

## CALLICOSTELLA<sup>1</sup>

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*Callicostella* (Müll.Hal.) Mitt., *J. Linn. Soc., Bot., Suppl.* 1: 136 (1859), *nom. cons.*; from the Greek *kalos* (beautiful), the Latin *costa* (a nerve), and the diminutive suffix *-ella*, in reference to the striking leaves with narrow forked nerves.

*Hookeria* sect. *Callicostella* Müll.Hal., *Syn. Musc. Frond.* 2: 216 (1851).

Type: *C. papillata* (Mont.) Mitt.

Synoicous, autoicous or dioicous. Plants irregularly branched, the branches slightly flattened. Leaves complanate, toothed above, lacking a border; costa double, forked, the forks diverging and ending near the leaf apex. Laminal cells comparatively small, mostly papillose, elongate, smooth below.

Calyptra weakly plicate, fringed at the base. Seta smooth or papillose. Capsules horizontal; operculum long. Exostome teeth striolate, deeply furrowed; cilia absent.

This substantial tropical genus of about 100 species occurs mainly in Africa and Central and South America. One species is known from Australia.

### Reference

Streimann, H. (1997), Taxonomic studies on Australian Hookeriaceae (Musc). 1: Introduction, and the genera *Achrophyllum*, *Callicostella*, *Chaetomitrium* and *Cyclodictyon*, *J. Hattori Bot. Lab.* 82: 281–304.

***Callicostella papillata*** (Mont.) Mitt., *J. Linn. Soc., Bot., Suppl.* 1: 136 (1859)

*Hookeria papillata* Mont., *London J. Bot.* 3: 632 (1844); *Schizomitrium papillatum* (Mont.) Sull., *U.S. Explor. Exped. Musci* 23 (1859). T: Buitenzorg, Java, [Indonesia], *F.A.W. Miquel s.n.*; holo: PC; iso: NY.

*Hookeria baileyi* Broth., *Öfvers. Förh. Finska Vetensk.-Soc.* 33: 105 (1891); *Callicostella baileyi* (Broth.) Broth., in H.G.A. Engler & K.A.E. Prantl, *Nat. Pflanzenfam.* 1, 3: 938 (1907). T: Harveys Ck, Qld, 1899, *F.M. Bailey 643*; holo: H; iso: BM, BRI.

Synoicous. Plants creeping, appressed to the substratum, dull pale green to dark green, often slightly yellowish. Stems deep red, to 3 cm long; branches short, cream-coloured. Branch leaves sparse to moderately crowded, irregularly curled, slightly twisted when dry, appearing ± plicate, erect when moist. Leaves oblong-ligulate, 0.9–1.4 mm long, 0.3–0.5 mm wide; apex usually abruptly short-acuminate or broadly acute; margin not conspicuously bordered, irregularly denticulate to serrate near the apex by projecting cells; costa often bluntly toothed abaxially near the tip, 20–30 µm wide at the base. Laminal cells thin- to moderately thick-walled, linear, with 1 central papilla on upper and median cells (occasionally not prominent); these cells irregular, hexagonal to oblong, (7–) 10–20 (–30) × 9–12 (–15) µm; basal cells rectangular, 30–50 (–70) × 9–15 µm, narrower between the costae. Stem leaves similar to branch leaves. Rhizoids common, red-brown, smooth, to 1.5 mm long, 10–15 µm wide; cells to 150 µm long, with rounded ends. Perichaetia axillary on stems and branches.

Perichaetial leaves lanceolate, 0.95–1.30 mm long, 0.04–0.60 mm wide; margin serrate; costa and laminal cells as in branch leaves or slightly larger; inner perichaetial leaves c. 0.7 mm long, ecostate, smooth to scarcely papillose. Archegonia 0.25–0.30 mm long, 12–15 µm

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<sup>1</sup> Now included in the family Pilotrichaceae [Goffinet, B., Buck, W.R. & Shaw, A.J. (2012), *Classification of the Bryophyta*. <http://www.eeb.uconn.edu/people/goffinet/Classificationmosses.html>].

