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An Unusal Inocybe sp. from West Africa

ROY WATLING

Caledonian Mycological Enterprises, Scotland & Royal Botanic Garden,
Edinburgh, EH3 4HU, Scotland

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A new species of *Inocybe* assigned to subgenus *Mallocybe* is described from the Cameroon, West Africa. It is characterised by the richly coloured basidiomes with orange-yellow plumes of scales on the pileus and the scurfy, frilled fulvous stipe.

Key words: Cameroon, West Africa, *Inocybe aureoplumosa*

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Je popsán nový druh vláknice z podrodu *Mallocybe*, nalezený v Kamerunu, západní Afrika. Druh je charakteristický pestře zbarvenými plodnicemi s oranžově žlutými šupinkami na klobouku a žíhaným žlutohnědým třeněm.

INTRODUCTION

The Korup Forest Reserve near Mundemba, West Cameroon is characterised by ectomycorrhizal legumes belonging the subfamilies Caesalpinoideae and Amherstieae of the Leguminosae and supports a rich mycota of Russulaceae, Boletaceae, Amanitaceae and Cantharellaceae. It is rather surprising therefore that when collecting in these forests few representatives of brown-spored agaric genera of which many form sheathing mycorrhizas are found, despite the fact that occur extensively in northerly latitudes. Indeed the Cortinariaceae for instance is conspicuous by its rarity in the lowland rain forests of West Cameroon. Typical members of the genus *Inocybe* have been found associated with caesalpinoid legumes but are represented by only single collections and inlcude 1) a species from disturbed area forest margin, (Ekunda Kunda 11.iv.90, Watl. 24171); 2) a member of the subgenus *Inocibium* sect. *Lactiferae* (24.1.89, Watl. 21841); and 3) two goniosporate species assignable to subgenus *Inocybe* (*Clypeus*) sect. *Cortinatae*, one collection associated with *Microberlinia bisulcata* (23.iii.91, Watl. 2419); and a second member of the subgenus found growing in a pot with a seedling *Tetraberlinia moreliana* (*Caesalpinoideae*) in the World Wildlife tree nursery at Mundemba (Watl. 21842) only a few kilometres from the edge of the forest. However, there was one exception to these observations and that was the occurrence of a unique taxon which occurred in many areas of the forest and

which was found during all the collecting trips ranging from 1984 until 1991, when collecting in West Africa by the present author ceased. It was frequently collected in great quantity and in many populations over several years. For completeness to these records can be added the occurrence of a single collection of *Leucoinocybe* basidiomes in the same forest community.

The rarity of members of the genus *Inocybe* in Cameroon is parallel to that in East Africa (Pegler 1977) where only *I. lanuginella* Schroet. is recorded, very probably an introduction, and four other European species based on records by Eichelbaum. In Central Africa (Zambia), although present in the mycota of the native *Brachystegia* dominated woodland (miombo) *Inocybe* is again low in number of species, viz. less than five taxa from my own experience in 1992. In Sri Lanka there is a similar paucity of members of the genus (Pegler, 1986) and in Malaysia, although several species are known, they are rarely collected (Turnbull, 1997). These mycotas when compared with for instance that of Britain which has at least 86 taxa, can only be considered depauperate in *Inocybe*.

In West Africa other collectors have also experienced a dirth of *Inocybe* spp. and Hennings (1901) only described one from the material that had been sent to him by Zenker, ie, *Inocybe flavofusca* P. Henn. This species has been previously placed in the genus *Lepiota* (Beeli, 1932) and variously assigned to the genera *Verrucospora* (Horak 1967) and *Horakia* (Oberwinkler 1976). This taxa has been the centre of much discussion and has been tentatively placed in the family Agaricaceae (Singer ut Tribe Cystodermateae, 1986; Pegler, 1977 ut *Verrucospora vulgaris* Pegler), although Oberwinkler (1976) argues for a placement in the Thelephorales because of the morphology of the spores despite them being quite pale in colour. Reijnders (2000) does not support this suggestion based on his developmental studies. It was the spore shape which no doubt led Hennings (1901) to place the fungus in the first instance in *Inocybe*. Kuyper (1986) uses the name *Horakia flavofusca* for the fungus.

The subject of this paper which occurs so commonly in the Korup Forest Reserve, however, has no such spores and joins some features of typical members of *Inocybe* with some characters expressed in the genus *Flammulaster*. When monographing *Flammulaster* Watling (1967) was struck by the similarity of some members with certain members of *Inocybe* subgenus *Inosperma*, although the former were always smaller and more delicate. This puzzled the author as the relationship of the former genus according to Singer (1951 et subseq.) laid with *Tubaria* and therefore the Crepidotaceae. One group particularly stands out in *Flammulaster* with the present material, viz. the *Flammulaster* limulata consortium with rather bulkier basidiomes than generally found in the genus. Vellinga (1986) has compared *Flammulaster* with several other genera including the *Pholiota tuberculosa* group (referrable to *Pleuroflammula* fide Horak), *Pholiota lucifera* (Lasch) Quél. and *Simocybe*. However, it was Kuyper (1986) who first drew attention to the points of resemblance between *Flammulaster* and

