

## A note on the genus *Beenakia*

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*Beenakia subglobospora* M. Nuñez & L. Ryvarden from Brazil is described as new. A key and descriptions for all accepted species are given.

Keywords: Aphyllophorales, *Beenakia*.

The genus *Beenakia* was described by Reid (1956) with *B. dacostae* as the type species. Additional collections were reported from New Zealand by Cunningham (1958). Cunningham (1958) and Reid (1956) placed the genus in Hydnaceae *s. lato*. Maas Geesteranus (1963) gave a detailed description of the hyphal system in the type species and suggested that the genus was better placed in Gomphaceae because of its oblong, verrucose spores. Since then further species have been described and Parmasto & Ryvarden (1990) have given a synopsis of all species known in the genus. Jülich & Star (1983) examined the ultrastructure of the basidiospores of the type species and also concluded that the correct taxonomic position of *Beenakia* is within the Gomphaceae. Another genus, *Psathyrodon* Maas Geesteranus (1977) is based on *P. fuliginosus* Maas Geesteranus, the type species from Zambia. It is characterized by ellipsoid, verrucose spores as in all *Beenakia* species and Parmasto & Ryvarden (1990) therefore have proposed that *Psathyrodon* be treated as a synonym of *Beenakia*. In 1987 one of us (L.R.) collected a stipitate hydroid fungus with tiny spines from Ihla do Cardoso, Saõ Paulo State, Brazil, growing on rotten wood. A detailed examination revealed that the species had finely ornamented, pale yellow spores and a monomitic hyphal system. These characters pointed to *Beenakia*, but its morphology did not fit any of the known taxa, and it is therefore described below as new. The description of *Beenakia* by Parmasto & Ryvarden (1990) was given in a journal with a rather restricted circulation. Thus, we felt it would be useful to update the information as well as to describe the new species.

**Beenakia** Reid, Kew Bull. 1955: 635, 1956.

= *Psathyrodon* Maas Geest. Kew Bull. 31: 417. 1977.

**B**asidiocarps pileate, dimidiate to laterally or centrally stipitate, upper surface tomentose to matted and scrupose, white, beige to ochraceous, becoming darker with age and often with olivaceous tints. – **H**ymenophore hydroid with round spines, concolorous with upper surface. – **S**tipe, if present, concolorous with pileus and with the same surface structure. **C**ontext homogeneous, soft and spongy, white to ochraceous with olivaceous tints. – **H**yp h a l s y s t e m monomitic, generative hyphae with clamps at the septa, hyaline and often inflated, smooth to distinctly warted. – **C**ystidia absent. – **B**asidia slender and clavate with basal clamp and four sterigmata. – **B**asidiospores broadly ellipsoid to pip-shaped or almost navicular, finely ornamented, hyaline to yellowish, negative in Melzer's reagent.

**H**abitat. – On dead hardwoods and ferns, apparently with a white rot.

**T**ype species. – *Beenakia dacostae* Reid.

#### Key to species of *Beenakia*

(Spores of all species are shown in fig. 1)

- |   |   |                          |
|---|---|--------------------------|
| 1 | Spores cylindric, 7–11 x 3–4 μm .....   | 2                        |
| 1 | Spores ellipsoid to subglobose, 4–8 x 3–5 μm .....  | 3                        |
| 2 | Basidiocarp up to 20 mm wide, 1–3 mm thick, New Zealand and Australia .....   | 1. <i>B. dacostae</i>    |
| 2 | Basidiocarp up to 50 mm wide, 5–10 mm thick, Central Africa .....   | 2. <i>B. fricta</i>      |
| 3 | Basidiocarps soft and fleshy when fresh, drying light-weight, pileus 2–4 cm thick and 4–10 cm wide, spores 5–7 x 4–5 μm .....   | 4                        |
| 3 | Basidiocarps pliable and soft when fresh, drying dense and cartilaginous, pileus up to 3 cm wide and 1–3 mm thick, spores 4–5 x 3–3.5 μm, Brazil .....                        | 5. <i>B. subglospora</i> |
| 4 | Basidiocarps semi-stipitate, pinkish white to fuscous, pileus scrupose to coarsely warted when dry, basidiospores hyaline or only very faintly yellow, Zambia and India. .... | 3. <i>B. fuliginosa</i>  |

- 4 Basidiocarps sessile and applanate, white to yellow or pale olivaceous, pileus papery smooth to finely warted when dry, spores distinctly yellow, Tropical America ..... *B. informis*

1. *Beenakia dacostae* Reid, Kew Bull. 1955: 635. 1956.

