

The gasteral *Basidiomycetes* of Mascarenes and Seychelles 2

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Accepted 2. 8. 2006

Key words: *Basidiomycetes*, *Gasteromycetes*, *Bovista*, *Geastrum*, *Scleroderma*, *Vascellum*. – New species. – Mycoflora of Africa.

Abstract: *Bovista reunionis* is described as a new species from La Réunion island. First records of *Vascellum intermedium* and *Geastrum lloydii* and further records of *Vascellum endotephrum* are reported from Mauritius and La Réunion. *Scleroderma flavidum* is first recorded from the Seychelles.

Zusammenfassung: *Bovista reunionis* wird als neue Art von der Insel La Réunion beschrieben. Neufunde von *Geastrum lloydii* und *Vascellum intermedium* sowie weitere Funde von *Vascellum endotephrum* von Mauritius bzw. La Réunion werden mitgeteilt. *Scleroderma flavidum* wird erstmalig von den Seychellen berichtet.

In addition to KREISEL & HAUSKNECHT (2002) further records of *Gasteromycetes* from the islands in the Indian Ocean near Africa are reported, based on more recent collections made by ANTON HAUSKNECHT during travels in 2003, 2005, and 2006.

***Bovista reunionis* KREISEL & HAUSKN., spec. nova** (Figs. 1, 2 a, 3)

Diagnosis latina:

Fructificationes globosae, subdepressae, basi luto insistens. Exoperidium furfuraceo-verruculosum, initio luteum, deinde ochraceum, siccum brunneolum. Endoperidium tenue, brunneum, fragile. Gleba alba, deinde olivaceobrunnea. Subgleba desens. Sporae subglobosae, 4,0-4,5 µm diam., punctatae, pedicellatae, in cumulo olivaceobrunneae, pedicellis hyalinis rectis 14-18 µm longis praeditae. Capillitium subfragile, aseptatum, poris minimis praeditum, laxe dichotomum, modo generis *Bovista* ramificatum; hyphae capitales 5 µm crassae. Habitat in insula La Réunion (mare Indicum) in caespite graminearum sub arbores deciduos.

Typus: La Réunion, Étang-Salé-les-Bains, Chantis Emplois-Verts, in lawn near tropical trees on Camping site, 25. 3. 2005, leg. A. HAUSKNECHT, det. H. KREISEL (WU 23995, holotypus, isotypus in herbario Kreisel = Kr).

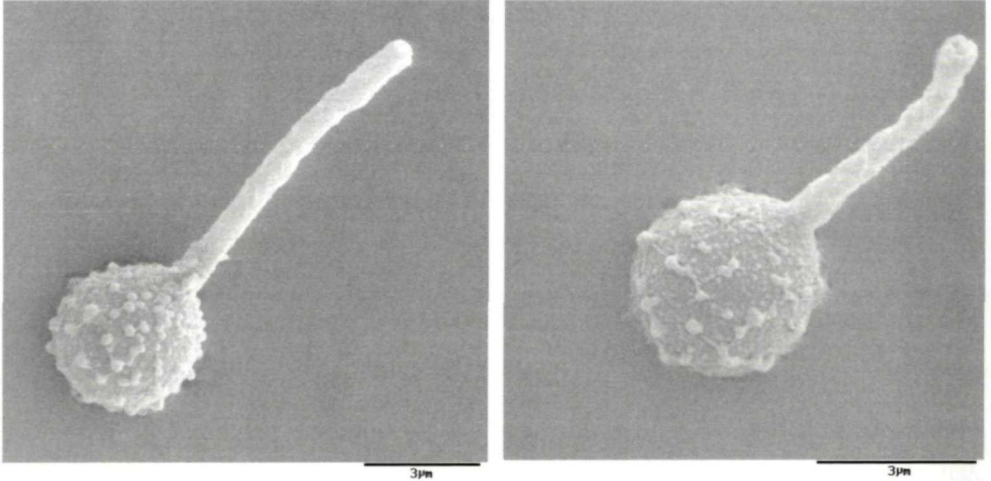


Fig. 1. *Bovista reunionis* (holotype), spores in SEM.

Characters:

Fruitbody: globose, somewhat depressed, 26-40 mm large, base plicate-rugose, nearly smooth, fixed on a small ball of loamy soil.

Exoperidium: yellow, later ochraceous to brownish yellow; brownish to light reddish brown when dried, furfuraceous to granulose.

Endoperidium: thin papery, fragile, brown, dull, somewhat shining.

Gleba: white, then olivaceous brown.

Subgleba: none.

Spore deposit: clear olivaceous brown.

Spores: subglobose to broadly ovoid, punctate, s. m. clear reddish brown, thin-walled, 4.0-4.5 μm in diam., pedicellate. Pedicels hyaline, straight or somewhat bended, not acuminate, (5-)14-18 \times 1 μm , s. m. punctate. In scanning electron microscope (SEM) the spore ornament consisting of irregularly scattered larger blunt varts and densely distributed very fine granular warts (Fig. 1).

Capillitium: a slender *Bovista* type, s. m. reddish brown, more or less fragile, moderately thick-walled, smooth or partly incrustated, thinner branches with minute pits, thicker ones not pitted, aseptate, not heteromorphic, up to 5 μm thick.

