

New Species of *Simocybe* KARSTEN (Agaricales) from Papua New Guinea

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Abstract. Three new species of *Simocybe* (*S. argillacea*, *S. fuscoconica*, *S. nitellinoides*) and one new form (*S. argillacea* f. *bispora*) are described from Papua New Guinea. The four taxa are both keyed out and fully illustrated.

Introduction

Simocybe KARSTEN (SINGER 1975: 651) is a small genus of rather inconspicuous and often wood-inhabiting Agaricales. The genus is based upon *Agaricus centunculus* FR. as type species (not on *Agaricus lugubris* FR. [= generic type of *Phaeocollybia* HEIM] as erroneously postulated by HORAK 1968: 565).

Until recently the taxonomic delimitation of *Simocybe* was still unsettled owing to close morphologic relationships to other genera such as *Phaeomarasmium*, *Flammulaster*, *Naucoria*, *Flammula* and *Tubaria* (ss. ROMAGNESI 1942, 1962).

In accordance with SINGER (1975: l. c.) *Simocybe* is here characterized by the following systematically most important features: carpophores predominantly olive-green (at least with shades in fresh specimens); stipe central, eccentric or lateral; spore print brown; spores phaseoliform (in lateral view) to broadly ovoid, brown, smooth, germ pore absent (rarely present); cheilocystidia (and caulocystidia) conspicuous, clavate, fusiform or lageniform, thin-walled, hyaline, crystals none; pleurocystidia none; cuticle composed of clavate to fusoid ("cystidioid") terminal cells forming a loose or compact, one-layered palisade, membranes not gelatinized, encrusting (rarely plasmatic) pigment, clamp connections present. Frequently on rotten wood or decomposing organic debris.

Except New Zealand (HORAK 1979a) *Simocybe* is not positively recorded yet from the remaining areas of Australasia (HORAK & KOBAYASI 1978). However, it can be expected that among the many Australian species (still waiting to be critically reexamined) one or the other species of *Simocybe* is concealed in fact. So far at least no representatives of *Simocybe* have been detected among the type species studied by PEGLER (1965) and HORAK (unpubl. data on taxa described by CLELAND).

From the adjacent Indomalayan province there is only one agaric

published which could be referred to *Simocybe*, viz. *Naucoria flavo-
viridula* HENNINGS (1899: 17) from JAVA (Indonesia). Unfortunately
the type material of that species is lost and therefore this record
remains doubtful until new collections are made at the type locality.

Type material of the new species is kept in ZT. Unless otherwise
stated the magnifications of the figures are: carpophores (natural size),
spores ($\times 2000$), basidia and cystidia ($\times 1000$) and cuticle (vertical
section, $\times 500$).

Key to species of *Simocybe*

1. Pileus —25 mm, convex to depressed-plane, reddish-brown with
yellow-olive tint; lamellae emarginate; stipe —35/—1.5 mm,
pale yellow-brown; odour none; spores 7—8/4—4.5 μm ; cheilo-
cystidia distinctly club-shaped; on rotten wood. 1. *S. nitellinoides*
- 1*. Pileus conic to papillate-umbonate, not reddish brown; lamellae
adnate; odour distinctly sourish; cheilocystidia fusoid-sub-
capitate 2
2. Pileus —35 mm, dark brown to black-brown, fuscous with olive
tint; lamellae argillaceous-olive; stipe —30/—3 mm, olive-brown,
apex pruinose; spores 4—5/3—3.5 μm ; on rotten wood of
Nothofagus and/or *Castanopsis* 2. *S. fuscoconica*
- 2*. Pileus smaller, —15 mm, argillaceous to pale brown, olive tint
absent or inconspicuous; stipe pruinose over whole length, argil-
laceous; spores larger; on rotten wood of broad-leaved trees. 3
3. Stipe —15/—1 mm; spores 5—6/3.5—4 μm , germ pore distinct;
basidia 4-spored 3. *S. argillacea*
- 3*. Stipe —10/—1 mm, sometimes eccentric; spores 7.5—9.5/5—
6.5 μm ; basidia 2-spored. 4. *S. argillacea* f. *bispora*

Description of species

1. *Simocybe nitellinoides* HORÁK sp. n.

