

Additional species as new records for the fungal flora of Kuwait

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ABSTRACT

This paper reports on 22 fungal species as new records for Kuwait. These species include taxa from Ascomycetes and Hyphomycetes as well as a mycoparasite (*Gonatobotrys simplex*). Also included are remarks on the species frequency of occurrence together with illustrations and photographs.

INTRODUCTION

In the course of ecological studies on soil and phylloplane fungi during 1981 and 1982, several new fungal records came out. These records comprise 22 species belonging to the classes Ascomycetes (8 species) and Hyphomycetes (14 species). The present list, together with previous lists (Moustafa 1975, 1978, 1982) bring the total flora to 268 species. All identifications were checked and most of the cultures were deposited at either CMI, England or CBS, Holland.

MATERIALS AND METHODS

Air sampling was carried out by the exposed plate method and continued for a period of 12 months on the roof of the Faculty of Science, University of Kuwait, at Khaldiya campus using 2% malt agar (Moustafa & Kamel 1976). Air catches were made between 10 and 12 a.m.

For comparison with phylloplane fungal flora, leaf surface fungi of some ornamental plants, which are common at the sampling site, have been investigated. These plants were *Antirrhinum*, *Althaea* & *Vinca*.

For isolation of fungi from the soil of the tidal mud-flats, three techniques were used namely: soil plate, washing and desiccation. Czapek's agar medium (+0.5% yeast extract) supplemented with a combination of rose bengal and aureomycin were used. For locations and soil characteristics of the tidal mud-flats see Moustafa & Khosravi (1982).

SYSTEMATIC LIST

ASCOMYCETES

Aspergillus fischeri var. *glaber* Fennell & Raper (Fig. 1) asc. st. *Neosartorya fischeri* (Fennell & Raper) Malloch & Cain

Rare, isolated twice from the tidal mud-flats (1981) and recorded once from the air (1982).

A. quadrilineatus Thom & Raper (Fig. 2) asc. st. *Emericella quadrilineata* Thom & Raper

Common, isolated several times from desert soils as well as tidal mud-flats (1981).

Chaetomium brasiliense Batista & Pontual (Fig. 3)

Less common, isolated few times from the tidal mud-flats (1981).

Chaetomium sp. (new species under description)

Less common, isolated few times from the tidal mud-flats (1981). A culture was deposited at the CMI, Kew, under No. IMI 266202.

Corynascus sepedonium (Emmons) von Arx (Fig. 4)

Common, isolated several times from the tidal mud-flats (1981).

Leptosphaeria sp. (Fig. 5)

Rare in the soil, isolated only once from the tidal mud-flats (1981); common on twigs of salt marsh plants particularly *Nitraria retusa* (1982).

Narasimhella hyalinospora (Kuehn *et al.*) von Arx

Rare, isolated twice from the tidal mud-flats (1981).

Pseudeurotium zonatum van Beyma

Very rare, isolated only once from the tidal mud-flats (1981).

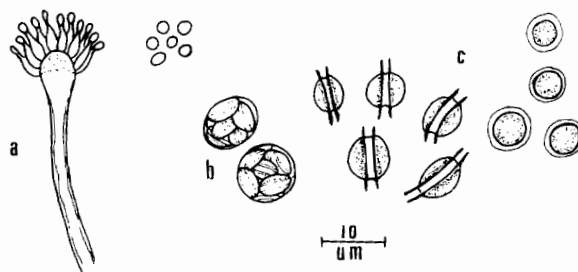


Fig. 1. *Aspergillus fischeri* var. *glaber*: (a) Conidiophore and conidia, (b) Spherical asci, (c) Ascospores in surface and lateral views showing high crests and smooth convex surfaces.

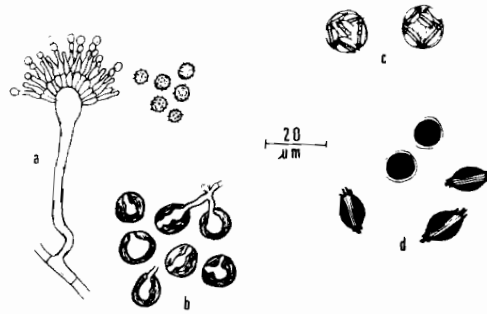


Fig. 2. *Aspergillus quadrilineatus*: (a) Sinuate conidiophore and rough conidia, (b) Hülle cells, (c) Spherical asci, (d) 4-ridged ascospores in surface and lateral views.