Paracapillitium: not found.

Specimen: Only type collection (see above).

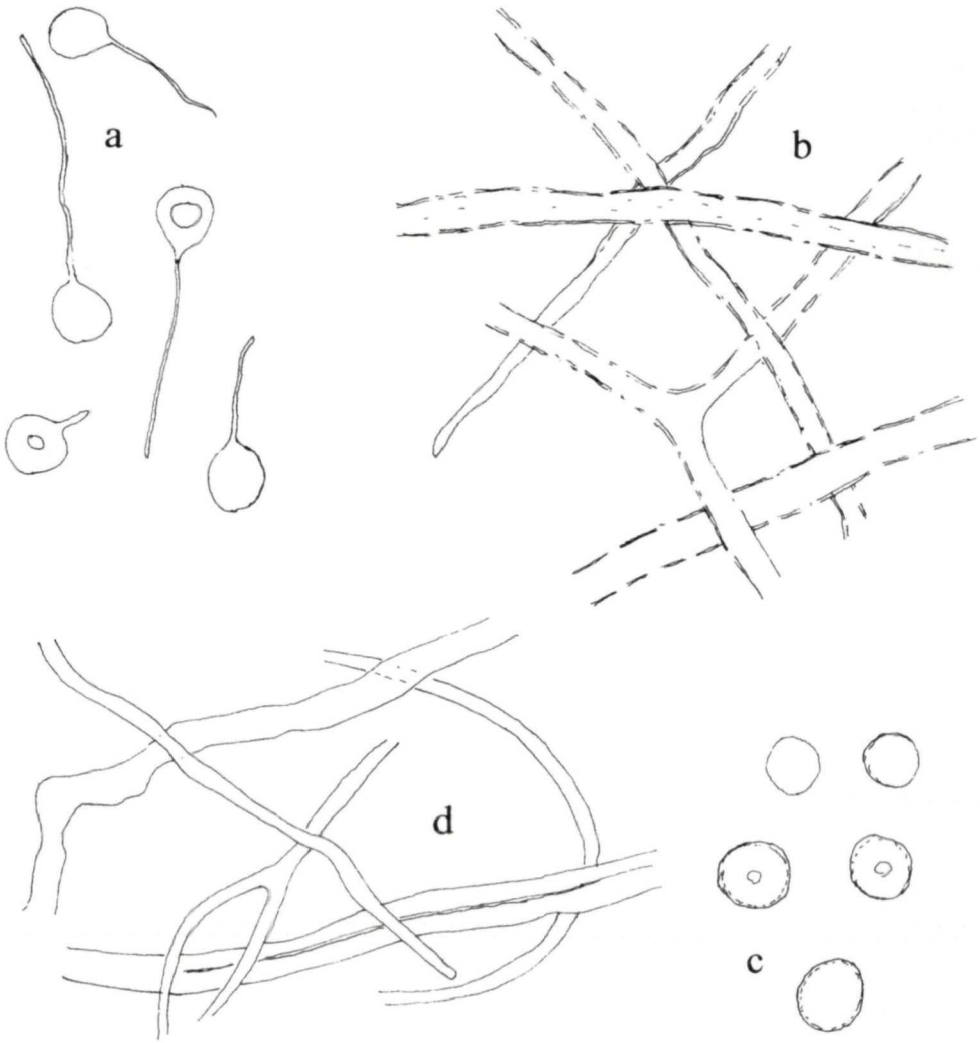


Fig. 2 *a, b. Bovista reunionis* (holotype). *a* spores, $\times 2000$, *b* capillitium, $\times 800$. *c, d. Geastrum lloydii* (WU 23994). *c* spores, $\times 2000$, *d* capillitium, $\times 800$.

This species belongs to *Bovista* subg. *Bovista* ser. *Globisporae* KREISEL and is near to *Bovista verrucosa* (G. CUNN.) G. CUNN., described 1925 from South Australia and collected once in Italy (KREISEL 1967), but differs from that species by larger fruit-bodies and longer pedicels (5.5-10.5 μm long in *B. verrucosa*, 14-18 μm in *B. reunionis*). Significant is the spore ornament consisting of two kinds of warts as seen in SEM.

Geastrum lloydii* BRES. & PAT. in LLOYD 1901 (Figs. 2 b, 4, 5)*Characters** (combined from two collections):

Fruitbodies: An earth-star with saccate to arcuate, semifornicate fruitbodies, the base provided with one or more snow-white mycelial strands.

Exoperidium: 22-30 mm in diam. when expanded, papery, splitting into 5-7 rays, non-hygroscopic. Mycelial layer umber brown and covered with earth in the periphery but clean and cream white in the centre. Fibrous layer present, whitish. Pseudoparenchymatous layer at first white, then yellowish brown to umber brown.

Endoperidium: sessile, globose, 11-14 mm in diam., smooth, grey when fresh, later light to dark brown, opaque. Peristome fimbriate, not marginate, but contrasting by its darker colour with the endoperidium.

Spore deposit: greyish brown to blackish brown.