Fig. 1

Pileus —25 mm, convexus dein depresso-applanatus, rufo-brunneus,
senectudine luteo-brunneus et subolivaceo-tinctus, velutinus. Lamellae emargi-
nato-adnatae, argillaceae vel subcarnosae. Stipes —35/—1.5 mm, cylindricus
vel subclavatus, pallide luteo-brunneus, apicaliter pruinosis. Sporae 7—8/
4—4.5 μm , phaseoliformes, brunneae. Cheilocystidia conspicue clavata. Ad
lignum putridum. Nova Guinea. Typus ZT, 72/584.

Pileus —25 mm, convex when young soon becoming plane with
depressed to subumbilicate centre; reddish brown (reminds *Rhodocybe
nitellina* (FR.)) turning pale yellow-brown with age, always with
distinct olive tint; velutinous to furfuraceous especially near disc,
subglabrous towards striate margin; dry, hygrophanous, strongly
striate when moist, veil remnants absent. Lamellae (L 10—16, —7)

crowded, broadly emarginate, ventricose; pale grey-argillaceous at first turning argillaceous with reddish tint in mature specimens, edge albobimbriate. Stipe —35/—1.5 mm, cylindric, central, equal to subclavate at base; pale yellow-brown; apex pruinose, smooth to subfibrillose towards base, veil remnants none; dry, hollow to fistulose, single in groups. Odour and taste not distinctive. Context pale yellow-brown with olive tint. Spore print brown.

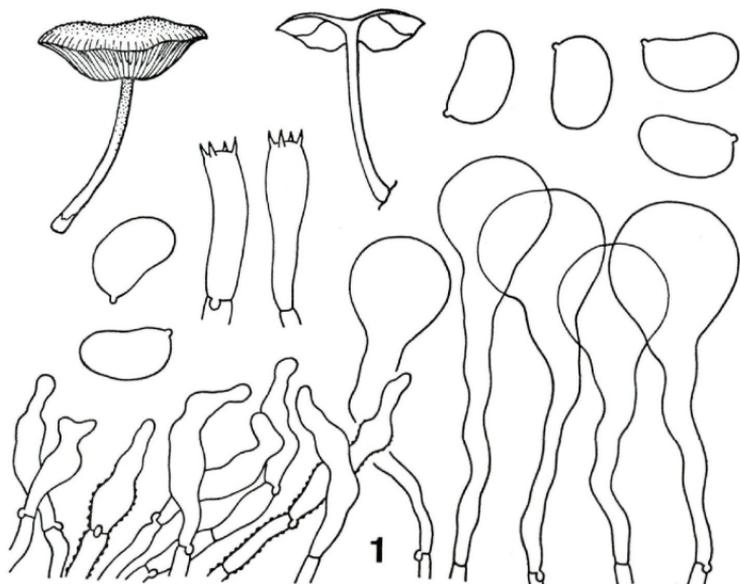


Fig. 1. *Simocybe nitellinoides* HORÁK (type): carpophores, spores, basidia, cheilocystidia, cuticle

Spores 7—8/4—4.5 μm , phaseoliform, pale brown, membrane thinwalled, smooth, germ pore absent. Basidia 20—28/7 μm , 4-spored. Cheilocystidia 50—65/14—20 μm , conspicuously clavate, membrane thin-walled hyaline. Pleurocystidia none. Caulocystidia like cheilocystidia. Cuticle a palisade of erect fusoid cells, occasionally constricted or bluntly forked at apex, membranes not gelatinized, encrusted with brownish (KOH) pigment. Clamp connections on septa.

Habitat. — On rotten wood. — Papua New Guinea.

Material. — PAPUA NEW GUINEA: "Morobe District, Bulolo, Taun Creek; 25. X. 1972, leg. HORÁK (ZT, 72/584: holotype)".

