

## ***Camarops antillana* sp. nov. and *Camarops biporosa* var. *tetraspora* var. nov. from French West Indies**

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Two undescribed taxa of *Camarops* from French West Indies are presented here. *Camarops antillana* features a dome-shaped ostiolar area and ascospores with a thickened perispore over the germination pore. *Camarops biporosa* var. *tetraspora* differs from the typical variety in having predominantly four-spored asci. Indeed, it is the only known taxon of *Camarops* to show asci with consistently fewer than eight ascospores.

Key words: Boliniaceae, *Camarops*, Pyrenomycetes

Three collections of *Camarops* Karst. (Boliniaceae) were made on Guadeloupe, French West Indies by C.L. and sent to J.F. and ultimately to J.D.R. These proved to be undescribed taxa and are thus described herein. These collections were made in the course of an inventory of the mycobiota of French West Indies initiated and carried out by Professor Régis Courtecuisse.

### **Materials and Methods**

Attempts to initiate cultures from ascospores of both of the new taxa failed. Examination and measurements of asci and ascospores were made in water; additional observations were made in Melzer's iodine reagent and cotton blue in lactic acid. Ascospore size ranges are based on 15 measurements. Observations were made with bright field light microscopy (BF), differential interference contrast microscopy (DIC) and transmission electron microscopy (TM).

## Taxonomic Part

***Camarops antillana*** J.D. Rogers, C. Lechat & J. Fournier, **sp. nov.** – Figs. 1 – 5

A *Camarope rickii* differt in area tholiformi ostioli, interdum in forma digitiformi extensa, in stromatibus parvis irregularibus et in ascospora cum perispore conspicue tengente poro praedita.

Differs from *Camarops rickii* in the dome-shaped ostiolar area, sometimes extended in digitate fashion, in the small irregular- shaped stromata, and in the conspicuous thickened perispore covering the germination pore.

Etymology. – for Antilles islands

Stromata pulvinate, roughened by ostiolar areas, 2 – 3 mm diam  $\times$  1 – 2 mm high, soft, externally blackened with tan ostioles, internally tan, with perithecia polystichous with necks of various lengths, some embedded in stromata below bark surface. – Ostioles usually dome-shaped or digitate, 0.3 – 0.5 mm diam  $\times$  0.1 – 0.7 mm high. – Asci 8-spored, ca. 118  $\mu$ m total length, the spore-bearing part ca. 60  $\times$  6.5 – 9  $\mu$ m, with ascus apical not staining in Melzer's iodine reagent. – Ascospores brown, more or less ellipsoid to almost cylindrical with one end somewhat acute, slightly flattened, smooth, 9 – 10.5 (– 12)  $\times$  5 – 6  $\times$  4.5  $\mu$ m, with germination pore at more acute end. – Perispore covering pore end conspicuously thickened. – Paraphyses abundant.

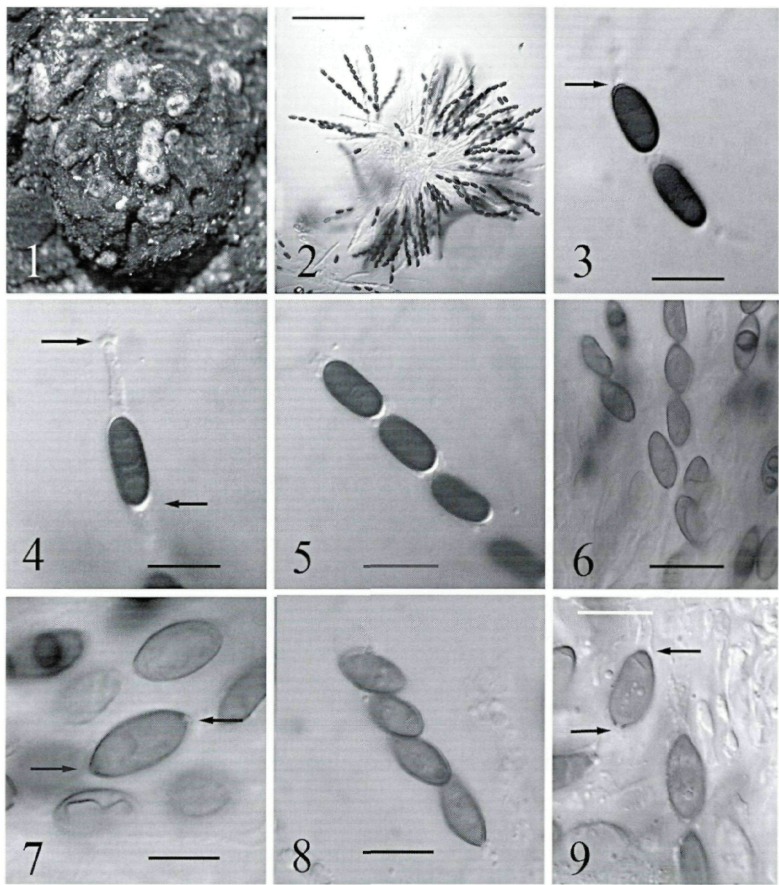
Holotype. – FRENCH WEST INDIES, Guadeloupe, Petit Bourg, 22 Rivière Tambour, on bark, 3 Sep 2005, Christian Lechat, CLL5319, WSP 71211.

