

A new species of *Graphis* (*Graphidaceae*) from India

T. A. M. JAGADEESH RAM, G. P. SINHA and K. P. SINGH

Abstract: A new species of lichen, *Graphis sundarbanensis*, is described from India. It is characterized by ascomata with a pruinose wide-open disc, a laterally carbonized apically convergent exciple and 6–8 locular halonate ascospores.

Key words: Ascomycotina, Sundarbans, taxonomy

Introduction

During lichenological studies in the mangrove reserve, Sundarbans Biosphere Reserve, West Bengal (India), several new species and new records for India have been discovered (Jagadeesh Ram *et al.* 2005a, b, 2006, in press). Further studies have shown the presence of a new species in the family *Graphidaceae*, *Graphis sundarbanensis*, which is described below.

Materials and Methods

Specimens were collected from the Sundarbans Biosphere Reserve by one of the authors (TAMJR). Thin hand-cut sections of thalli and ascomata were mounted in water, 10% KOH solution and lactophenol cotton blue (LCB) and examined under a light microscope. All microscopic measurements were made on specimens mounted in water. Lichen substances were identified by thin-layer chromatography following White & James (1985).

The Species

Graphis sundarbanensis Jagadeesh Ram & G. P. Sinha sp. nov.

Thallus crustaceus, epiphloeodes, continuus, laevis ad leviter scaber. Ascomata immersa, elongata, simplicia ad ramosa, 2–8 mm longa, 0.15–0.3 mm lata; excipulum lateraliter fuligineum, ad basim flavido-brunneum ad brunneum; labia convergentia, integra; hymenium 78–130 µm altum; paraphyses ad apicem clavatae,

parietibus fusco pigmentosis; asci 8 spori; ascosporae hyalinae, 6–8 loculares, (17–)19–24(–26) × 4.5–7 µm, I+ caeruleo-violaceae. Acidum sticticum, consticticum et hyposticticum continens.

Typus: India, West Bengal, Sundarbans Biosphere Reserve, Buridubri mangrove forests, on *Excoecaria agallocha*, alt. sea level, 21 February 2004, T. A. M. Jagadeesh Ram 828 (CAL—holotypus; BSA—isotypus).

(Fig. 1)

Thallus crustose, corticolous, epiphloeodal, irregular, 2.5–6 cm across, whitish grey, continuous, smooth to minutely roughened, delimited by a black prothallus, 65–90 µm thick above the bark, lacking calcium oxalate crystals, ecorticate; photobiont *Trentepohlia*.

Ascomata lirellate, immersed, simple, dichotomously to subdichotomously or radially dichotomously branched, flexuose, 2–8 mm long, 0.15–0.3 mm wide; *disc* open, concave, black, white pruinose; *exciple* laterally carbonized, brown and non-carbonized at the base, 11–32 µm thick laterally, 15–42 µm thick at base; *labia* entire, convergent at apices, covered by thalline layer, free from the thalline layer when mature; *epithecium* indistinct; *hymenium* colourless, not interspersed, 78–130 µm high, I–; *subhymenium* colourless to yellowish or pale brown, 10–25 µm thick. *Paraphyses* simple, 1–1.5 mm wide, not jelly-like; apices unbranched, or sometimes branched, brown walled, clavate, 2–3 µm wide. *Asci* clavate to cylindrical or narrowly ellipsoid, 8-spored, 66–105 × 14–19 µm. *Ascospores* biseriolate to sub-biseriate

