

New records for the fungal flora of Kuwait

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ABSTRACT

Thirty fungal taxa are included in this paper as new records for Kuwait. These taxa belong to the classes Zygomycetes (3 species), Ascomycetes (5 species), Hyphomycetes (17 species), Coelomycetes (4 species), and Agonomycetes (1 species).

INTRODUCTION

Ecological and survey studies of fungi of different habitats in Kuwait were started in 1971 by Moustafa and his co-workers. Air, desert, mud-flats and saline soils have been explored. During the course of these investigations hundreds of isolations were made. After identification and confirmation at either the CBS, Baarn, Holland or the CMI, Kew, England, two lists comprising 216 fungal species were given by the present author (Moustafa 1975, 1978). The present paper reports on thirty additional species, bringing the total fungal flora of Kuwait to 246 species. These new records were isolated from desert soil, tidal mud-flats and air during the period 1976–80.

SYSTEMATIC LIST

ZYGOMYCETES

Circinella mucoroides Saito (Fig. 1)

Very rare in the soil, isolated only once from the tidal mud-flats at Al-Solaibikhat (1977).

Circinella muscae (Sorok.) Bel. & de Toni (Fig. 2)

Very rare, isolated twice from the tidal mud-flats at Al-Solaibikhat (1977 and 1980).

Syncephalastrum verruculosum Misra (Figs 3 and 4, Plate I)

Very rare, isolated twice from the tidal mud-flats at Al-Solaibikhat (1977 and 1980).

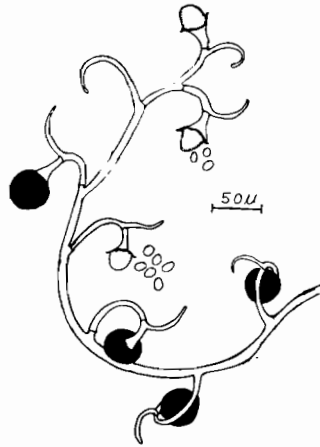


Fig. 1. *Circinella mucoroides*. Sporangiophore showing curved branches, each bearing a sporangium and a sterile spine.

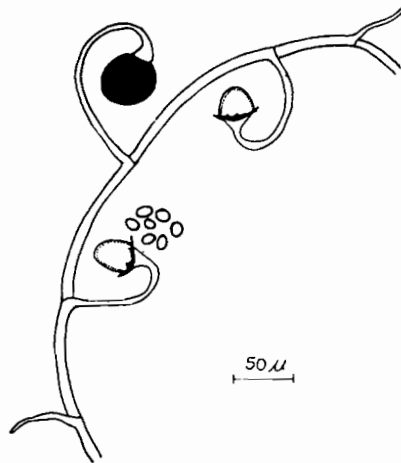


Fig. 2. *Circinella muscae*. Sporangiophore showing curved to loosely coiled branches, each bearing a sporangium. Note also the sterile spines which are not associated with sporangia.

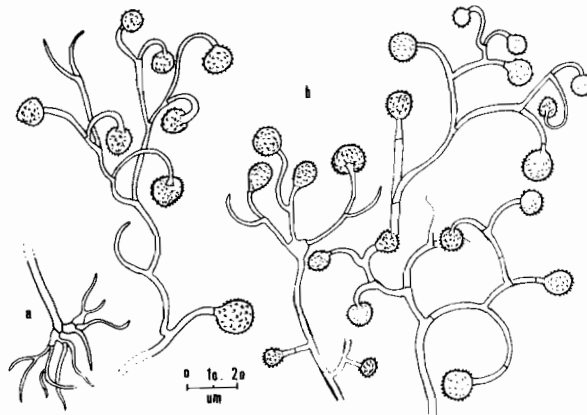


Fig. 3. *Syncephalastrum verruculosum*: (a) rhizoids; (b) different types of sporangiophore branching.

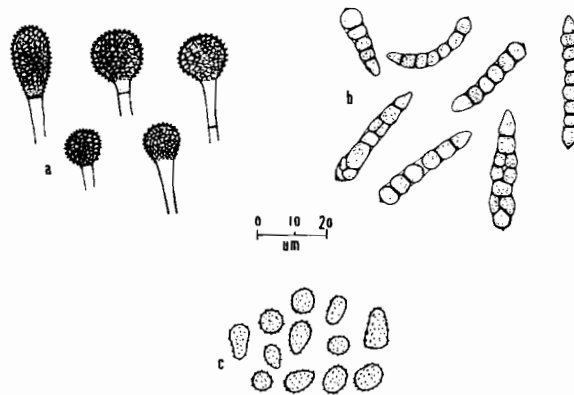


Fig. 4. *Syncephalastrum verruculosum*: (a) different forms of vesicles; (b) merosporangia; (c) rough merospores.

ASCOMYCETES

Melanospora sp. (Plate IIa, b)

Very rare in the soil, isolated only once from the tidal mud-flats at Al-Solaibikhat (1980).

Sordaria fimicola (Roberge) Cesati & de Notaris

Less common in the soil, occasionally isolated from the tidal mud-flats at Al-Solaibikhat (1977); rare in the air, occasionally recorded during 1976 and 1979.