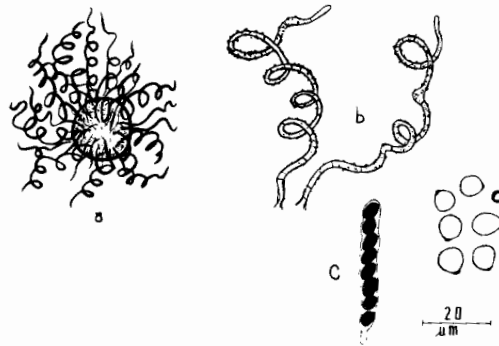


Fig. 3. *Chaetomium brasiliense*: (a) Ascomata, (b) Spirally coiled appendages, (c) Cylindrical ascus, (d) Ascospores, apiculate at one end.

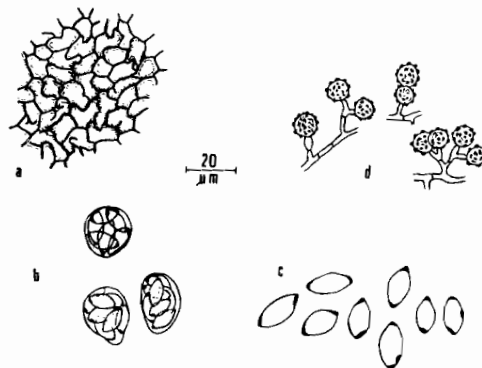


Fig. 4. *Corynascus sepedonium*: (a) Peridial wall, (b) Asci, (c) Ascospores showing 2 or 3 subapical germ pores, (d) Conidial state.

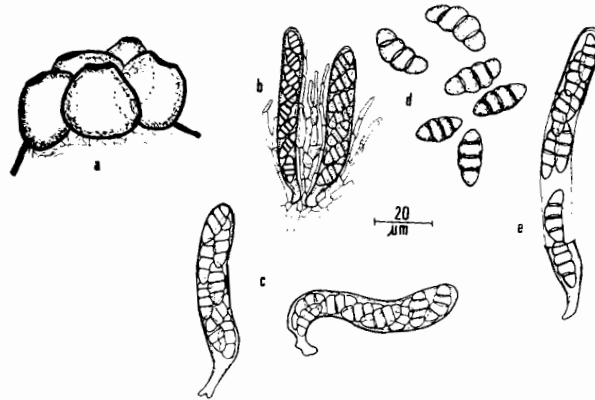


Fig. 5. *Leptosphaeria* sp.: (a) Ascomata, (b) Asci and paraphyses, (c) mature bitunicate ascus before spore discharge, (d) Ascospores, (e) Rupture of exoascus.

HYPHOMYCETES

Acrophialophora fusispora (Saksena) Samson & T. Mahmood (Fig. 6)

Rare, recorded twice from the leaf surface of some ornamental plants (1982).

Aspergillus clavatus Desmazieres (Fig. 7)

Very rare, isolated only once from manured garden soil during 1982.

A. niveus Blochwitz (Fig. 8) asc. st. *Fennellia nivea* (Wiley & Simmons) Samson

Less common in the soil, occasionally isolated from the tidal mud-flats (1981); rare in the air, recorded only twice during 1981.

Aspergillus unguis (Emile-Weil & Gaudin) Thom & Raper

Common in the soil, isolated several times from the tidal mud-flats (1981); less common in the air, recorded few times during 1982.

Cephalophora tropica Thaxter (Fig. 9; Plate I)

Very rare, isolated only once from manured garden soil during 1982.

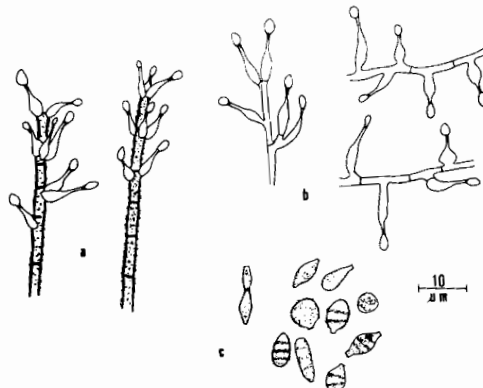


Fig. 6. *Acrophialophora fusispora*: (a) Rough conidiophores with flask-shaped phialides in verticils, (b) Phialides arising on normal vegetative mycelium, (c) Conidia.

