A new species of Thecotheus (Pezizales) from the Western Himalayas

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A new species, *Thecotheus himalayensis* Kaushal, is described. It is characterized by additional interascal elements in the hymenium and minutely warted ascospores. Anatomical features of *T. cinereus* (Cr. & Cr.) Chen., based on Indian collections are given. Ascospores of *T. pelletieri* (Cr. & Cr.) Boud. are found to be smaller than in American and Canadian collections.

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I agree with Korf (1972) in including *Thecotheus* Boud. in the tribe Iodophaneae of the family Ascomycetes. In my opinion, the presence of amyloid asci, the simple excipular structure and small apothecia in *Thecotheus* point to its close relationship with Ascomycetes and justify its inclusion in this family.

Three species, *T. himalayensis* Kaushal, *T. cinereus* (Cr. & Cr.) Chen. and *T. pelletieri* (Cr. & Cr.) Boud. were examined during the course of the present investigations.

*T. cinereus* was listed by Batra & Batra (1963) in their checklist of Indian Discomycetes as *Ascothophus holmskjoldii* Hans. The Indian collections of this species by Batra (PAN s.n.) and Waraitch (PAN 2094) contain clearly warted and prominently apiculate ascospores. According to Eckblad (1968), these collections should be treated under *Thecotheus holmskjoldii* (Hans.) Eckbl. As Brummelen (1967) found the spores of *T. cinereus* to be completely smooth, Eckblad (1968) accepted it as a species distinct from *T. holmskjoldii* Hans. However, studies by Le Gal (1960, 1963) and Kimbrough (1969) amply indicate that *T. holmskjoldii* is conspecific with *A. cinereus*. This view is accepted in this work and the Indian collections are placed accordingly under *T. cinereus*.

Observations regarding anatomical features of the Indian collections of *T. cinereus* are added here (Fig. 1 A): ectal excipulum up to 85 \( \mu \)m thick, a textura angularis, cells up to 25 \( \times \) 16 \( \mu \)m, with their longitudinal axis somewhat perpendicular to the surface, outer few layers with smaller cells; medullary excipulum 100-125 \( \mu \)m thick, a textura globulosa-angularis, cells often hyphoid, up to 8 \( \mu \)m wide; hypothecium very much reduced, textura intricata.

*T. pelletieri* is a rare species in India. Two collections from the Western Himalayas (Batra s.n. and Waraitch 2166 at PAN) have greyish apothecia and smaller ascospores (28-32 \( \times \) 14-17 \( \mu \)m) than those reported from the American and Canadian collections (32-40 \( \times \) 20-24 \( \mu \)m) by Kimbrough (1969).

*T. himalayensis* was collected in the late autumn of 1971 and 1974. Usual fungal stain have been used to study the microfeatures in the field and in the laboratory. The collections are deposited at PAN.

*Thecotheus himalayensis* Kaushal sp. nov., Fig. 1 B-D


Apothecia ad 2,5 mm diam., solitaria vel aggregata, sessilia vel brevistipitata, cupulata vel turbinata et raro
conoidea, carnosa, alba, margine integro; hymenium album, asperum propter apices prominentes ascorum. Excipulum externum e textura angularis, ad 65 μm crassum, cellulis ad 24 × 17 μm, parum crassitunicatis; excipulum medullosum e textura intricata densa, ad 85 μm crassum, tenuis ad marginem, hyphis ad 6 μm latis; hymenium indistinctum. Asci (120–160–175–186) × 11–14 μm, octospori, cylindrici, apice rotundae, longe stipitati, J+. Ascosporae 12,0–15,5 × 6–7 μm, uniseriatae, aliquando ad apicem congestae, ellipsoidae, subhyalinae, verruculosae. Paraphyses filiformes, septatae, ramosae, ± rectae, deorsum ad 1,5 μm crassa. Filamenta simplicia, robusta, ± recta vel sursum paullo curvata, subhyalina, ad 5 μm crassa ascis et paraphysibus immixta.

Apothecia up to 2,5 mm in diameter, gregarious, single to crowded (only 2–3 cups placed together), sessile or with a short thick stipe, shallow, cupulate to turbinate or rarely obconical, regular, fleshy; external surface white, smooth; margin entire; hymenium white, somewhat roughened by protruding ascal tips. Ectal excipulum a textura angularis, up to 65 μm thick, with cells up to 24 × 17 μm, usually more or less hyphoid at margin with clavate tips, slightly thick-walled; medullary excipulum a dense textura intricata, up to 85 μm thick in the middle, gradually reduced towards margin, with up to 6 μm broad hyphae; hymenium indistinct. Asci (120–160–175–186) × 11–14 μm, 8-spored, cylindrical, apex rounded, base long and narrow, intensely J+ in fresh material (specially the young asci), slightly less in dry material. Ascosporae 12,0–15,5 × 6–7 μm, uniseriatae, sometimes a few spores crowded near apex, ellipsoid, subhyaline, verruculose. Paraphyses up to 1,5 μm wide below, very slightly enlarged above or not at all, thin-walled, filiform, septate, freely branched at various levels, straight or slightly bent. Interspersed between asci and paraphyses are additional interascal elements which are erect, paraphyses-like, up to 5 μm broad, slightly narrow below, subhyaline, simple, stout, septate (septa at irregular intervals), straight or slightly bent at top.

The additional interascal elements described for the present species are not known anywhere else in operculates except in Iodophanus kimbraghaii Thind & Kaushal (Thind & Kaushal 1978). However, such elements have been reported amongst inoperculates for Lambertella acuminata and L. phaeoparaphysata by Dumont.
(1971). *T. himalayensis* is distantly related to *T. apiculatus* Kimbr. but the latter has larger asci and ascospores with very conspicuous apiculi.

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**References**