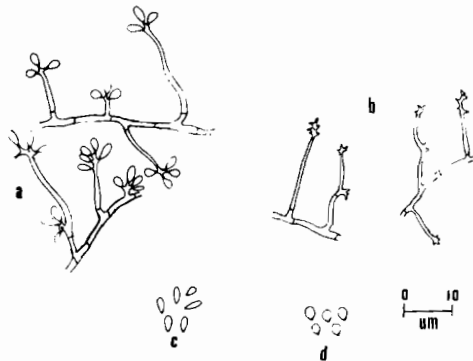


Fig. 5. *Sporothrix schenkii*: (a) whole mount; (b) conidiogenous cells; (c) terminal conidia; (d) lateral conidia.

Sporothrix schenkii Hektoen & Perkins (Fig. 5)

Rare in the soil, isolated only once from the tidal mud-flats at Al-Solaibikhat (1977).

Sporothrix ranii Moustafa sp. nov., in *Persoonia* **11**: 392-4 (1981) (Fig. 6)

Rare in the soil, isolated only once from the tidal mud-flats at Al-Solaibikhat (1977) and once from the air (1980).



Plate I

Syncephalastrum verruculosum: (a) sporangiophore showing curved branches; (b) rough merospores.

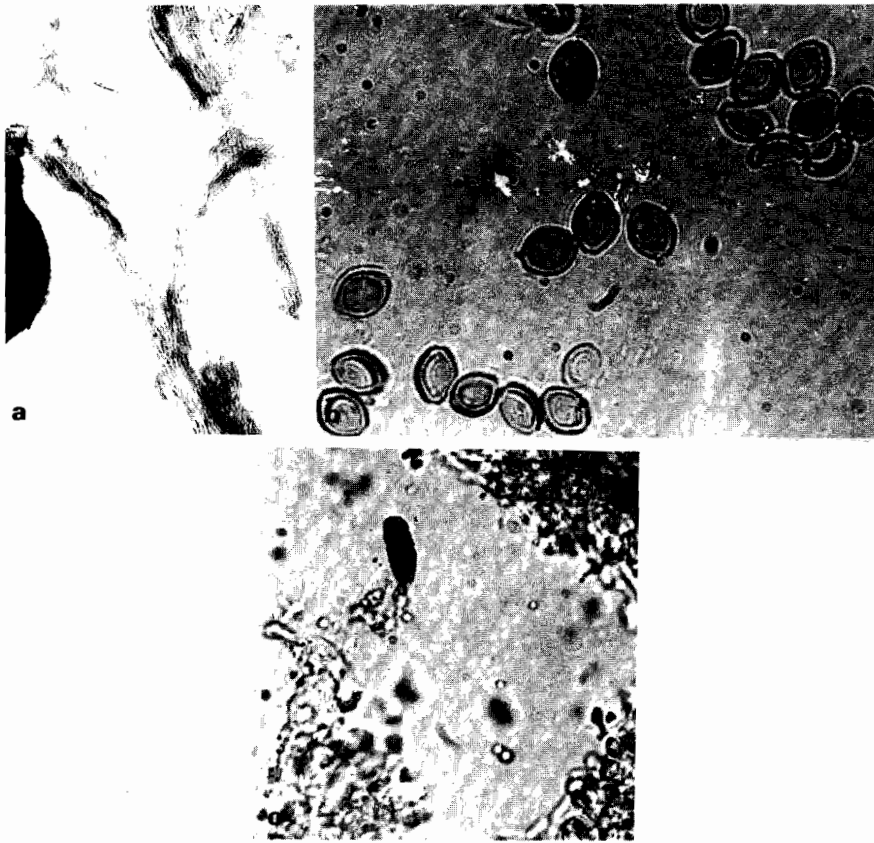


Plate II

(a) *Melanospora* sp., part of a perithecium showing a characteristic long neck; (b) *Melanospora* sp., ascospores with two terminal germ pores; (c) *Westerdykella* sp., single clavate ascus with many ascospores.

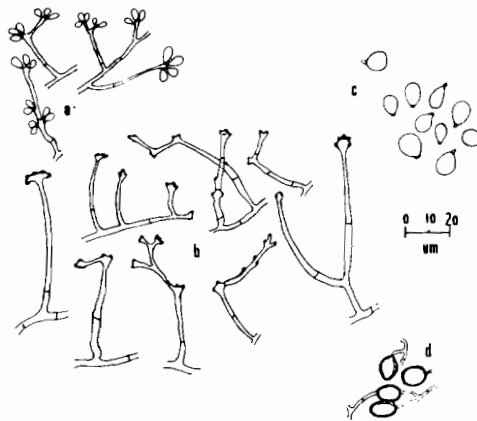


Fig. 6. *Sporothrix ranii*: (a) whole mount; (b) conidiogenous cells; (c) conidia (one type); (d) chlamydospores.

Westerdykella sp. (Plate IIc)

Very rare in the soil, isolated only once from the tidal mud-flats at Al-Solaibikhat (1980).