**B a s i d i o c a r p s** 2.5 cm wide and long and 2–3 mm thick at the base, pileate, semi-stipitate to dimidiate, applanate and reniform to fan-shaped, upper surface white when fresh becoming dingy yellowish brown to olivaceous or ochraceous when dry, adpressed tomentose or cottony at first, becoming matted and smooth in places or wrinkled to slightly warted, azonate, stipe central to lateral and expanding towards the pileus, glabrous, short and often poorly developed, up to 10 mm long and 1 mm in diameter, spines white becoming concolorous with upper surface, spines up to 3 mm long, subulate and crowded, context 1–3 mm thick, spongy and soft, homogeneous, white to yellowish brown when dry, no taste or odour. – **H y p h a l s y s t e m** monomitic, generative hyphae with clamps at all septa, inflated in parts and up to 11  $\mu\text{m}$  wide, with ampullaceous septa in a few places, hyaline or with oily drops near the tips. – **C y s t i d i a** absent. – **B a s i d i a** clavate with 4 sterigmata and a basal clamp, 25–35 x 5–7  $\mu\text{m}$ . – **B a s i d i o s p o r e s** ellipsoid to pip-shaped, warted, yellowish brown, apiculus prominent, cyanophilous, IKI–, 7–11 x 3–5  $\mu\text{m}$ .

**S u b s t r a t a .** – On dead hardwoods, known from *Eucalyptus*, *Dicksonia*, and other hosts.

**D i s t r i b u t i o n .** – Known only from Eastern Australia and New Zealand.

**S p e c i m e n e x a m i n e d .** – AUSTRALIA, Victoria, Cumberland Falls, Leg. G. A. Crichton, det. D. A. Reid (K).

The species is characterized by the small stipitate basidiocarps, the pip-shaped spores, darker than in any other species in the genus, and the distribution.

2. *Beenakia fricta* Maas Geesteranus, Bull. Jard. Bot. Nat. Belg. 37: 80. 1967.

**B a s i d i o c a r p s** up to 5 cm wide and long, up to 8 mm thick at the centre, stipitate, pileus flat to undulating and centrally depressed at the attachment of the stipe, upper surface whitish when fresh (?),

ochraceous to pale brown when dry, velutinate to tomentose, matted and smooth to finely scrupose when dry, azonate, stipe 4–6 cm high, 6–10 mm in diameter, central or lateral, concolorous with the pileus but paler towards the base, finely tomentose and matted, central core white to pale cream coloured and homogeneous, spines crowded, up to 5 mm long, olivaceous and pointed, context up to 8 mm, spongy and cottony and light-weight when dry, faintly duplex, lower part denser than upper part, whitish to olivaceous. – Hyphal system monomitic, generative hyphae with clamps, inflated in parts and up to 12  $\mu\text{m}$  wide, moderately branched. – Cystidia absent. – Basidia not seen. – Basidiospores fusiform to navicular, finely warted, yellowish, cyanophilous, IKI–, 8.5–11 x 3.5–4  $\mu\text{m}$ .

**S u b s t r a t a .** – On very rotten hardwood.

**D i s t r i b u t i o n .** – Known from Zaire and the type locality in Ndola in Zambia.

**S p e c i m e n e x a m i n e d .** – ZAMBIA, Ndola, G D.Pearce 707/2, det. Maas Geesteranus (K holotype).

The long pip-shaped to cylindric spores and the slender stipitate basidiocarps immediately separate this species from the only other *Beenakia* species known from Africa, *B. fuliginosa*.