Due to the rich reddish brown colour this agaric can be mistaken

in the field for *Rhodocybe nitellinoides* HORAK (1979b). As soon as the carpophores start to dry up the olive tint (readily observed on fresh and moist specimens) disappears and without this indicative macro-character for *Simocybe* the generic classification is difficult indeed. The microscopic features, however, leave no doubt concerning the taxonomic whereabouts of this interesting *Simocybe*. The cuticle of this fungus is formed by a turf of fusoid terminal cells, encrusted with brown pigment. Striking are the unusually large and club-shaped cheilocystidia whose morphology and size remind of those described for *S. conioophora* (ROMAGNESI 1962). The latter species, however, shares no further characters but these significant cheilocystidia with *S. nitellinoides*.

2. *Simocybe fuscoconica* HORAK sp. n.

Fig. 2

Pileus —35 mm, conicus dein papillato-convexus, fuliginosus vel umbrinus, saepe olivaceo tinctus, subgranulosus. Lamellae adnatae, argillaceae vel sub-olivaceae, albofimbriatae. Stipes —30/—3 mm, cylindricus, olivaceo-brunneus, longitudinaliter fibrillosus. Odor forte acidulosus. Sporae 4—5/3—3.5 μ m, phaseoliformes, brunneae. Cheilocystidia cylindraceo-subcapitatae. Ad lignum putridum Nothofagi vel Castanopsidis. Nova Guinea. Typus ZT, 73/268.

Pileus —35 mm, conic to convex with distinct conic papilla, becoming plane and umbonate with age; disc dark brown to fuliginous or fuscous, grey-argillaceous towards strongly striate margin, a ways with distinct olive tint; velvety to minutely squamulose or granulose; hygrophanous, dry, veil remnants absent. Lamellae densely crowded, adnate (to adnexed in aged carpophores); pale brown to argillaceous, with olive tint, edge albofimbriate. Stipe —30/—3 mm, cylindric, central, equal; pale olive-brown; apically pruinose, below fibrillose towards base, no traces of veil remnants; dry, hollow, single in groups. Odor strongly acidulous, like *Lepiota cristata* (Fr.). Chemical reactions unknown. Spore print brown.

Spores 4—5/3—3.5 μ m, phaseoliform, brown, membrane thin-walled, smooth, germ pore none. Basidia 20—26/6—7 μ m, 4-spored. Cheilocystidia 40—70/5—8 μ m, fusoid to cylindric with subcapitate apex, membrane thin-walled, hyaline, forming dense seam at lamellar edge. Pleurocystidia absent. Caulocystidia like cheilocystidia. Cuticle a palisade of erect to semierect cylindric hyphae (5—8 μ m diam.), terminal cells cylindric to subfusoid, membrane not gelatinized, encrusted with brown (KOH) pigment. Clamp connections present.

Habitat. — On rotten wood (*Nothofagus* sp., *Castanopsis acuminatissima*). — Papua New Guinea.

Material. — PAPUA NEW GUINEA: "Morobe District, Wau, Unima; 26. V. 1973, leg. HORAK (ZT, 73/268: holotype)".

Macroscopically this species is well characterized by its conic to papillate, fuscous pileus, the olive-brown and apically pruinose stipe

and the strong acidulous odour. Furthermore rather small phaseoliform spores are also distinctive for *S. juscoconica*.

