

## ***Digitodochium*, a new staurosporous anamorph genus**

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TUBAKI, K. & T. KUBONO (1989). *Digitodochium*, a new staurosporous anamorph genus. – SYDOWIA 41: 344–348.

*Digitodochium rhodoleucum* anam. – gen. et spec. nov., a staurosporous Tuberculariales hyphomycete on fallen twig of *Fagus crenata* B. is described and illustrated from Japan.

In studies of hyphomycetes associated with decaying plant remains, an interesting collection with unusual staurosporous conidia on fallen twig of *Fagus crenata* was found to be an undescribed genus of the Hyphomycetes of Tuberculariales. It differs from all known staurosporous genera in the distinctly digitate to palmate conidia developed in the sporodochial conidiomata. A new anamorph genus, *Digitodochium*, is proposed for the fungus.

### **Materials and methods**

A collection was first made on a fallen twig of *Fagus crenata* at the Sugadaira Montane Research Center, a branch of the University of Tsukuba, Nagano Pref., May 1985. Many pink colored sporodochia were found on the whole surface of the twig. Additional collections have been made in the same season in the following three years. Cultures were obtained by the senior author by spreading water suspension of sporodochial structure on water agar plate. Using a micromanipulator, individual conidia were then picked up and transferred to 2% malt-extract agar medium. Sporodochia developed on natural substrate were sectioned by hand. Photomicrographs were taken with a Nikon XF-NT-21 Nomarski interference microscope.

### **Taxonomic treatment**

***Digitodochium* TUBAKI & KUBONO, anam. – gen. nov.**

Sporodochia pulvinata, hemisphaerica vel irregularia, pallide rosea vel aurantiaca, cortice erumpentia. Conidiophora micronematica, aggregata, hyalina, irregulariter ramosa, ad apicem conidium ferentia. Conidia holoblastica, subhyalina, ex cellula axili principali cylindrica et brachiis lateralibus ad plana quam unum in

