

strains, red to wine coloured. *Sclerotia* absent. *Hülle cells* present in some strains.

Type: WB 238 = CBS 583.65 = IMI 229970 (CBS 538.65, neotype [n.v.]).

Hosts: Common on stored cereals (barley, wheat, maize, oats), soil, decaying vegetation, old cheese, cured meats, cotton fabrics, stored olives, wallpaper, refrigerated dough products, wheat flour, polished and unpolished rice, wheat paste products and pecans (Tuite, 1977).

Distribution: Universal: United Kingdom, U.S.A., Japan, Canada, Argentina, Syria, U.S.S.R., New Zealand.

Specimens: United Kingdom: Exeter, ex barley, 1968, *W. Greenaway* (IMI 133245). —U.S.A.: ex *Berberis* fruit, 1930, *M. Roberg* (IMI 211400, penicillate-type heads); ex soil, *G. Wilson* (IMI 211379, pink or cream-coloured conidia); ex date fruits, *D. Bliss* (IMI 211385, colony contains *Hülle cells*).

Notes: One of the common 'storage' fungi occurring at moisture contents above 16%. Also common in 'hot spots' in farm stored wheat and oats (Wallace & Sinha, 1962). It produces the mycotoxin sterigmatocystin (Schindler & Abadie, 1973), and there is also some indication that it might act as a pathogen, causing hepatoma in man (Onions, 1982). Pinoy (1936) isolated *A. versicolor* from a nodular lesion of the human spleen. According to Raper & Fennell (1965), this species is extremely variable, showing a wide range of colony structure and pigmentation. I have examined isolate WB 239 which produces a blue-green colony containing *Hülle cells*, isolate WB 227 which produces a cream-flesh coloured colony and WB 4838 which bears a proportion of 'penicillate' type heads. In all cases SEM micrographs of the conidia taken from the respective colonies were the same as those in Fig. 67a.

It shares an identical conidial form with *A. versicolor* var. *protuberus*.

Aspergillus versicolor* var. *protuberus (Muntañola-Cvetković) Kozakiewicz, **comb. nov.**

Aspergillus protuberus Muntañola-Cvetković, *Mikrobiologija* 5: 119 (1968).

Description: As in *A. versicolor* var. *versicolor* but with roughened conidiophores 270–360 µm long.

Type: Yugoslavia: ex rubber-coated electric cables, 1968, *V. Malesev* (IMI 278378, isotype).

Hosts: Ex rubber-coated electric cables.

Distribution: Yugoslavia.

Notes: This taxon shares the same conidial ornamentation with *A. versicolor* var. *versicolor* (Fig. 67a,b). It was introduced at species level because it differed from *A. versicolor* by its floccose growth form and warty conidiophores which are much shorter. However, Thom & Raper (1945) and Raper & Fennell (1965) state in their description of *A. versicolor* that strains can be found which are 'made of floccose felts or ropes of hyphae bearing short conidiophores and small heads . . . '.

It produces *Hülle cells*, as do some strains of *A. versicolor*. The original author reports that it is light-sensitive, when the production of *Hülle cells* and warty encrustation is more pronounced.

These are minor differences which are only worthy of varietal recognition.

Aspergillus asperescens Stolk, *Antonie van Leeuwenhoek* 20: 299 (1954).

Illustration: Fig. 67c.

Description: *Conidia* echinulate. *Conidiogenous cells* biseriate. *Conidiophores* smooth, up to 600 µm when arising from substrate, or up to 150 µm if from aerial hyphae. *Conidial heads* radiate, splitting into columns with age, initially white, then jade green and olive-buff with age. *Sclerotia* absent. *Hülle cells* present.

Type: United Kingdom: Somerset, ex soil from a cavern, 1947, *P.W. Brian* (IMI 46813, isotype).

Hosts: Ex soil in caves, and bat dung, also in a cave.

Distribution: Poland, United Kingdom.

Notes: The ontogenetic development of the conidium is unusual, and has been discussed at length in the introduction to this group. The conidial form differs very subtly from *A. microcysticus*.

Aspergillus microcysticus Sappa, *Boll. Ist. orto Botan. univ. Torino* 2: 251 (1955).

Illustration: Fig. 67d.

Description: *Conidia* echinulate. *Conidiogenous cells* biseriate. *Conidiophores* smooth, 150–250 µm long. *Conidial heads* of two types. white, radiate to loosely columnar, and grey-green, Hathi grey to storm grey (R. LII).

Type: Somalia: Goluin, ex soil, 1954, *E. Sappa* (IMI 139275, lectotype).

Host: Ex soil.

Distribution: India, Somalia.