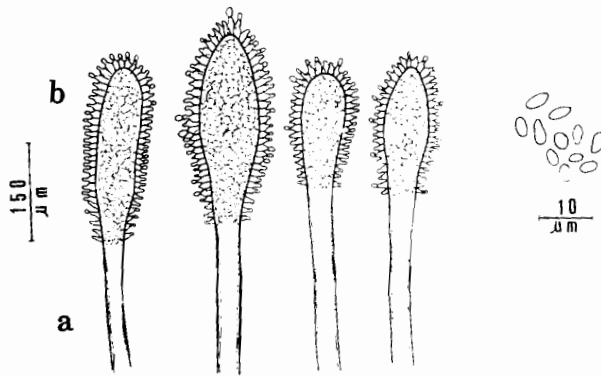


Fig. 7. *Aspergillus clavatus*: (a) Long, smooth conidiophores, (b) Different forms of clavate vesicles bearing one series of phialides and ellipsoidal conidia.

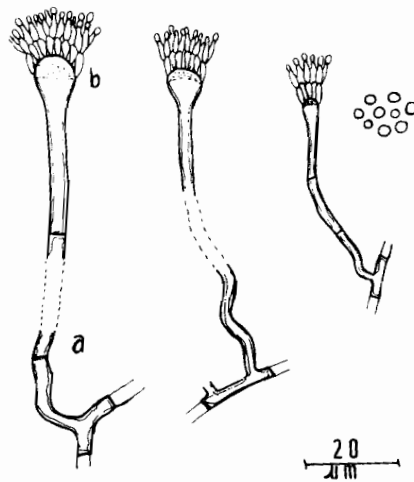


Fig. 8. *Aspergillus niveus*: (a) Long, sinuate conidiophores, (b) Small vesicles, fertile on the upper half or one-third only.

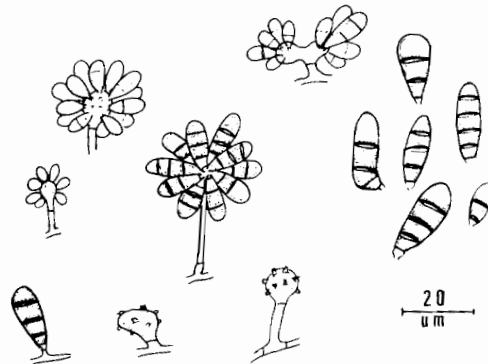


Fig. 9. *Cephalophora tropica*: Clusters of clavate conidia at different stages of development on ampulliform cells.