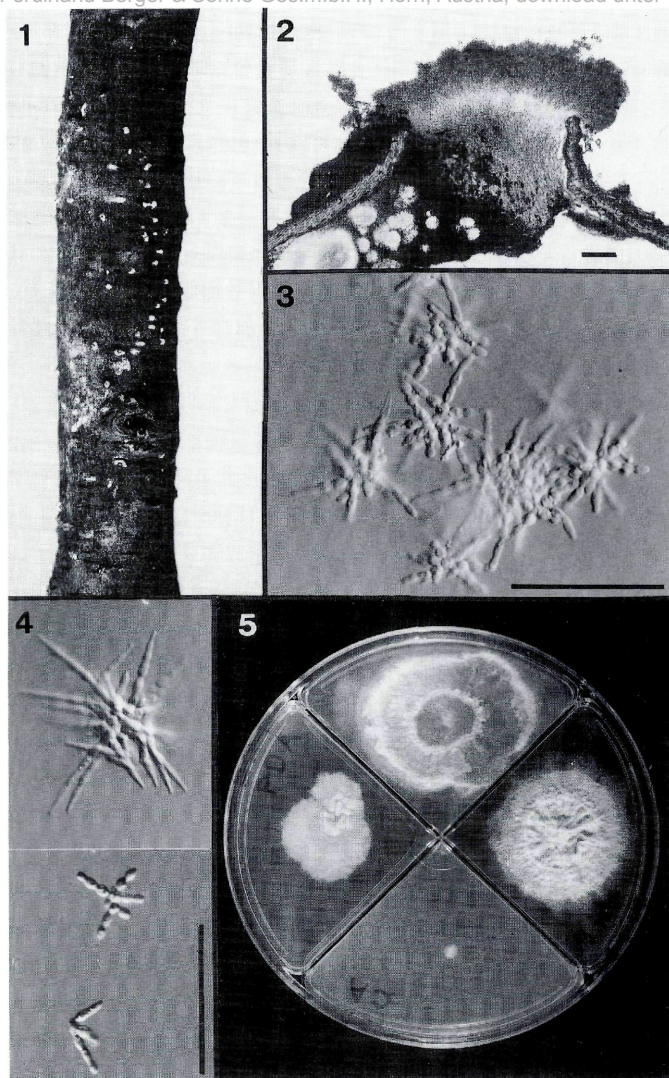


Plate 1.— 1. *Digitodochium rhodoleucum*, sporodochia on the substrate ( $\times 1.6$ ). — 2. Section of a sporodochium (scale  $100\ \mu\text{m}$ ). — 3. Conidia (scale  $50\ \mu\text{m}$ ). — 4. Conidium in culture and two immature conidia (scale  $50\ \mu\text{m}$ ). — 5. Comparative growth on four kinds of agar media (upper: Malt-extract agar; left: Potato-dextrose agar; lower: Corn meal agar; right: Yeast-decoction agar) ( $\times 0.8$ ).

verticillis exorientibus ad basim brachio secundario irregulariter oriundo praeditis composita, desiccata in massa.

Typus generis: *Digitodochium rhodoleucum* TUBAKI & KUBONO

Etym.: Digitus, L., finger-like; dochium, G., receptacle.

*Sporodochia* cushion-shaped, hemispherical to irregular, pale pink to orange in color, bursting out of bark. – Conidiophores micronematous, crowded, hyaline, irregularly branched, bearing conidia terminally. – Conidia holoblastic, sub-hyaline, consisting of a cylindrical main axis from which whorls of lateral branches arise to more than one level and each branch may show basal branching arising irregularly, dry in mass.

***Digitodochium rhodoleucum* TUBAKI & KUBONO, anam. – sp. nov. – Pl. 1; Fig. 1.**

*Sporodochia* sparsa, hemisphaerica vel irregularia, usque ad 3 mm diam, 0.1–2 mm alta, pallide rosea vel aurantiaca, cortice erumpentia. Conidiophora micronematica, aggregata, irregulariter ramosa, 2.0–2.5  $\mu$ m diam, hyalina. Cellulae conidiogenae micronematicae, incorporatae, holoblasticae, ex conidiophoris orientes. Conidia acrogena, ex cellula axili principali breviter cylindrica et brachiis lateralibus ad plana juxta basin plus quam unum in verticillis 2–3 exorientibus interdum ad basim brachio secundario patenter expanso praeditis composita, totaliter digita ad palmata a latere visus, 37–50 (60)  $\mu$ m. Brachia clavata, saepe sursum attenuata, septata, constricta ad septa, 10–20(22)  $\times$  2.7–3.8  $\mu$ m. Typus TNSF 237223.

*Sporodochia* scattered, hemispherical to irregular, up to 3 mm in diam., 0.1–2 mm in height, pale pink to orange in color, bursting out of bark, 2.0–2.5 mm in diam., hyaline. – Conidiogenous cells micronematous, integrated, holoblastic, developed directly from conidiophores. – Mature conidia consist of a main short, cylindrical axis, from near the base of which 2–3 lateral branches arise at more than one level; these may themselves show basal branching at wide angle, complex digitate to palmate in a whole shape; the overall length and width ca. 37–50 (60)  $\mu$ m; each branch septate with constriction, 10–20(22)  $\times$  2.7–3.8  $\mu$ m, clavate.

Habitat: On a fallen twig of *Fagus crenata* B., Sugadaira, Nagano Pref., May 1985.

Holotype: Deposited in National Science Museum, Tokyo, Japan (TNSF 237223).

The mycelial growth on 2% malt-extract agar is moderate, white, flat, and spreads with limited aerial hyphae. To induce sporodochial development and sporulation, cultures were transferred to corn meal agar, malt-extract agar, potato-dextrose agar and yeast-decoction agar. The best development of sporodochia was obtained on yeast-decoction agar (commercial brewer's dried yeast – "Ebios": 5 g; glucose: 20 g;  $\text{KH}_2\text{PO}_4$ : 1 g; agar: 15 g; distilled water: 1,000 ml) when a large amount of mycelium was inoculated and kept