3. ***Beenakia fuliginosa*** (Maas Geesteranus) Parmasto & Ryvarden, Windahlia 18: 39. 1990.  
= *Psathyrodon fuliginosus* Maas Geest. Kew Bull.31: 417. 1977.

**B a s i d i o c a r p s** 5–8 cm wide and long, stipitate to dimidiate, often fused into larger, more compound structures, individual pilei up to 2 cm wide, upper surface white to pinkish translucent when fresh, drying greyish brown to dark ochraceous, tomentose to velutinate and soft when fresh, hispid to scrobiculate or even finely crested in parts when dry, azonate, stipe, if present, strongly expanding towards the pileus and covered with spines almost to the base, up to 2 cm long and 5 to 12 mm in diameter in the sterile part, white when fresh, cream coloured to ochraceous when dry, hymenophore hydroid, spines crowded, white when fresh, ochraceous when dry, simple, occasionally forked, 1–3 mm long, round to slightly flattened in parts, context white to faintly olivaceous with some darker, fuscous zones, soft and fibrous, homogeneous, up to 1 cm thick at the base. – Hyphal system monomitic, generative hyphae with clamps, hyaline, 3–9  $\mu\text{m}$  wide, not conspicuously inflated, partly covered with rounded warts in the spines, not dissolving in KOH. – Cystidia absent. –

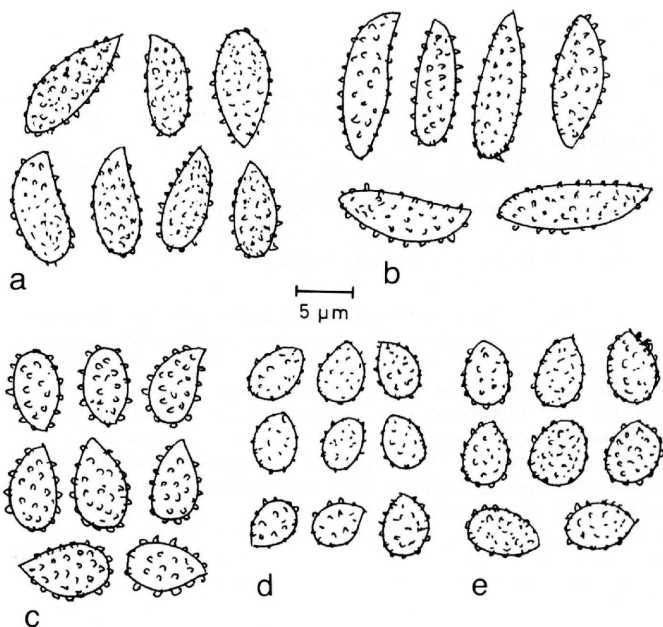


Fig 1. - Spores of *Beenakia* species. - a. *B. dacostae*, coll. Crichton. - b. *B. fricta*, coll. Pearce 707/2. - c. *B. fuliginosa*. - d. *B. subglobospora*, from the holotypes. - e. *B. informis*, coll. Gomez 22171.

Basidia 20-30 x 5-8  $\mu\text{m}$ , clavate and with a basal clamp. - Basidiospores 6-7(8) x 4-5  $\mu\text{m}$ , oblong ellipsoid to slightly pipshaped, thin-walled, finely warty, hyaline to faintly coloured in mass, cyanophilous, IKI-.

Substrata. - Dead hardwoods.

Distribution. - Known from Zambia and India.

Specimens examined. - ZAMBIA: Ndola burning plots, G.D. Pearce 390/1, 7.4.1975, on base of living *Lamnea antriscobutica*, holotype (K),

Ryvarden 25203, same locality, 21.1.1988 (O). INDIA, Tamil Nadu State, Tirunelveli distr., Mundanthurai sanctuary, E. Parmasto 16.2. 1979 (TAA no 103366).

