

Distribution: India, Pakistan, tropics.

Specimens: **India.** Kottayam, ex soil, 1968, *K. T. Jacob* (IMI 131676); Loc. no data: 1934, *R. Mosseray* (NRRL 4839) as *A. atroviolaceus* Mosseray.

Notes: With *A. japonicus* this species comprises the only uniseriate members of the *A. niger* group. Al-Musallam (1980) reduced *A. aculeatus* as a variety of *A. japonicus*. However, this species can be distinguished from *A. japonicus* by the ornamentation of its conidia under SEM (cf. Fig.54a with 54e). In addition, by optical microscopy, conidia are globose, whilst those of *A. atroviolaceus* are distinctly elliptical.

The conidial ornamentation is close to but distinct from that of *A. helicothrix* (cf. Fig.56d and 54e). The species can be distinguished by the fact that *A. helicothrix* possesses numerous brown sclerotia covered with distinctive twisted hyphae (Fig.56b).

Aspergillus aculeatus has been placed in synonymy with *A. atroviolaceus* since its conidial ornamentation is identical (cf. Fig.54e,f). Raper & Fennell (1965) reduced *A. atroviolaceus* to synonymy with *A. japonicus* but the conidial ornamentation of the latter is different.

Verrucose category

Aspergillus fonscaeus Thom & Raper, *A Manual of the Aspergilli*: 227 (1945).

Illustration: Fig.52d.

Description: Conidia verrucose. Conidiogenous cells biseriate. Conidiophores smooth, 1.5–3.5 mm, but commonly 2.0–3.0 mm long. Conidial heads large, globose or radiate, black.

Type: **Brazil:** Rio de Janeiro, da Fonseca (IMI 41875, isotype).

Distribution: Brazil.

Notes: This species was first described by Thom & Raper (1945) who considered the conidium size of 5–8.5 μm (double that of *A. niger*) was sufficient to warrant species status. They also described conidia as being conspicuously roughened with prominent colour bars. Raper & Fennell (1965) thought the species was similar to *A. carbonarius* and placed it in synonymy, a decision accepted by Al-Musallam (1980). However the micrograph of *A. carbonarius* (Fig.55e) shows conidial ornamentation to be completely different from that of *A. fonscaeus* (Fig.52d), and even from that of *A. niger* (Fig.55a), so the synonymy is not accepted.

Aspergillus acidus Kozakiewicz, **sp. nov.**

Aspergillus foetidus var. *acidus* (Nakazawa, Simo & Watanabe) Raper & Fennell, *The genus Aspergillus*: 326 (1965), *non rite publ.*, Art. 33.2.

Aspergillus aureus var. *acidus* Nakazawa, Simo & Watanabe, *J. Agr. Chem. Soc. Japan* **12**: 960 (1936), *non rite publ.*, Art. 36.

Illustration: Fig.57d.

Conidiophora breve et lata, pro parte 600–800 $\times$ 20–30 μm , raro 1 mm longa. Vesiculae globosae vel prope globosae, 80–85 μm diam., super paginam integram fertiles. Cellulae conidiogenae biseriatae, brunneae phialidibus 6–10 $\times$ 2.5–3.5 μm . Conidia globosa vel radiata, aliquot complanata, brunnea, 4–4.5 μm diam., densitunicata, laevia vel leviter irregularia; capituli brunneo nigra.

Holotypus Japan, 1936, Nakazawa, IMI 104688, cultura sicca.

Conidiophores short and wide, commonly 600–800 $\mu\text{m} \times$ 20–30 μm , rarely 1 mm in length. Vesicles globose or nearly so, 80–85 μm diam., fertile over entire surface. Conidiogenous cells biseriate, brownish in colour, phialides 6–10 $\mu\text{m} \times$ 2.5–3.5 μm . Conidia globose or radiate, somewhat flattened, brown 4–4.5 μm diam., heavy-walled, smooth or with surface slightly irregular. Conidial heads dull greyish olive to dark olive (R. XL) to Chaetura or olivaceous black (R. XLVI).

Type: **Japan:** 1936, Nakazawa (IMI 104688, holotype).

Distribution: Japan.

Notes: The basis on which this taxon is raised from varietal to specific rank is discussed under *A. citricus*.

Aspergillus niger v. Tieghem, *Ann. Sci. nat., Bot., Sér. 5*, **8**: 240 (1867).

var. **niger**

Sterigmatocystis nigra (v. Tieghem) v. Tieghem, *Bull. Soc. bot. Fr.* **24**: 102 (1877).