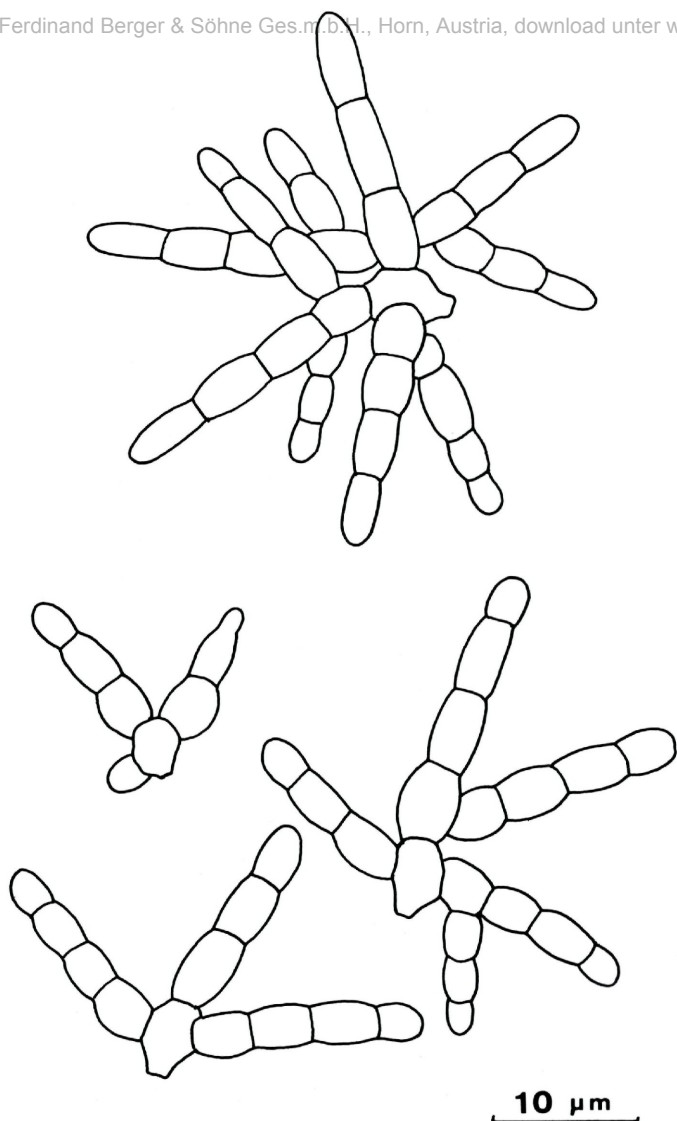


Figure 1. – Mature and immature conidia of *D. rhodoleucum*.

at the room temperature for about two months with fluorescent light operating on 12-h light-dark cycles (Fig. 5). Mature sporodochia are typically pale pink to orange in color similar to those on the twig samples; however, successive transfers on the agar media have reduced the sporulation.

### Discussion

The conidia of *Digitodochium rhodoleucum* resemble those of *Speiropsis pedatospora* TUBAKI and *Cladoconidium articulatum* BANDONI & TUBAKI in their gross morphology. However, conidial branching of the latter two fungi are in a single plane differing from the present fungus in which lateral branches of conidia are in a whorl arising at more than one level. The pattern of conidial development is also similar to that of *Tripaspermum*. An obconical primordium is formed from which two or three processes arise and grow out as the arms, then each may branch again. The most distinctive feature of the present fungus is the production of conidia in sporodochia which distinguishes it from other superficially similar deuteromycetes such as *Dendrospora*, *Digitosporium* or *Psammia*. *Atichia*, anamorph of *Seuratia* (Arthoniales), is most close to *D. rhodoleucum* by the shape of the conidia and sporodochial conidiomata. In all species of *Atichia* and anamorphs of *Seuratia*, the conidia are disciform to dimidiate or produced by budding (MEEKER, 1975), however, the gross morphology of their conidia is similar to that of *D. rhodoleucum*. In view of comparative data on the morphology and the development of conidia of these two fungi, *D. rhodoleucum* appears closely related to myriangiaceous fungi or to their allies.

### Acknowledgments

We thank Dr. S. TOKUMASU, Sugadaira Montane Research Center, University of Tsukuba, for his helps to make the collecting. We are also grateful to Dr. K. KATUMOTO, Yamaguchi University, for the Latin diagnosis.

### Reference

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Autor(en)/Author(s): Tubaki K., Kubong T.

Artikel/Article: [Digitodochium, a new staurosporous anamorph genus. 344-348](#)