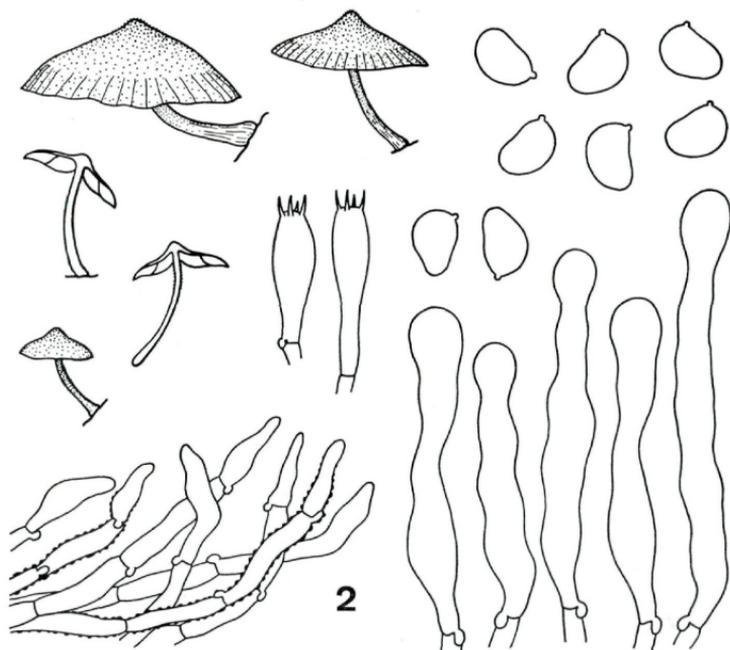


Fig. 2. *Simocybe juscoconica* HORAK (type): carpophores, spores, basidia, cheilocystidia, cuticle

3. *Simocybe argillacea* HORAK sp. n.

Fig. 3

Pileus — 15 mm, campanulatus vel umbonato-planus, argillaceus, striatus. Lamellae adnatae, pileo concolores. Stipes — 15/— 1 mm, cylindricus, argillaceus, pruinosis. Sporae 5—6/3.5—4 μ m, subphaseoliformes, porus germinativus distinctus. Basidia 4-sporigera. Cheilocystidia fusoides-capitata. Ad lignum putridum. Nova Guinea. Typus ZT, 72/248.

Pileus — 15 mm, campanulate or convex with more or less pronounced umbonate papilla, margin upturned in aged specimens; argillaceous to pale brown, olive tints absent; minutely velvety to granular; dry, hygrophanous, membranaceous, strongly striate when moist, veil remnants absent. Lamellae densely crowded, adnate to broadly adnate, not emarginate; argillaceous, edge fimbriate, con-

colorous. Stipe —15/—1 mm, cylindric, equal, central; argillaceous above, argillaceous-brown at base, without olive tints; pruinose, dry, solid, single in groups, veil remnants none. Odour and taste acidulous. Context pale brown. Spore print pale brown.

Spores 5—6/3.5—4 μ m, phaseoliform to ovoid, membrane thin-walled, smooth, brown, germ pore distinct. Basidia 15—20/5—6 μ m, 4-spored. Cheilocystidia 30—55/5—9 μ m, fusoid with capitate apex, membrane thin-walled, hyaline, forming dense seam on lamellar edge. Pleurocystidia none. Caulocystidia like cheilocystidia. Cuticle a palisade of erect, fusoid cells (20—50/4—8 μ m), membrane

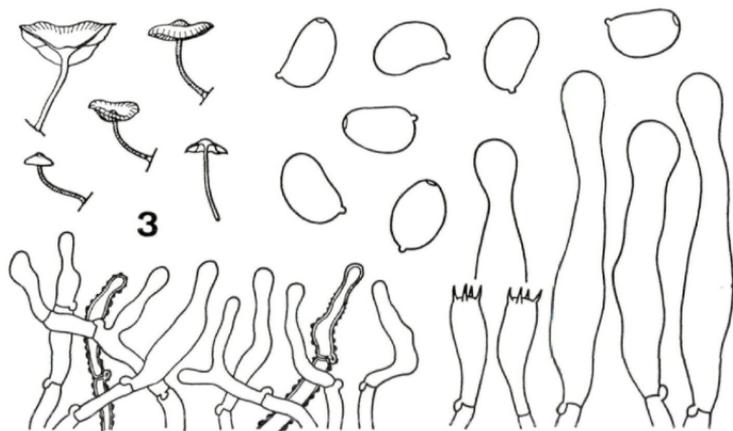


Fig. 3. *Simocybe argillacea* HORAK (type): carpophores, spores, basidia, cheilocystidia, cuticle

not gelatinized, sometimes thick-walled near basal septum, encrusted with brown (KOH) pigment. Clamp connections numerous.