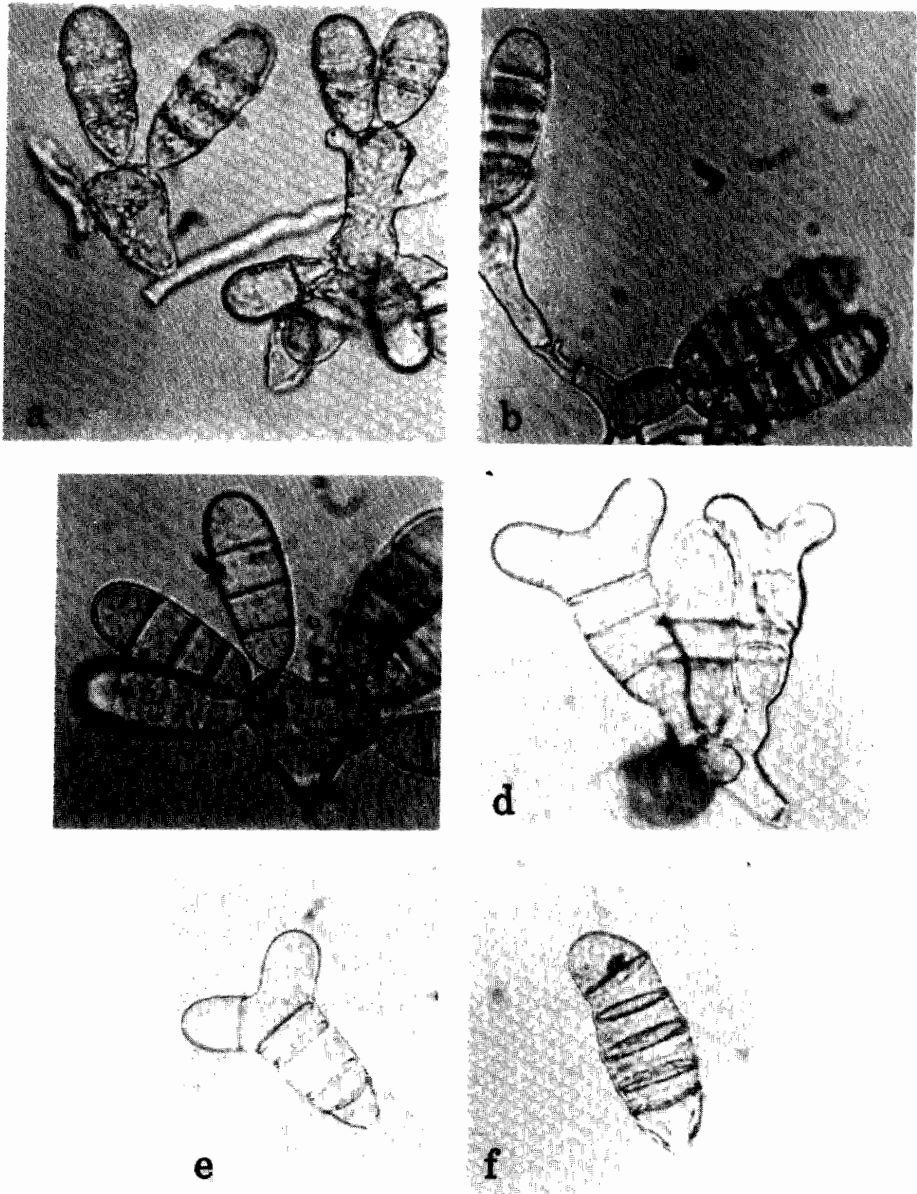


Plate I. *Cephalophora tropica*: (a-d) Different types of ampulliform heads bearing clusters of septate conidia, (e-f) Different types of septation.

Drechslera sp. (Fig. 10)

Very rare, recorded only once from the leaf surface of some ornamental plants (1982).

Fusarium fusarioides (Frag. & Cif.) Booth (Fig. 11)

Rare, recorded twice from the leaf surface of some ornamental plants (1982).

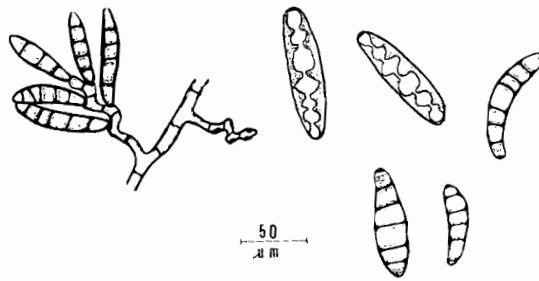


Fig. 10. *Drechslera* sp.: Relatively long, pseudoseptate conidia. The hilum is not protuberant as in *D. rostrata*, a common fungus in Kuwait.

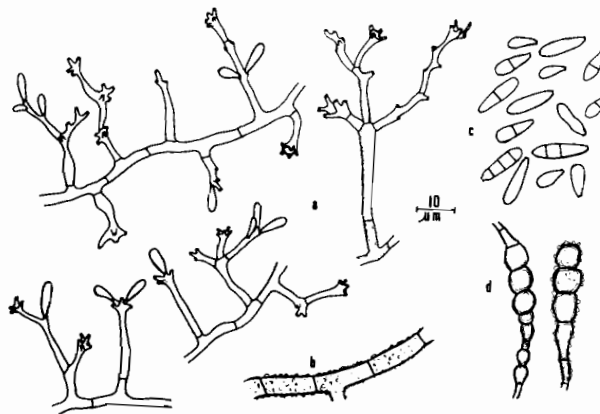


Fig. 11. *Fusarium fusarioides*: (a) Conidiophores showing sympodial conidia, (b) Rough hyphae, (c) Conidia, (d) Chlamydospores.