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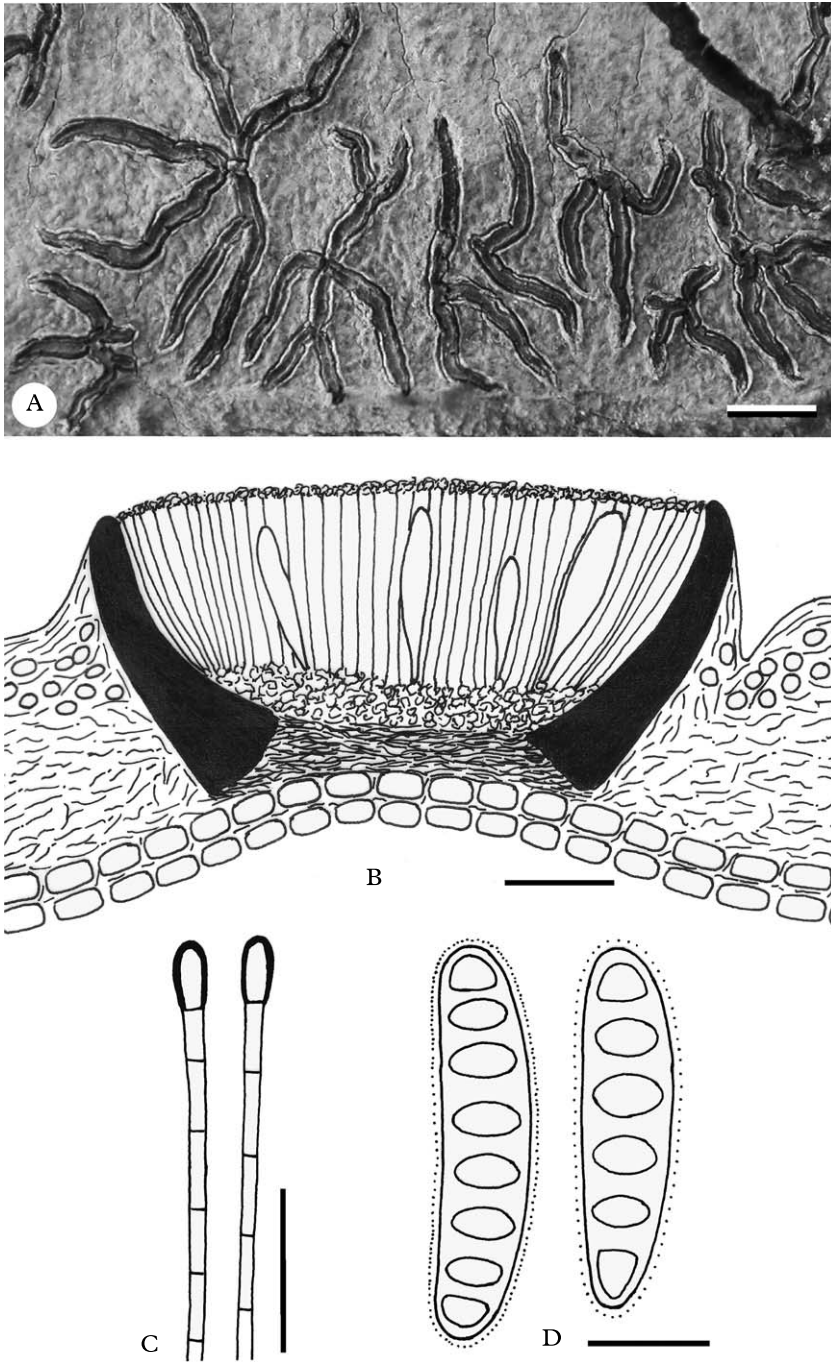


FIG. 1. *Graphis sundarbanensis* (holotype). A, habit; B, vertical section of ascoma; C, paraphyses; D, ascospores. Scales: A=1 mm; B=50 μ m; C=10 μ m; D=5 μ m.

in ascus, hyaline, oblong to oblong-ovoid or oblong-ellipsoid, halonate, (4–)6–8(–9)-locular, (17–)19–24(–26) × 4.5–7 µm, I+ blue-violet.

Chemistry. Thallus K+ yellow, C –, P+ orange, containing stictic and constictic acids (major) and hypostictic acid (trace).

Notes. *Graphis sundarbanensis* is characterized by simple, dichotomously to subdichotomously, or radially dichotomously branched ascomata, wide-open discs with white pruina, a laterally carbonized exciple with entire labia, brown-walled clavate paraphysis tips, 6–8-locular halonate ascospores and by the presence of stictic, constictic and hypostictic acids. Its thallus and ascomata resemble *G. pyrrocheiloides* Zahlbr., but the latter species has larger ascospores (32–46 × 6–12 µm) and norstictic acid as the lichen substance (Awasthi 1991).

At present, the new species is known only from mangrove reserve forests, especially in the Tiger Reserve area of Sundarbans Biosphere Reserve, where it grows on the trunks and branches of mangrove trees.

Additional specimens examined. **India:** West Bengal: Sundarbans Biosphere Reserve (alt. sea level): Dutta Passur, on *Xylocarpus mekongensis*, 2003, Jagadeesh 13759 (ASSAM); Chamta, on *Xylocarpus mekongensis*, 2004, Jagadeesh 1119 (BSA).

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