some smooth-spored species of *Inocybe* lacking pleurocystidia. This latter group coincides with Kuyper's new subgenus *Mallocybe* members of which in addition to lacking pleurocystida possess necropigmented basidia, comparatively short stipe and lanato-squamulose pileus which becomes fuscous with application of aqueous solutions of ammonia. The rather outstanding development of the cheilocystidia draws direct comparison to the cells on the gill-margin in the Korup material. The cheilocystidia of the *I. terrigena* group within subgenus *Mallocybe* is an important deviant from the central *Inocybe* spp. and the cheilocystida, although strongly pigmented in *Inocybe fuscomarginata* parallel the analagous structures in the Korup agaric. This is also emphasised in several of the recently described species of *Inocybe* from New Zealand and New Guinea where similarities with *Flammulaster* (Horak 1978) are expressed in many characters. It may even be possible that *Mallocybe* deserves an autonomous generic position.

Singer and Machol (1972) conceived *Flammulaster* as part of the Strophariaceae, whilst its link with *Tubaria* suggested in earlier work (Singer, 1951 et subseq.), was with *Crepidotus (Crepidotaceae)* has been recently supported by recent molecular studies. However, a greater morphological link appears to be between *Flammulaster* and some groups within *Inocybe*, something at the moment not supported by the molecular results based on the few species so far analysed (Moncalvo, pers. comm.).

Taking all the characters into account there is no doubt that the Korup fungus should be placed in *Inocybe*, although the author agrees it sits at the moment rather uneasy therein. However, until the rainforests of Africa are mycologically explored in detail full range of characters expressed by West African species of *Inocybe* cannot be determined. At present we are so ignorant of the composition of the mycotas of these parts of the world, which may in the long run hold the key to many unanswered questions but time is running out as the forests are being logged at a horrifically dramatic rate.

TAXONOMY

Inocybe aureoplumosa Watling sp. nov. Fig. 1 A–G.

Pileus 14–55 (-80) mm, e convexo plano concavus obtuse interdum late umbonatus, ferrugineus vel aureo-fulvus fibrillosus squamulosus aurantio-brunneus fibrillis ± concentricis erectis ad extremam partem radialiter rugulosus. Lamellae liberae anguste adnatae e argillaceo-ligneo coloratae vel argillaceo-ochraceae subconfertae. Stipes 31–90 × 5–10 mm, ad basim incrassatam sordide ferrugineus ad apicem albo-punctulatus et transverse squamoso diffractus. Caro pilei bubalina stipitis ochraceotincta pallide brunnescens.

