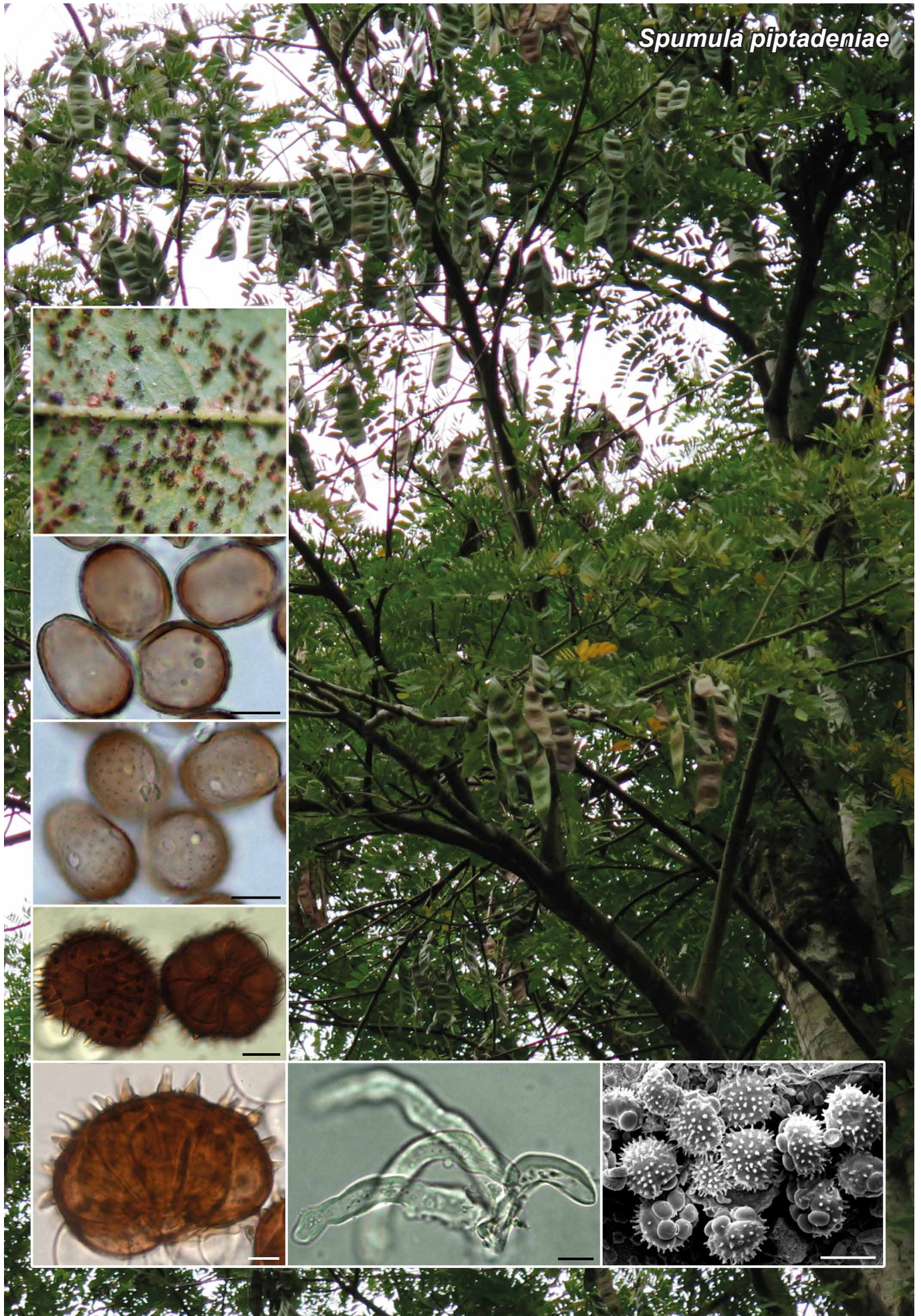


*Spumula piptadeniae*





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## *Spumula piptadeniae* A.A. Carvalho, Colmán & R.W. Barreto, *sp. nov.*

*Etymology.* Named after the host, *Piptadenia*.

*Classification* — *Raveneliaceae*, *Pucciniales*, *Pucciniomycetes*.

*Spermogonia* and *aecia* unknown. *Uredinia* hypophyllous, sub-epidermal, pale cinnamon brown, scattered, c. 1 mm diam. *Urediniospores* 21–25 × 16–19 µm, mostly obovoid to ellipsoid, wall cinnamon-brown, 0.80–1.30 µm thick laterally and apically, echinulate, pores 3–4(–5), bizonate or equatorial. *Telia* hypophyllous, subepidermal in origin, becoming erumpent; paraphyses mostly peripheral, numerous, approximately 8–12 µm wide and up to 70 µm long, 1–2-septate, cylindrical incurved, wall often unilaterally or bilaterally thickened, 2–5 µm, hyaline; teliospores globoid when viewed from above or below (61–)65–75(–84) µm diam, very widely ovoid when viewed laterally, chestnut-brown, 12–18 probasidial cells across, each cell 15–31 µm, cells in one or rarely two layers, 6–8 central cells, 15–23 µm diam; tubercles conical, 6–10 µm long, 3–5.5 µm wide at base, (1–)2–6 per cell, cysts pendent, globoid, 2–5 but mostly 5, hyaline, pedicel unihyphal, hyaline.

*Typus.* BRAZIL, state of Rio de Janeiro, Guapimirim, roadside of BR 116, on *Piptadenia paniculata*, Aug. 2014, R.W. Barreto 1929 (holotype VIC 42673, isotype RB, MycoBank MB822390).

*Notes* — All members of *Ravenelia* have two or multiple-stalked teliospore pedicels, whereas members of *Spumula*, including *Spumula piptadeniae*, have teliospores supported by single-stalked pedicels. *Spumula piptadeniae* differs from other species with conical ornamentations (such as *S. debile*, *Ravenelia theisseniana* and *R. minuta*) by the following characteristics: *S. debile* and *R. palenquensis* are microcyclic and do not produce urediniospores as in *S. piptadeniae*. Teliospore heads are smaller (33–45 µm) in *R. minuta* and bear conical ornaments that are smaller (3 µm) than those observed on *S. piptadeniae*. *Ravenelia minuta* also has smaller numbers of probasidial cells (3–5) and its paraphyses are 3–4-septate. Other *Ravenelia* species reported on *Piptadenia* are markedly different from *S. piptadeniae*, *R. henningsiana*, *R. simplex* and *R. theisseniana*, as besides having teliospores with two to multiple-stalked teliospores, they have teliospores bearing other kinds of ornamentations. *Ravenelia henningsiana* has smooth teliospores, *R. simplex* has narrowly rounded cones or papillae, and *R. theisseniana* has teliospores with tuberculate and bifurcate or knobbed ornaments.

*Colour illustrations.* *Piptadenia paniculata* growing at Guapimirim, Rio de Janeiro State, Brazil; symptoms and signs caused by *Spumula piptadeniae* on the leaves of *Piptadenia paniculata*; urediniospores obovoid to ellipsoid; urediniospores echinulate and with germ pores (whitish spots); teliospores with conical tubercles and globoid cysts; teliospores with one-stalked pedicels; paraphyses; teliospores in Scanning Electron Microscopy. Scale bars = 20 µm, 20 µm, 20 µm, 10 µm, 10 µm, 40 µm.

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