

# MYCOTAXON

Volume LXII, pp. 427-433

April-May 1997

*STACHYBOTRYS YUNNANENSIS* SP. NOV.  
AND *NEOSARTORYA DELICATA* SP. NOV.  
ISOLATED FROM YUNNAN, CHINA

Kong Hua-zhong

Institute of Microbiology, Academia Sinica,  
Beijing 100080

## Abstract

*Stachybotrys yunnanensis* sp. nov. and *Neosartorya delicata* sp. nov. isolated from Yunnan Province, China are described and illustrated on the basis of morphology and detailed comparative studies.

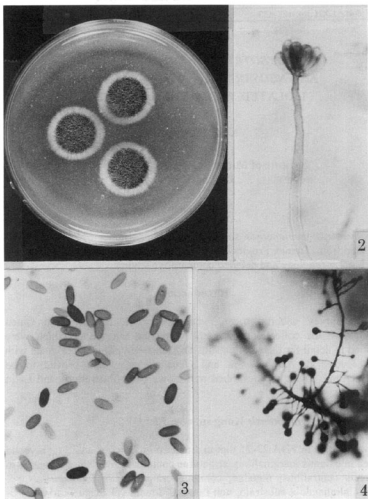
## Introduction

A survey undertaken in Yunnan Province, Southwestern China resulted in the collections of many interesting microfungi which were studied in detail for their systematics and taxonomy. This paper deals with two species of *Stachybotrys* and *Neosartorya*, which proved to be undescribed. These are described as follows with illustrations and Latin diagnoses.

### *Stachybotrys yunnanensis* Kong sp. nov. Pl. 1

Coloniae in PDA 23-25 mm in diametro in 7 diebus ad 25°C; mycelia nivea in coloniis marginalibus, structurae conidicae abundanter fecundae in coloniis centralibus, nigellae; conidiophora e hyphis funicularibus vel aeriis, aliquando e substrato, non ramosa, directa vel exigue curvata, 70-120 × 2.2-4.5 μm; phialides obovatae, plerumque 7-10 in verticillo, 8.0-13 × 3.2-5.0 μm; conidia cylindracea vel subcylindracea, 7.0-11 × (2.5-)3.5-5.0 μm.

Supported by the National Natural Science Foundation of China



Pl. I *Stachybotrys yunnanensis* Kong: 1. Colonies on PDA in 7 days at 25 °C ; 2. Stipe and phialides,  $\times 600$ ; 3. Conidia,  $\times 600$ ; 4. Conidia aggregated in slimy masses,  $\times 94.5$

Holotypus HMAS 71158 (cultura viva AS 3.4696) isolatus e charta, Provincia Yunnan Sinica, in Instituto Microbiologico Academiae Sinicae, Beijing, conservatur.

Colonies on PDA growing somewhat restrictedly, attaining a diameter of 23-25 mm in 7 days at 25 °C, with surface appearing aerial ropes of hyphae, mycelium white in marginal colony areas, up to 4 mm wide, bearing abundant conidial structures in central areas, conidial areas in blackish shade; reverse in brown-yellow shade; conidiophores arising mainly from funiculose and aerial hyphae, occasionally arising from the substratum, unbranched, straight or slightly curved, greenish becoming gray to black in color, 2-3-septate, usually smooth throughout the length, but sometimes minutely rough-walled at the upper parts,  $70-120 \times 2.2-4.5 \mu\text{m}$ ; phialides obovate, usually 7-10 in verticil,  $8.0-13 \times 3.2-5.0 \mu\text{m}$ ; conidia cylindrical or subcylindrical, aggregated in slimy masses, at first grayish, but black in age, usually smooth-walled, occasionally rough,  $7.0-11 \times (2.5-3.5-5.0) \mu\text{m}$ .

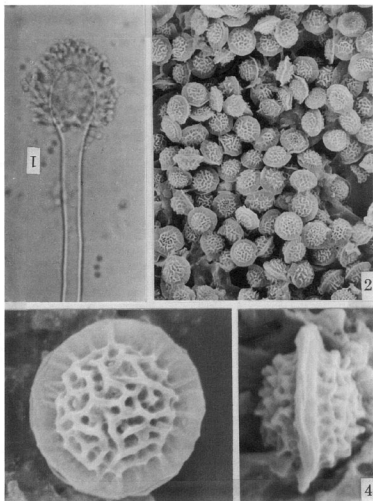
Colonies on wort agar growing slowly at 25 °C, 18-20 mm in diameter at 7 days, floccose-funiculose in appearance, white; no conidial structures observed; reverse purple brown or orange brown.

The present fungus resembles *Stachybotrys breviusculus* McKinzie, but the latter shows marked difference in the branched conidiophores, and smaller and smooth or verrucose conidia. The other one closely resembling species is *S. chartarum* (Ehrenb. ex Link) Hughes, but its conidia are ellipsoidal and smooth-walled or sometimes banded or ridged, moreover, the conidiophores are longer. The species epithet refers to the locality of specimen.

*Neosartorya delicata* Kong sp. nov, Pl. II.

Stat. anam. *Aspergillus delicatus* Kong sp. nov.