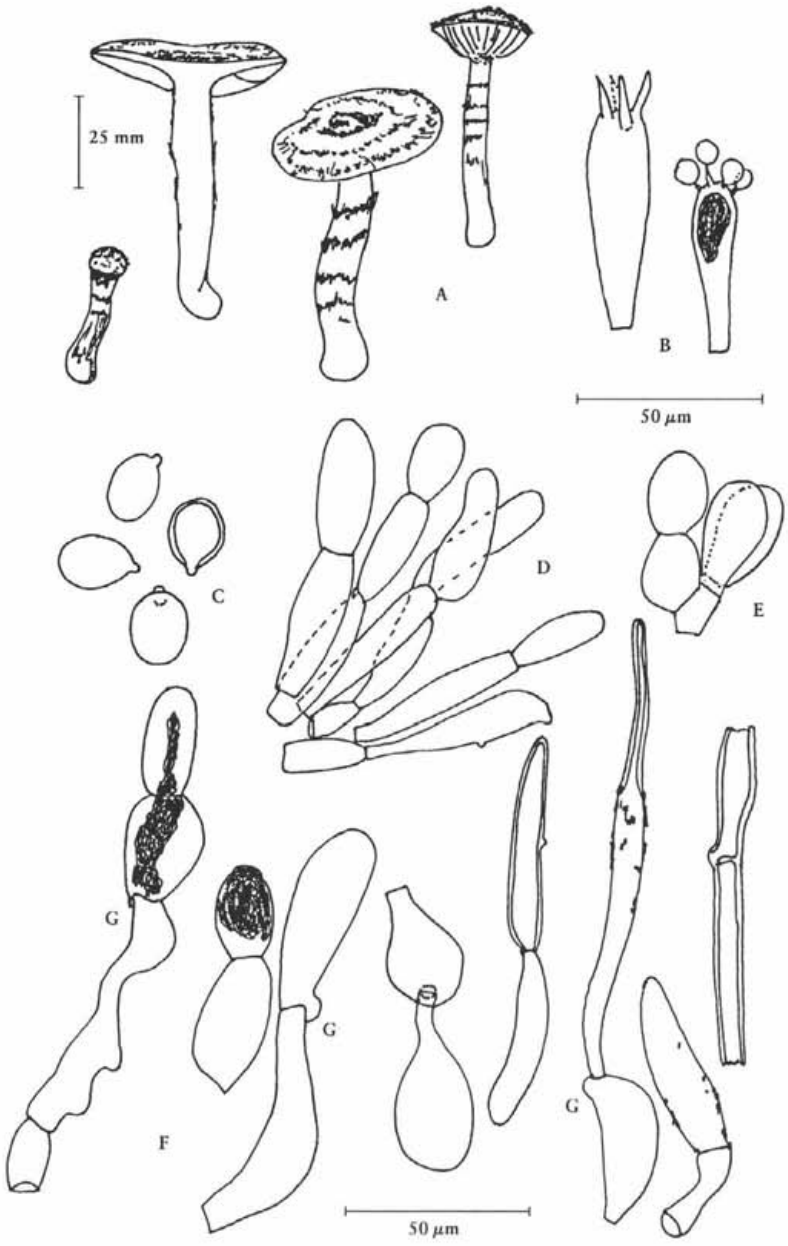

Fig. 1 *Inocybe aureoplumosa* Watling (Holotypus in E.) A. Habit sketch of young and mature basidiomes with longitudinal section. B. Basdia, one with golden colloidal and cessation of basidiospore development. C. Basidiospores. D. Cells from gill-edge. E. Cluster of cheilocystidia. F. Various elements from the suprapellis with some cells connected by prominent clamp-connections (G).

Sporae (6.1–) 6.5–7.7 (–8.3) × (5.2–)5.5–6.4 (–6.7) μm, laeves ellipsoideae. Basidia tetrasporigera, cellulae aciei lamellarum nullae. Hyphae cuticulae pilei filamentosae vel ellipsoideae. Cellulae hypharum veli ellipsoideo-cylindricae vel vesiculosae ad septa strangulatae interdum ramosae fibulatae hyphis angustioribus subcylindricis mixtae.

Holotypus – Korup Rain forest Reserve, Mundemba, Cameroon, West Africa, 22 ii 91. Watling Herb. 23132 in E.

Pileus 14–55 (–80) mm., broadly convex then plano-concave with a small, flat, central umbo and upturned margin, rich tawny orange becoming rust brown with reddish ochre, darker at centre, distinctly punctate-squamulose from fibrils joined at apex which form distinct ± tufts seated on background of more regularly smaller brown fibrils radially fibrillose outwards; margin fluted and ridged and puckered. Gills free, clay– to cigar-brown when young becoming tinged hazel or even hazel throughout with age, mottled with conspicuous paler floccules at gill-edge. Stipe 31–90 × 5–10 mm, slender with poorly developed marginate bulb, concolorous with gills, roughened with girdles of rich tawny orange scales resembling a *Leccinum* sp., upper girdle forming a poor ring-like zone, punctate and less fibrillose scurfy towards paler apex (Fig. 1 A). Flesh tough, whitish or honey-coloued in pileus, tinged dirty ochraceous downwards in stipe, becoming faintly brunnescent downwards on exposure to air or even slightly pinkish brown at the stipe-apex.

Basidia 4-spored (Fig. 1 B). Basidiospores (6.1-) 6.5–7.7 (-8.3) × (5.2-) 5.5–6.1 (-6.7) μm, smooth, slightly thick-walled, brownish, distinctly but faintly darkening in aqueous ammoniacal solutions, lacking germ-pore, neither amyloid nor dextrinoid although slightly darkening, not cyanophilic (Fig. 1 C). Gill margin covered in chains of ornamented, swollen, vesiculose, ellipsoid, tawny coloured cells, intermixed with filamentous cells so resembling the veil of *Coprinus micaceus* or *Cystoderma* sp.; cells at pileus-margin intimately connecting with those in stipe ring-zone when young (Fig. 1 D). Cheilocystidia 35–40 × 10–15 μm vesiculose, inflated, yellowish to orange-brown, intermixed with clusters of more elongate, even lageniform cystidia < 289 μm (Fig. 1 E); pleurocystidia absent. Pileipellis of long chains of smooth, thin-walled, hyaline to pale honey-coloured cells giving rise to rounder or elongate ellipsoid cells with yellowish tawny or orange-brown walls (43–73 × 6.5 (-8.7 μm) or 39 × 16 μm) arranged in chains with end-cells torpedo-shaped; subpellis of more spherocyte-like elements 21–22 μm broad (Fig. 1 F). Clamp-connections present (Fig. 1 G). Hymenophoral trama regular.

Material examined

All from Korup Rainforest Reserve, Mundemba, West Cameroon and deposited in E: Alexander 8 (1984); Alexander 12 (1984); Alexander 3 (1988); on desig-

nated track P at P15, 26.iii.91, Watl. 23133; on trail to research area, Alexander 1 – Watl. 26727: on east bank of River Ndian, coll. J. Rother, 19.vi.1989, Watl. 26726; on trail to research area before North/South line, 22.iii.91, Watl. 23132.

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