

## NEW CONTRIBUTION TO THE KNOWLEDGE OF TROPICAL BASIDIOMYCOTA FROM CHINA\*

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**ABSTRACT:** Three undescribed taxa of Basidiomycota are previously collected from subtropical and tropical localities of Sichuan and Yunnan, China. *Tubosaeta*, a tropical genus of the family Boletaceae is a new record to China. *Tubosaeta aureocystis* Zang, *Tubaria lithocarpicola* Zang (Family Crepidotaceae) and *Coprinus bambusicola* Zang (Family Agaricaceae) are collected from Sichuan and Yunnan, China and described as new. The holotypes are deposited in the Cryptogamic Herbarium, Kunming Institute of Botany, Academia Sinica, Kunming (HKAS).

**KEY WORDS:** *Tubosaeta aureocystis*, *Tubaria lithocarpicola*, *Coprinus bambusicola*, new species

In this present paper three apparently hitherto undescribed taxa found from subtropical and tropical localities of Sichuan and Yunnan, China are characterized. They are *Tubosaeta aureocystis* Zang (Family Boletaceae), *Tubaria lithocarpicola* Zang (Family Crepidotaceae) and *Coprinus bambusicola* Zang (Family Agaricaceae). The genus *Tubosaeta* is a new record to China. Taxonomic knowledge of tropical fungi from China have been previously published by Chiu (1948), Yen & Chen (1980, 1981), Teng (1996) and Zang, Chen & Sittigul (1999). For the above 3 species new to science, Latin diagnoses, English descriptions, illustrations, etymology of specific epithets and habitats are given. Sino-tropical fungal diversity is very fascinating. The major components of the vegetation, such as Leguminosae, Fagaceae and Bamboos in southwestern China can be compared favourably with the southeastern tropical Asia, which support a full range of ectomycorrhizal Boletaceae (Watling, 1993; Zang, Chen & Sittigul, 1999). Some saprophytic and epiphytic members are usually found under tropical and humid climate nature condition. The Pacific rainy current and the monsoon rainy current support the development of innumerable fungi and plants. Undoubtedly, a great number of species new to science await the collectors.

### 1 *Tubosaeta aureocystis* M. Zang sp. nov. (金囊体刺管牛肝菌) Fig.1: 1~7

Basidiocarpus parvulus, putridus. Pileus 1~1.5 cm latus, convexus demum planoconvexus, tomentosus, purpuratus, brunneus, subroseus. Contextus 0.2~0.3 cm crassus, purpuratus, rufus, caerulescens. Stratum hymenii tubulosum, ochraceum. Tubuli 0.4~1.2 mm longi, angulares vel irregulares, 15~20 per cm, ochracei vel flavi, decurrentes, poris 0.2~0.5 mm diam. Stipes 15~18 cm longus, 0.2~0.6 cm crassus, clavatus, aequalis vel basin versus attenuatus, solidus, siccus, fulvo-purpureus, longitudinaliter canaliculatus, haud reticulatus. Basidiosporae 9~10.4 × 4~4.5 μm, ellipsoideae, vel fusiformes, flavescens. Suprahilum depressum, ad apicem rotundum. Basidia 12~15 × 6~9 μm, late clavata, 4-sporigera. Pleurocystidia 40~50 × 9~11 μm, clavata. Cheilocystidia 40~65 × 9~12 μm, vermicularia, clavata, aurantiaca. Tramae tubi paralleloneurac

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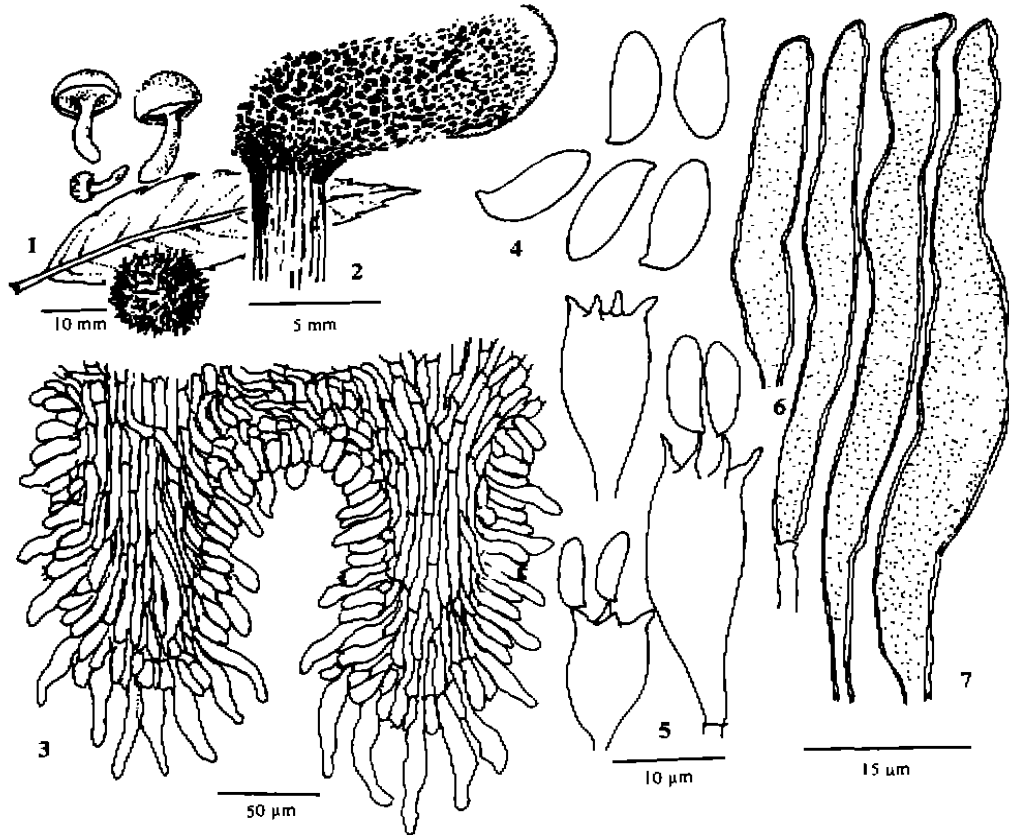