Fusarium moniliforme Sheldon var. *anthophilum* (A. Braun) Wollenw. (Fig. 12)

Rare, recorded twice from the leaf surface of some ornamental plants (1982).

Gonatobotrys simplex Corda (Fig. 13; Plate IIa, b & c)

Very rare, recorded once over colonies of *Ulocladium* and *Alternaria* during a study of leaf surface mycoflora of some ornamental plants (1982).

Graphium penicilloides Corda

Common in the soil, isolated several times from the tidal mud-flats (1981).

Phialophora verrucosa Medlar (Fig. 14)

Rare, isolated only twice from manured garden soil during 1982.

Pithomyces cynodontis M. B. Ellis (Fig. 15)

Common, recorded several times from the leaf surface of some ornamental plants (1982).

Sagenomella sp. (Fig. 16)

Rare, recorded twice from the leaf surface of some ornamental plants (1982).

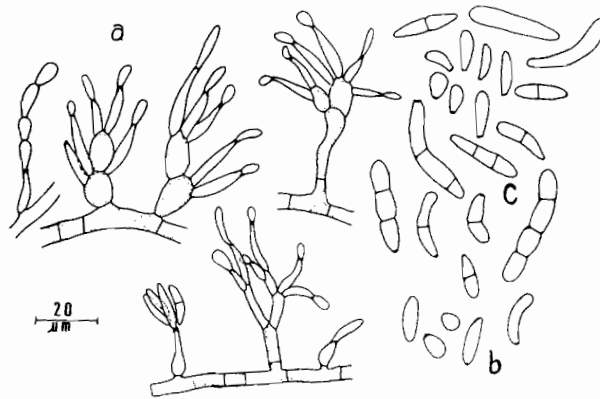


Fig. 12. *Fusarium moniliforme* var. *anthophilum*: (a) Single and clustered phialides on swollen heads, (b) Microconidia, (c) Macroconidia.

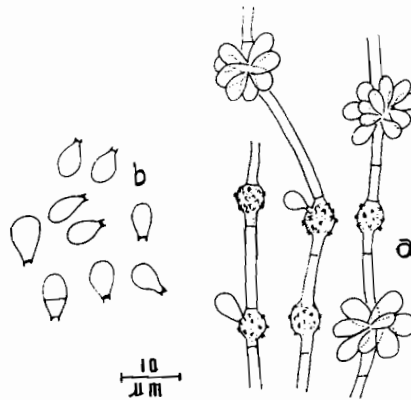


Fig. 13. *Gonatobotrys simplex*: (a) Conidiophores showing terminal and intercalary swellings and blastoconidia, (b) Blastoconidia showing prominent scars (rarely septate).

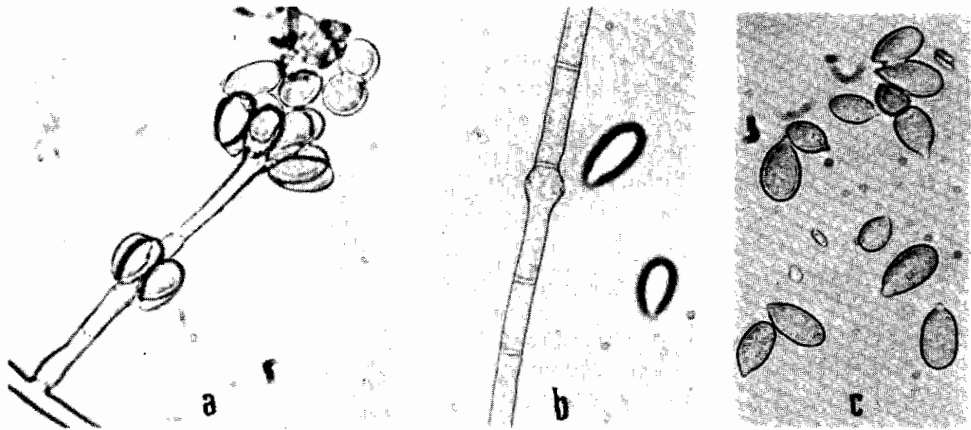


Plate II. *Gonatobotrys simplex*: (a-c) Conidiophores showing terminal and intercalary swellings, bearing oval, unicellular conidia.