The species is characterized by its semi-stipitate basidiocarps with a pinkish to whitish colour when fresh, rather wide spores, and distribution.

4. ***Beenakia informis*** (Rick) Maas Geesteranus, *Persoonia* 7: 555. 1974.

= *Hydnum informe* Rick, *Egatea* 17: 2. 1932.

**B a s i d i o c a r p s** up to 10 cm in diameter and 3 cm thick at the base pileate, sessile, applanate, dimidiate to semicircular, sappy when fresh, very lightweight and fragile when dry, upper surface adpressed tomentose at first, becoming papery smooth with age, azonate, whitish with olivaceous tints when fresh, drying dingy brown to olivaceous grey, hymenophore with spines, first white then cream coloured to yellowish and finally pale olivaceous when dry and old, spines crowded, up to 8 mm long, cylindrical and pointed, context spongy to cottony, white when fresh, drying wood-coloured or pale ochraceous with a few darker zones, up to 3 cm thick at the base. – **H y p h a l** system monomitic, generative hyphae with clamps, somewhat inflated, 4–10  $\mu\text{m}$  wide, sparingly branched, some with small drops of oily content. – **C y s t i d i a** absent. – **B a s i d i a** clavate with basal clamp and 4 sterigmata, 20–30 x 6–8  $\mu\text{m}$ . – **B a s i d i o s p o r e s** 5–6 x 4–5  $\mu\text{m}$ , ellipsoid to pipshaped, verruculose to warted, yellowish, cyanophilous and IKI–.

**S u b s t r a t a**. – Dead hardwoods.

**D i s t r i b u t i o n**. – Known from Brazil, Bolivia and Costa Rica.

**S p e c i m e n e x a m i n e d**. – COSTA RICA, Leg. Gomez 22171 (O).

The species is recognized by the applanate basidiocarp, the pale dingy yellow to olivaceous colour, the very soft and lightweight context, and the long spines.

5. ***Beenakia subglobospora*** M. Nuñez & L. Ryvarden sp. nov.

Fructificatio stipitata, pileus et stipes pallide brunnei, aculeis minuti ad 2 mm, ochracea, systema hypharum monomiticum, hyphae generatoriae fibulatae,

hyalinae. Cystidia nulla. Basidia 12–15 x 4–6  $\mu\text{m}$ , subclavata. Sporae 4–5 x 3–3.5  $\mu\text{m}$ , subgloboseae, asperae.

**H o l o t y p e .** – BRAZIL, São Paulo, Reg. Santos, Cananea, Ihla de Cardoso 2. February 1987. Ryvarden 24835 (O), Isotype in SP with accession no 213633.

**B a s i d i o c a r p** up to 5 cm high and 3 cm wide in fresh condition, annual, centrally stipitate, soft and pliable at first, drying dense and cartilaginous, pileus infundibuliform with undulating and lobed margin 1–3 mm thick, upper surface glabrous, azonate, pale brown, stipe concolorous, smooth when fresh, wrinkled and partly contracted when dry, becoming pale ochraceous in the upper part, hymenophore finely rugose, soon becoming hydroid, cream to ochraceous, individual spines to 3 mm, context dense and pale brown about 1 mm thick in dry condition. – **H y p h a l** system monomitic, generative hyphae with clamps, hyaline, 3–6  $\mu\text{m}$  wide. – **C y s t i d i a** absent. – **B a s i d i a** 12–15 x 4–6  $\mu\text{m}$ , subclavate with 4 sterigmata. – **B a s i d i o s p o r e s** 4–5 x 3–3.5  $\mu\text{m}$ , oblong to subglobose, asperulate, pale yellow in KOH, IKI–.

**S u b s t r a t a .** – On very rotten wood.

**D i s t r i b u t i o n .** – Known only from the type locality.

The type of basidiocarp and consistency are reminiscent of *B. dacostae* from New Zealand. This species, however, has much darker and longer spores.

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Peter Roberts, Torquay, England has kindly read the manuscript and suggested linguistic improvements.

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