Fig. 1 *Tubosaeta aureocystis* M. Zang

1. Basidiocarps under *Castanopsis platycantha*; 2. Arrangement of tubes; 3. Tubes and tube trama;  
4. Basidiospores; 5. Basidia; 6. Pleurocystidia; 7. Cheilocystidia

*Fibula* nulla.

Habitat: In sylvis *Castanopsis platycanthae* et *Pini yunnanensis*.

Etymology: aureo = orange colour; cystis = cystidia, especially occur at edge of tubes.

Basidiocarp small sized, putrescent. Pileus 1-1.5 cm diam., fleshy, subglobose to convex finally applanate; surface purplish brown, finely tomentose. Context firmly fleshy, pinkish, reddish, blackening on bruising. Hymenophore tubulate, decurrent, ochraceous yellow. Tubes 0.4-1.2 mm long, pores 0.2-0.5 mm angular, irregular, not radially arranged, 15-20 per cm. Bruising greenish. Stipe central, 15-18 × 2-3 mm, equal or attenuated below, solid, surface pale yellowish above and below with purplish tints in the median region, with longitudinally striate, not reticulate. Taste and smell acrid. Basidiospores 9-10.4 × 4-4.5 μm, ellipsoid-fusoid with a suprabilar depressed and a rounded apex, pale yellowish brown, smooth, with thickened wall. Basidia 12-15 × 6-9 μm, clavate-cylindric, bearing four sterigmata up to 3 μm long. Pleurocystidia 40-50 × 9-11 μm, clavate. cheilocystidia 40-65 × 9-12 μm, lanceolate-fusoid or worm-shaped, with an obtusely pointed apex, orange or yellowish brown. Hymenophoral trama regular, with more or less parallel hyphae 3-5 μm diam. Clamp-connexions absent.

Specimen examined: Luo Ji Mts., Xichang, Sichuan ( 四川, 西昌, 螺吉山 ), 2100m. Fruiting of putative ectomycorrhizal fungus under *Castanopsis platyacantha* Rehd. et Wils and *Pinus yunnanensis* Fr. 20 IX 1999. Zang 13282. ( HKAS 34468 Typus ).

The genus *Tubosaeta* is a tropical member of Family Boletaceae, distributed in Tropical Africa and Malagasy Republic and has received some studies ( Horak, 1967, 1968; Pegler 1991 ). *Tubosaeta aureocystis* together with *T. goosensiae* ( Beeli) Horak, *T. calocystis* ( Heinem et Gooss.) Horak and *T. brunneosetosa* ( Singer) Horak are of a group of closely related taxa with purplish tints on the basidiocarps, but *Tubosaeta aureocystis* is characterized by the small size. The cheilocystidia are clavate to vermiform, with an obtusely rounded apex and orange or yellowish brown thin wall.

## 2 *Tubaria lithocarpicola* M. Zang sp. nov. ( 石栎假脐菇 ) Fig. II: 1~6

Pileus 1.7~2 mm latus, convexo-planusculus, sordide albus, pallide ferrugineus, hygrophanus, glaber. Lamellae sinuato-decurrentes, sordide argillaceae, lamellis intermixtae. Stipes 1.7~2 × 0.2~0.3 mm, aequalis, ad basin bulbillosus, cylindricus, pileo concolor. Caro tenuissima, pallide brunnea. Basidiosporae 9~10.5 × 5~7 μm, ellipsoideae, sphaero-ellipsoideae, pallide brunneae, subtiliter echinulatae. Basidia 15~25 × 5~8 μm, cylindrico-claviformia, 4-sporigera. Pleurocystidia 15~35 × 6~10 μm, clavata. Cheilocystidia 30~60 × 6~10 μm, clavata, hyalina. Hyphae tramae lamellae parallelae regulares. Hyphae omnes fibulatae.