Capillitial hyphae: hyaline to dark umber brown, smooth or incrustated, with very narrow lumen or massive, aseptate, rarely dichotomous near the tapering tips, 3-5 μm thick.

Spores: globose, 3.4-4.3 μm in diam., densely verruculose with hyaline to brown conical warts, s. m. dark brown, opaque.

Specimens: Mauritius: Black River District, Black River National Park, on decayed tropical timber, somewhat fasciculate young fruitbodies, 26. 1. 2003, leg. A. HAUSKNECHT, det. H. KREISEL (WU 25493, Herb. Kr MT 10/03); - Pamplemousses, Botanic Garden, on bare soil under tropical trees and palms, 22. 3. 2005, leg. A. HAUSKNECHT, det. H. KREISEL (WU 23994, Kr).

This species belongs to a group of tropical, terricolous, subfornicate, saccate species with striking white mycelial strands at the base and fimbriate, not delimited peristome.

It has a pantropical-subtropical distribution, and is known hitherto from Samoa (type), Congo (Haut-Katanga, DISSING & LANGE 1962), and the Caribbean (Florida and Puerto Rico, COKER & COUCH 1928; Trinidad, DENNIS 1953; Cuba, KREISEL, unpubl.). It is very near to *Geastrum rhizophorum* DISSING & M. LANGE, described from virgin forests in Congo, which differs by a strigose-tomentose, dark brown mycelial layer. *Geastrum subiculosum* COOKE & MASSEE sensu COKER & COUCH (1928) from Jamaica may refer to an immature specimen of *G. lloydii*.

PONCE DE LEÓN (1968) places *G. lloydii* in the synonymy of *G. javanicum* (LÉV.) P. PONCE (conceived in a broad sense), another terricolous species of tropical and subtropical forests, which is different by arcuate fruitbodies with a clean and felty outer surface and a distinct annular peristome ring. *Geastrum welwitschii* MONT., originally described from Portugal and later recorded from Bermudas, Florida, and South Carolina differs by a 4-(to 7-)radiate exoperidium and a quite distinct fornicate structure [PONCE DE LEÓN 1968 as *G. javanicum* var. *welwitschii* (LÉV.) P. PONCE; CALONGE 1998]. Contrary to *G. javanicum*, *G. welwitschii* has no peristome ring, and a shortly stipitate endoperidium.

As no coloured illustrations of *Geastrum lloydii* are available up to date, we present colour photographs of both Mauritius collections.



Fig. 3. *Bovista reunionis* (holotype). – Fig. 4. *Geastrum lloydii* (WU 25493). – Fig. 5. *G. lloydii* (WU 23994). – Phot. INGRID HAUSKNECHT.

***Scleroderma flavidum* ELLIS & EVERH. 1883**

Specimens: Seychelles: Mahé island, Val d'Endorre, 14. 3. 2006, leg. & det. A. HAUSKNECHT (WU 26570). Accompanying trees (potential ectomycorrhiza partners) have not been noted.

The species is known from Mauritius and La Réunion (KREISEL & HAUSKNECHT 2002), but first recorded from the Seychelles.

***Vascellum endotephrum* (PAT. 1902) DEMOULIN & D. M. DRING 1975**

Specimens: Mauritius: Curepipe, Trou aux Cerfs, in flowerbed with small shrubs on bare, granular stony volcanic soil, 3. 2. 2003, leg. A. HAUSKNECHT, det. H. KREISEL (WU 24554, 24555; Kr MT 34/03 and 35/03).

For description and more localities on Mauritius, see KREISEL & HAUSKNECHT (2002).

***Vascellum intermedium* A. H. SM. 1974**

Specimens: Mauritius: Pamplemousses District, Les Mariannes, on compost pile (waste of a sugar factory, used as fertilizer), in dense fascicles, 1. 2. 2003, leg. A. HAUSKNECHT, det. H. KREISEL (WU 24552, Kr MT 31/03); - - on a fertilized field near compost pile, 1. 2. 2003, leg. A. HAUSKNECHT, det. H. KREISEL (WU 24553, Kr MT 32/03); - Pamplemousses, Botanic Gardens, 22. 3. 2005, leg. & det. A. HAUSKNECHT (WU 26441).

La Réunion: Étang-Salé-les-Bains, Chantis Emplois-Verts, in lawn near tropical trees on camping site, together with *Bovista reunionis*, 25. 3. 2005, leg. & det. A. HAUSKNECHT (WU 26449); - - 1. 4. 2005, leg. & det. A. HAUSKNECHT (WU 26453).

First records of this species from the Mascarenes. For species concept and a modern key to the genus *Vascellum* F. ŠMARDÁ see KREISEL & HAUSKNECHT (2001).

The authors thank HARTMUT FISCHER, Greifswald, for electron microscopical work, and DIETLINDE KRISAI for elaboration of the microscopical drawings.

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Zeitschrift/Journal: [Österreichische Zeitschrift für Pilzkunde](#)

Jahr/Year: 2006

Band/Volume: [15](#)

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Artikel/Article: [The gasteral Basidiomycetes of Mascarenes and Seychelles 2. 137-142](#)