Cite as: H. Streimann, *Australian Mosses Online. 11. Hookeriaceae: Callicostella*. [http://www.anbg.gov.au/abrs/Mosses\\_Online/Callicostella.pdf](http://www.anbg.gov.au/abrs/Mosses_Online/Callicostella.pdf) (2012)

wide; paraphyses hyaline, the cells c. 90–120  $\mu\text{m}$ . Calyptra conical-mitrate, 2.5–2.8 mm long. Seta 8–20 mm long, smooth, slightly papillose above, smooth to rough below. Capsules c. 2 mm long, ovoid-cylindrical, horizontal to  $\pm$ erect; annulus absent; operculum conical-rostrate, c. 1 mm long. Peristome: exostome teeth 16, red-brown, narrowly lanceolate to subulate, papillose, c. 0.45 mm long, densely striolate below, c. 75  $\mu\text{m}$  wide at the base; lamella high; endostome segments large, yellowish, weakly papillose, furrowed along the median line. Spores hyaline, 9–12  $\mu\text{m}$  diam. Chromosome number not known.

Occurs in north-eastern Qld; also known from Madagascar, South and South-east Asia, Malesia and the South Pacific Ocean.

Capsules were especially common in July, but they could be seen in collections made as late as October.

There are two varieties. However, the numerous sterile collections could not be assigned to a variety.

Seta smooth, reddish brown, glossy..... **a. var. papillata**  
 Seta rough, dark brownish, dull..... **b. var. prabaktiana**

**a. Callicostella papillata (Mont.) Mitt. var. papillata**

Illustrations: H.O. Whittier, *Mosses of the Society Islands* 277 (1976); H.C. Gangulee, *Mosses of Eastern India and Adjacent Regions* 2(4–6): 1511 (1977); H. Mohamed & H. Robinson, *Smithsonian Contr. Bot.* 80: 7 (1991); A. Noguchi, *Illustrated Moss Flora of Japan* 4: 755 (1991); H. Streimann, *op. cit.* 290, 294.

Seta smooth, glossy, reddish brown.

Uncommon in rainforest in north-eastern Qld.

Qld: Mossman Gorge Natl Park, c. 5 km W of Mossman, *B.M. Thiers & R.E. Holling* 2584 (AD, NY); Harveys Ck, *coll. unknown*. (NSW).

**Callicostella papillata (Mont.) Mitt. var. prabaktiana (Müll. Hal.) Streimann, J. Hattori Bot. Lab. 82: 295 (1997)**

*Hookeria prabaktiana* Müll. Hal., *Syn. Musc. Frond.* 2: 678 (1851); *Callicostella prabaktiana* (Müll. Hal.) Bosch & Sande Lac., *Bryol. Javan.* 2: 40 (1862). T: “ad terram humidam montis Prabakti”, Java, [Indonesia], *H. Zollinger*; holotype: B (destroyed), *fide* H. Mohamed & H. Robinson, *Smithsonian Contr. Bot.* 80: 6 (1991).

*Callicostella kaernbachii* Broth. ex M. Fleisch., *Musc. Buitenzorg* 3: 1023 (1908). T: Blumfield [Bloomfield] River, Qld, June 1887, *L. Kaernbach*; holotype: H.

*Callicostella rugiseta* Dixon, *Proc. Roy. Soc. Queensland* 53(2): 35 (1942). T: ‘rocks at edge of stream’, Campbells Creek, Qld, 19 Sept. 1937, *H. Flecker* 3844; holotype: BM.

Illustrations: E.B. Bartram, *Philipp. J. Sci.* 68: pl. 334 (1939), as *C. prabaktiana*; H. Streimann, *op. cit.* 290, 294.

Seta rough, dull, dark brown.

Occurs in disturbed forest and *Tristanopsis*-dominated riparian forest in north-eastern Qld; also in Thailand, Indonesia, Christmas Island and New Guinea.

Qld: Home Rule Falls, 30 km SSE of Cooktown, *H. Streimann* 57561 (CANB, NY); Mossman Gorge Natl Park, c. 5 km W of Mossman, *B.M. Thiers & R.E. Holling* 2544 (AD, NY); Streets Gully, Kuranda, *W.W. Watts* Q267 (H, NSW); Woopen Ck, 18 km WNW of Innisfail, *H. Streimann* 45657 (CANB).