Habitat. — On rotten wood in rain forest. — Papua New Guinea.

Material. — PAPUA NEW GUINEA: "Morobe District, Bulolo. Watut; 20. III. 1972, leg. HORAK (ZT 72/248: holotype)".

4. *Simocybe argillacea* f. *bispora* HORAK f. nov.

Fig. 4

Differt a typo sporis majoribus et basidiis 2-sporigeris. Ad lignum putridum. Nova Guinea. Typus ZT, 72/585.

Pileus —15 mm, hemispheric or convex with small conic or umbonate papilla; argillaceous, brownish at disc; minutely velvety; dry, strongly striate when moist, fragile, no veil remnants. Lamellae

(L 8—10, —3) moderately crowded, adnate sometimes indistinctly emarginate in aged specimens, ventricose; pale grey-argillaceous, edge fimbriate, concolorous. Stipe —10/—1 mm, cylindric, equal, central or eccentric; argillaceous, any olive tints absent; pruinose, dry, solid, fragile, single in groups, veil remnants absent. Context thin, pale argillaceous. Odour and taste acidulous. Spore print brown.

Spores 7.5—9.5/5—6.5 μm , phaseoliform to broadly ovoid, brown, smooth, thin-walled, germ pore none. Basidia 18—28/5—7 μm , 2-spored. Cheilocystidia 30—60/6—9 μm , subclavate or fusoid-capitate, hyaline, membrane thin-walled. Pleurocystidia absent.

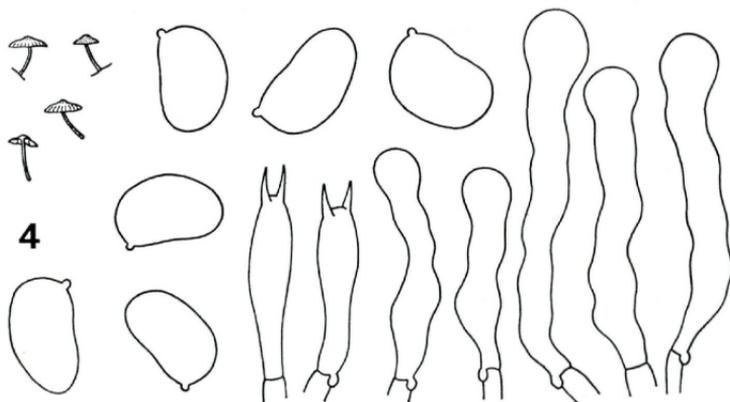


Fig. 4. *Simocybe argillacea* f. *bispora* HORAK (type): carpophores, spores, basidia, cheilocystidia

Caulocystidia like cheilocystidia. Cuticle a palisade of clavate to fusoid-capitate cells (20—60/5—12 μm), membranes not gelatinized, encrusted with brown (KOH) pigment. Clamp connections numerous.

Habitat. — On rotten wood in rain forest. — Papua New Guinea.

Material. — PAPUA NEW GUINEA: “Morobe District, Bulolo, Head’s Hump; 26. X. 1972, leg. HORAK (ZT 72/585, holotype of forma “*bispora*”). — “Morobe District, Bulolo, Susu; 9. XI. 1972, leg. HORAK (ZT 72/601)”.

Simocybe argillacea (and its f. *bispora*) are close to the European *S. rubi* (BERK.) (= *S. haustellaris* (FR.) ss. auct.) and *S. austrorubi* HORAK (1979) described from New Zealand. Contrary to the species from Papua New Guinea, however, the carpophores of these related taxa are distinctly olive-green. In addition the structure of the cuticle and the shape of the spores are further distinguishing features to separate these three agarics (ROMAGNESI 1962, MOSER 1978).

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