of the larva of *S. mauritia* where there is no accumulation of ammonia in the fat body consequent to the cessation of its excretion while there is an extensive storage of uric acid in the tissue[3].

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