Habitat: In sylvis *Lithocarpus confinis* et *Cyclobalanopsis glaucoidis*.

Etymology: lithocarpus = the genus *Lithocarpus* cola = dweller. This fungus exists usually with *Lithocarpus confinis* Huang et Chen ex Hsu

Pileus 1.7~2 mm diam., convex at first and then plane, surface dingy white rusty brown, strongly hygrophanous, glabrous. Gills sinuate decurrent, argillaceous-brown. Stipe 1.7~2 × 0.2~0.3 mm, equal, with a white sub-bulbous base, concolorous with the pileus. Context very thin, pale brown. Basidiospores 9~10.5 × 5~7 μm, ellipsoid to spherical-ellipsoid, pale brown, thin-walled with densely echinulate. Basidia 15~25 × 5~8 μm, cylindric-clavate, bearing four sterigmata. Pleurocystidia 15~35 × 6~10 μm, clavate. Cheilocystidia 30~60 × 6~10 μm, clavate, hyaline. Hymenophoral trama with parallel hyaline hyphae, all hyphae bearing clamp-connexions.

Specimen examined. Hou he, Chao-tian-ma, Yihang, Yunnan, ( 云南, 彝良, 朝天马, 后河 ) 1600 m. on the fallen leaves of *Lithocarpus confinis* Huang et Chang ex Hsu, and *Cyclobalanopsis glaucoides* Schottky. 18 IX 1998 Zang 12909 ( HKAS 32715 Typus ! )

This is the most special taxon of the genus *Tubaria* ( Family Crepidotaceae ) and is known to have a narrow distribution. The basidiospores clearly have short echinules. *T. lithocarpicola* approaches most closely the tropical species *Tubaria thermophila* Singer and *Tubaria verruculospora* Pegler ( Pegler, 1977 ), but it is recognized by the small size of fruit bodies and larger basidiospores. It usually grows on fallen leaves of the genera *Lithocarpus* and *Cyclobalanopsis*

## 3 *Coprinus bambusicola* M. Zang sp. nov. ( 竹生墨伞 ) Fig. II: 7~10

Pileus 4~6 mm latus, pubescens, niveus vel eburneus. Cellulae cuticulae pilei globosae, ellipsoideae vel sphaeropedunculatae. Lamellae angustae tenuisque usque 0.1~0.5 mm latae, adnatae, divaricatae, pallidae demum nigrae. Stipes 2~6.5 mm longus, 0.4~0.6 mm crassus, clavatus ad basin bulbillosus, tomentosus, tenellus, niveus vel exalbidus. Basidiosporae 9~11 × 6~6.5 μm, ellipsoideae vel subrhombiformes, fuscae, atro-fuscae. Basidia 13~18 × 6~10 μm, obovata, 4-sporigera. Hyphae tramae lamellae parallelae regulares, fibulatae.