*Camarops antillana* is very similar to *C. rickii* J.D. Rogers in ascospore shape and size, the former 9 – 10.5 (– 12)  $\times$  5 – 6  $\times$  4.5  $\mu$ m vs 8.8 – 10.3 (– 11.7)  $\times$  4.4 – 5.9  $\times$  3 – 3.7 (– 4.4)  $\mu$ m (see Rogers, 1981). The ascospores of *C. antillana*, however, have a hyaline thickening of the perispore covering the germination pore that is most easily seen by DIC (Figs. 3 – 5). The dome-shaped, sometimes digitate, ostiolar regions are unlike *C. rickii* which has a smoother stromatal surface (see Rogers 1981).

***Camarops biporosa*** J.D. Rogers & Samuels var. **tetraspora** J.D. Rogers. C. Lechat & J. Fournier, **var. nov.** – Figs. 6 – 9.

A varietate typical differt in ascosporis quatuor vel minus per ascum et in dimensionibus ascosporarum, 10 – 15  $\times$  6 – 6.5 (– 7.5)  $\mu$ m.

Differs from the typical variety in four or fewer ascospores per ascus and in the dimensions of the ascospores, 10 – 15  $\times$  6 – 6.5 (– 7.5)  $\mu$ m.



**Figs. 1 – 9.** *Camarops antillana*. **1.** Surface of stroma. **2.** Flattened contents of perithecium showing asci. **3.** Ascospore with thickened perispore covering germ pore (arrow). **4.** Apical part of ascus with ascospore. Ascus apex (upper arrow); thickened perispore covering germ pore (lower arrow). **5.** Three (of four) ascospores in focus, each showing thickened perispore covering germ pore. **Figs. 6 – 9.** *Camarops biporosa* var. *tetraspora*. **6.** Ascospores. **7.** Ascospores, one showing germ pores (arrows). **8.** Four ascospores in ascus (ascus wall not visible). **9.** Ascospores, one of which shows germ pores (arrows). All Figs. by DIC from material mounted in water. Scale bars: 1 = 0.66 mm; 2 = 100  $\mu$ m; 3 – 5, 7 = 10  $\mu$ m; 6 = 15  $\mu$ m; 8, 9 = 12  $\mu$ m.

**Etymology.** – for the four-spored asci.

Stromata pulvinate, smooth except for ostiolar papillae, up to 1.5 cm  $\times$  0.8 cm broad  $\times$  0.4 cm high, soft, externally and internally dull black, with perithecia more or less monostichous, 0.5 mm diam  $\times$  1.5 – 2 mm high. – Ostioles finely papillate. – Asci (3-) 4-spored, 66 – 73  $\mu$ m total length, the spore-bearing part 44 – 60  $\times$  6 –



6.5  $\mu\text{m}$ , with apical ring not staining in Melzer's iodine reagent. – Ascospores brown, ellipsoid to somewhat inequilateral, often with two oil drops, smooth,  $10 - 15 \times 6 - 6.5 (-7.5) \mu\text{m}$ , with a germination pore at each end. – Paraphyses abundant.

Specimens examined. – FRENCH WEST INDIES, Guadeloupe, Sofaïa, Chemin du Saut 15 des Trois Cornes, wood, 3 Sep 2004, Christian Lechat, CLL 2292, WSP 71210, holotype. FWI, 16 Martinique, Case Pilote, Rivière Duclos, 4 Dec 2005, Christian Lechat, CLL 5515, WSP 71212.

This is the only *Camarops* known to us with asci containing four or sometimes three ascospores. It would be defensible to erect a new species based solely on the four-spored character, as has been done in *Neurospora*, *Gelasinospora*, and some other pyrenomycetes. However, the ascospores of this new taxon have a germ pore on each end, a character heretofore known only for the typical variety (Rogers & Samuels 1987). Moreover, stromata of both varieties are very similar (Rogers & Samuels 1987). Finally, we were unable to culture either variety and molecular information is lacking; it thus seems prudent to refrain from creating a new species at this time.

It was discovered that discharged ascospores on the stromatal surface sometimes become septate, the septum usually not median. Septa have not been observed among ascospores in the ascus or free in the centrum. We hypothesize that the septation that develops prior to germination in *C. biporosa* var. *tetraspora* is a protection for the ascospore in the event that one part of the ascospore is injured, e.g. by ultraviolet radiation. That is, the partitioning might make an ascospore that can germinate from one or both ends. We hypothesize that *Camarops* came from a 2-celled ancestor. All known species except for *C. biporosa* have ascospores with only a single germ pore and no other trace of the ancestral 2-celled condition. We believe that *C. biporosa* is a species that has basically eliminated the bicellular condition, but still retains the ancestral germ pore on each end of the spore. *Apiocamarops* Samuels & J.D. Rogers (see Samuels & Rogers 1987) has 2-celled ascospores, the larger of which is pigmented and bears a germ pore and the smaller of which is hyaline and does not appear to have a germ pore, i.e. another indication that the ancestral ascospore of these fungi had 2-celled ascospores. *Apiocamarops* has reduced one cell to an appendage and also eliminated one of two germ pores.

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