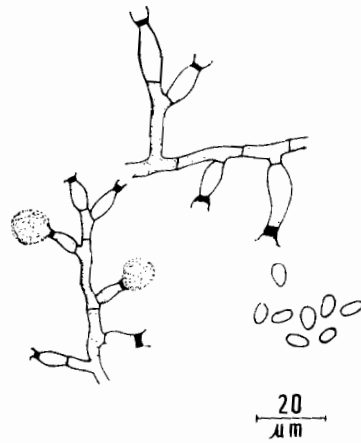


Fig. 14. *Phialophora verrucosa*: Single flask-shaped phialides showing distinct collarettes and unicellular conidia in slimy balls.

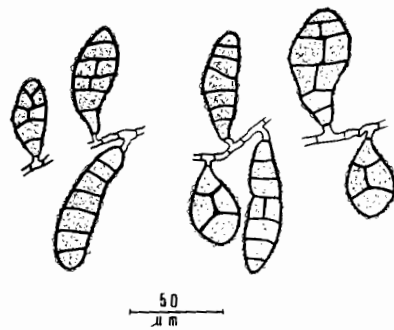


Fig. 15. *Pithomyces cynodontis*: Broadly clavate, rough, dictyoconidia showing several longitudinal septa (up to 3 or 4).

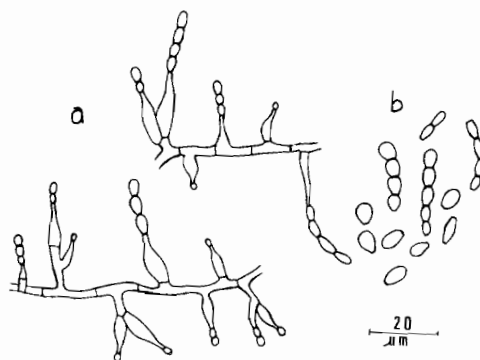


Fig. 16. *Sagenomella* sp.: (a) Long, cylindrical phialides, swollen at the base, tapering toward the tips, (b) Conidia in long chains.

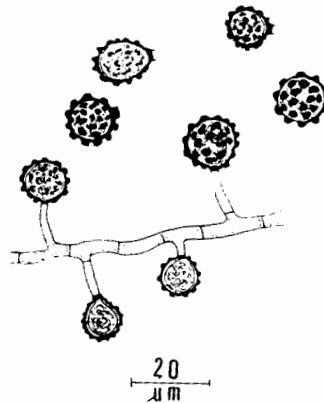


Fig. 17. *Thermomyces verrucosus*: Rough-walled globose to subglobose conidia on short conidiogenous cells.

Thermomyces verrucosus Pugh, Blakeman & M. Jones (Fig. 17)

Rare, recorded twice from the leaf surface of some ornamental plants and manured garden soil (1982).

ACKNOWLEDGEMENTS

I would like to express my gratitude to Drs von Arx, de Hoog, and Samson from the CBS, Baarn, Holland, Drs Booth, Kirk, and Minter from the CMI, Kew, England and Dr M. Chistensen, University of Laramie, Wyoming, U.S.A. for confirming the identification of most species mentioned in this article. Thanks are also due to Dr A. Al-Kabarity, Head of Botany and Microbiology Department, Kuwait University for his kind help in microphotographic work.

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(Received 16 December 1984, revised 7 January 1986)

إضافات جديدة لفطريات الكويت

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خلاصة

من خلال الدراسات التي أجراها الباحث على الفطريات المتواجدة في الأنواع المختلفة من التربة وعلى أسطح بعض النباتات في الكويت في الفترة ما بين ١٩٨١ و ١٩٨٢ أمكن التعرف على ٢٢ نوعا من الفطريات يتم حصرها لأول مرة في الكويت ، وبذلك يصبح عدد الفطريات التي أمكن حصرها من المصادر المختلفة حتى الآن في دولة الكويت هو ٢٦٨ نوعا . وقد زود البحث ببعض الأشكال التوضيحية والصور الفوتوغرافية لعدد كبير من الأجناس والأنواع المذكورة في البحث لسهولة التعرف عليها بواسطة الباحثين .