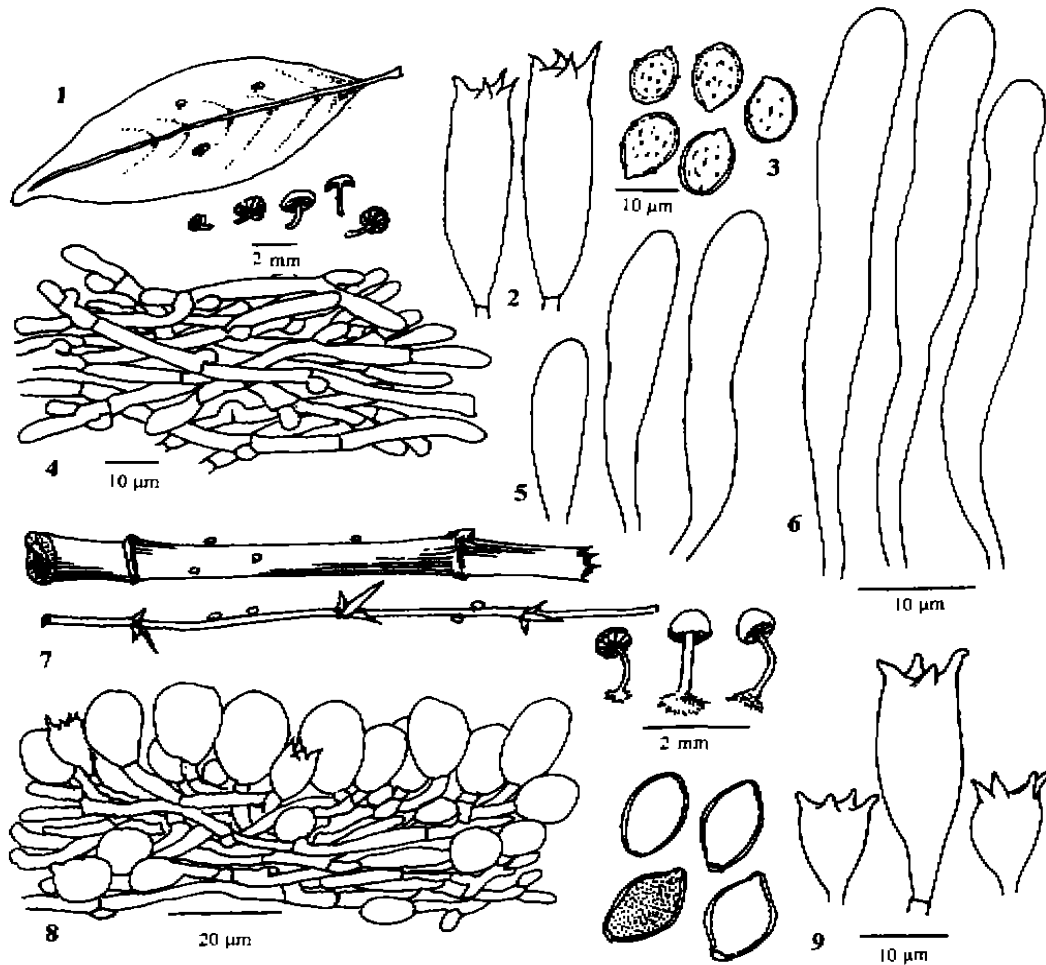


Fig. II (1-6) *Tubaria lithocarpicola* M. Zang

1. Basidiocarps, on the leaf of *Lithocarpus confinis*; 2. Basidia; 3. Basidiospores; 4. Hyphae bearing clamp-connexions; 5. Pleurocystidia; 6. Cheilocystidia; (7-9) *Coprinus bambusicola* M. Zang 7. Basidiocarps on the culms of *Bambusa blumeana*; 8. Hymenium showing pleurocystidia vesicular to pyriform and basidia; 9. Basidiospores and basidia

Habitat: In sylvis *Bambusae blumeanae* Schult.

Etymology: bambusi = bamboo; cola = dweller. This fungus exists usually on dries culms of a kind of Bamboo (*Bambusa blumeana* Schult.)

Pileus 4-6 mm diam., ovoid to conico-campanulate, thin and fragile, surface pure white to cream, pubescens. Pileal surface a monostrotous epithelium of vesiculose elements, 20-25 × 18-20 μm, globose, ellipsoid or with globose heads, hyaline, thin-walled. Lamellae free, white then brown, black, narrowed, thin. Stipes 2-6.5 × 0.4-0.6 mm, equal, hollow; surface whitish, snow-white, floccose at the base, arising from a bulbous base. Veil absent. Basidiospores 9-11 × 5-6.5 μm, ellipsoid, sub-rhombic, somber brown, blackish brown. Basidia 13-18 × 8-10 μm, obovate, bearing four sterigmata up to 4 μm long. Pleurocystidia abundant, 25-35 × 20-30 μm, subglobose or piriform with a tapering base. Hymenophoral trama regular, hyaline with

parallel hyphae

Specimen examined: Wancaoping, Pianma, Lushui, Yunnan, (云南·泸水·片马, 湾草坪), alt. 2500m. On dried culms of *Bambusa blumeana* Sebult. 3 XI 1998. Zang 12953 (HKAS 327701 Typus)

This is a small-sized fungus. It is found from subtropical and tropical areas and always associated with dead bamboo culms. *Coprinus bambusicola* is easily distinguished from *Coprinus urticicola* (Berk. et Br.) Buller by the larger basidiospores and lacking the velar squamules elements. *C. urticicola* is usually associated with the genus *Macaranga* and often on the fallen twigs. The basidiospores are  $6\sim 7.5 \times 4\sim 7 \mu\text{m}$  (Pegler, 1977)

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## 我国担子菌类热带种新知

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**摘 要:** 近来在川、滇探到和鉴定了担子菌的三个新种: 金囊体刺管牛肝菌 *Tubosaeta aureocystis* M. Zang (牛肝菌科 Boletaceae)、石栎假脐菇 *Tubaria lithocarpicola* M. Zang (锈伞科 Crepidotaceae) 和竹生墨伞 *Coprinus bambusicola* M. Zang (伞菌科 Agaricaceae)。刺管牛肝菌属 *Tubosaeta* 为典型热带属, 为我国新记录。

**关键词:** 金囊体刺管牛肝菌, 石栎假脐菇, 竹生墨伞, 新种

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