Coloniae in agaro Czapekii 60-70 mm in diametro in 10 diebus ad 25 °C, planae, rariae; sine structuris conidicis observabilibus; cleistothecia abundanter fecunda, leviter flava; sine exsudato; sine odore; cleistothecia globosa vel subglobosa. 200-280  $\mu\text{m}$  in diametro; asci globosi vel subglobosi, 12-15  $\mu\text{m}$  in diametro; ascosporae lenticulares cum 2 cristis arcte appressis ad 1.2  $\mu\text{m}$  latis,  $7.0-8.0 \times 4.0-5.0 \mu\text{m}$ , superficies convexae cum spiculis validis, spicula unita per costas projectas ac ornamenta reticulata formata, ac costae effusae ad cristam; structurae



Pl. II. *Neosartorya delicata* Kong: 1. Stipe and vesicle,  $\times 600$ ; 2. Ascospores  $\times 1500$ ; 3.4. Ascospores.  $\times 10000$ .

conidicae fecundae in pariete tubuli superno ad 37 °C ; conidiophora e hyphis praecipue funicularibus vel aeriis, raro e substrato, directa vel sinuosa, stipitibus (100-) 200-350 (-400)  $\times$  4.0-8.0  $\mu$  m, glabri-tunicatis; capitula laxe conidica; vesiculae ellipsoideae vel fere clavatae, 16-28  $\times$  12-20  $\mu$  m; phialides 5.0-6.5  $\times$  2.5-3.2  $\mu$  m; conidia globosa vel subglobosa, raro ellipsoidea, glabra vel leviter scabra, 2.5-3.0(-4.0)  $\mu$  m in diametro.

Holotypus HMAS 71159(cultura viva AS 3.4697) isolatus e fructo, Provincia Yunnan Sinica, in Instituto Microbiologico Academiae Sinicae, Beijing, conservatur.

Colonies on Czapek's agar growing rapidly, 60-70 mm in diameter in 10 days at 25 °C , plane, thin; no conidial structures observed; cleistothecia abundantly produced, lightly yellow, with colony surface appearing "nealy"; no exudate; odor lacking; reverse in yellowish shades in the central areas, white at marginal and submarginal areas; cleistothecia globose or subglobose, 200-280  $\mu$  m in diameter, asci globose or subglobose, 12-15  $\mu$  m in diameter, 8-spored; ascospores lenticular, with two equatorial crests appressed closely up to 1.2  $\mu$  m wide, convex surface with strong spines, joining one spine to another by fairly prominent ridges and reticulate ornamentation formed, the ridges spreading to the equatorial crest, 7.0-8.0  $\times$  4.0-5.0  $\mu$  m; conidial structures produced on the upper end of walls of the slant at 37 °C ; conidiophores arising mainly from the funiculose or aerial hyphae, occasionally arising from the substratum, stipes (100-) 200-350(-400)  $\times$  4.0-8.0  $\mu$  m, straight or lightly sinuous, smooth-walled; conidial heads appearing loosely; vesicles ellipsoid or nearly clavate, occasionally flask-shaped, fertile over the entire areas or nearly, 16-28  $\times$  12-20  $\mu$  m; phialides 5.0-6.5  $\times$  2.5-3.2  $\mu$  m; conidia globose or subglobose, rarely ellipsoid, nearly smooth or lightly roughened, 2.5-3.0(-4.0)  $\mu$  m in diameter.

Colonies on CYA growing rapidly, attaining a diameter of 70-72 mm in 10 days at 25 °C , abundantly furrowed in a radial pattern; no conidial structures examined and aeral hyphae limited in number; cleistothecia produced abundantly, lightly yellow; no exudate; odor lacking; reverse yellow-drab.

Colonies on wort agar spreading broadly, attaining a diameter of 70 mm in 7 days at 25 °C , plane or nearly plane, no conidial structures examined; cleistothecia produced abundantly, white; no exudate; odor lacking; reverse brown.

Unlike *Neosartorya hiratsukae* Udagawa, Tsubouchi & Horie and *N. fischeri* (Wehmer) Malloch & Cain var. *fischeri*, this species possesses ellipsoid or nearly clavate vesicles, prominent ridges spreading to the equatorial crests, and delicate ornamentation. In addition, it can grow rapidly on Czapek's agar. The specific epithet refers to the character of its ascospores.

### Acknowledgement

The manuscript benefitted from useful suggestions by Dr. Jian-yun Zhuang, Prof. Tian-yu Zhang, and Zhong-yi Zhang. I thank them.

### REFERENCES

- Jong, S. C. & Davis, E. E. 1976. Contribution to the knowledge of *Stachybotrys* and *Memnoniella* in culture. *Mycotaxon* 3(3):409-485.
- Kozakiewicz, Z. 1989. *Aspergillus* species on stored products. *Mycol. Pap.* 161:1-168.
- McKenzi, E. H. C. 1991. Dematiaceous Hyphomycetes on Freycinetia (*Pandanceae*). 1. *Stachybotrys*. *Mycotaxon* 41(1): 179-188.
- Muhsin, T. M. & Al-Helfi, M. A. 1981. Hyphomycetes of Iraq-the genus *Satchybotrys*. *Sydowia* 34:130-134.
- Raper, K. B. & Fennell, D. I. 1965. The Genus *Aspergillus*. Williams & Wilkins, Baltimore. 686 pp.
- Samson, R. A.; Nielsen, P. V. & Frisvad, J. C. 1989. The genus *Neosartorya*: differentiation by scanning electron microscopy and mycotoxin profiles. in Samson, R. A. & Pitt, J. I. (eds). *Modern concepts in Penicillium and Aspergillus classification*. Plenum Press, New York. pp 455-465.
- Takada, M. & Udagawa, S. 1985. A new species of heterothallic *Neosartorya*. *Mycotaxon* 24:395-402.
- Takada, M., Udagawa, S. & Norizuke, K. 1986. Isolation of *Neosartorya fennelliae* and interspecific parinings between *N. fennelliae*, *N. spathulata*, and *Aspergillus fumigatus*. *Trans. Mycol. Soc. Japan* 27:415-423.
- Udagawa, S., Tsubouche, H. & Horie, Y. 1991. *Neosartorya hiratsukae*, a new species of food-borne Ascomycetes. *Trans. Mycol. Soc. Japan* 32:23-29.