HYPHOMYCETES

Acremonium persicinum (Nicot) W. Gams

Common in the soil, isolated many times from the tidal mud-flats at Al-Solaibikhat (1977), and desert soils from Al-Ahmadi area (1979).

Acremonium strictum W. Gams

Common in the soil, isolated many times from the tidal mud-flats at Al-Solaibikhat (1977) and desert soils from Al-Ahmadi area (1979).

Acremonium state of *Nectria* sp.

Less common in the soil, occasionally isolated from the tidal mud-flats at Al-Solaibikhat (1977).

Acremonium state of *Emericellopsis* sp.

Rare in the soil, occasionally isolated from the tidal mud-flats at Al-Solaibikhat (1977).

Aspergillus oryzae (Ahlburg) Cohn

Common in the air, recorded many times during 1976 and 1979; rare in the soil, occasionally isolated from the tidal mud-flats at Al-Solaibikhat (1977).

Aspergillus parasiticus Speare

Common in the air, recorded many times during 1976 and 1979; rare in the soil, occasionally isolated from the tidal mud-flats at Al-Solaibikhat (1977).

Curvularia ovoidea (Hiroe & Watan.) Muntanola (Plate III)

Very rare in the soil, occasionally isolated from desert soils at Al-Ahmadi (1979); less common in the air, recorded several times during 1976 and 1979.

Drechslera bicolor (Mitra) Subram. & Jain

Rare in the soil, occasionally isolated from desert soils at Al-Ahmadi; less common in the air, reported several times during 1976 and 1979.

Drechslera fugax (Wallr.) Shoemaker

Rare in the soil, isolated few times from desert soils at Al-Ahmadi (1979); less common in the air, recorded several times during 1976 and 1979.

Fulvia fulva (Cooke) Ciferri (syn. = *Cladosporium fulvum* Cooke)

Less common in the air, occasionally reported during 1976 and 1979; very rare in the soil, isolated only once from desert soil at Al-Ahmadi (1979).

Fusarium chlamydosporum Wollenw. & Reinking

Less common in the soil, occasionally isolated from the tidal mud-flats at Al-Solaibikhat (1977) and desert soils at Al-Ahmadi (1979).



Plate III

Curvularia ovoidea, conidiophore and 3-septate asymmetrical conidia with the second septum not typically median as in *C. eragrostidis*.

Geotrichum candidum Link ex Persoon

Rare in the soil, occasionally isolated from desert soils in Al-Ahmadi area (1979) and also from the tidal mud-flats at Al-Solaibikhat (1977); less common in the air, reported several times during 1976 and 1979.

Graphium putridinis (Corda) Hughes

Common in the soil, isolated many times from the tidal mud-flats at Al-Solaibikhat (1980).

Paecilomyces inflatus (Burnside) Carmichael

Less common in the soil, isolated several times from the tidal mud-flats at Al-Solaibikhat (1977); rare in the air, occasionally recorded during 1979.

Penicillium verrucosum Diereks var. *cyclopium* (Westling) Samson *et al.*

Very common in the soil, isolated many times from the tidal mud-flats at Al-Solaibikhat (1977) and desert soils from Al-Ahmadi area (1979); less common in the air, occasionally recorded during 1976 and 1979.

Pithomyces chartarum (Berk. & Curtis) M.B. Ellis

Common in the air, recorded many times during 1976 and 1979; very rare in the soil, isolated twice from desert soils at Al-Ahmadi (1979).



Plate IV

(a) *Camarosporium* sp., septation different from *C. aequivocum*; arrows show conidia with 3 or 4 longitudinal septa; (b) *Scytalidium* state of *Hendersonia toruloidea*.

Ulocladium chlamyosporum Mouchacca

Common in the soil, isolated many times from the tidal mud-flats at Al-Solaibikhat (1977) and desert soils at Al-Ahmadi (1979); rare in the air, occasionally recorded during 1976 and 1979.

COELOMYCETES

Camarosporium sp. (Plate IVa)

Less common in the soil, isolated several times from the tidal mud-flats at Al-Solaibikhat (1977); very rare in the air, reported only once during 1979.

Scytalidium state of *Hendersonula toruloidea* Nattrass (Plate IVb)

Very rare in the soil, isolated only once from desert soil at Al-Ahmadi (1979); less common in the air, reported several times during 1976 and 1979.

Phoma exigua Desmazieres

Less common in the soil, isolated several times from the tidal mud-flats at Al-Solaibikhat (1977) and desert soils at Al-Ahmadi (1979); very rare in the air, recorded only once during 1979.

Phoma herbarum Westendorp

Less common in the soil, isolated several times from desert soils at Al-Ahmadi (1979); rare in the air, occasionally reported during 1976 and 1979.

AGONOMYCETES

(= *Mycelia Sterilia*)

Papulaspora sp.

Less common in the soil, occasionally isolated from the tidal mud-flats at Al-Solaibikhat (1980).

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اضافات جديدة إلى قائمة فطريات الكويت

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خلاصة

يمثل هذا البحث اضافة لقائمة فطريات الكويت والتي أعدها الباحث في دراستين سابقتين في عامي ١٩٧٥ ، ١٩٧٨ . هذه الاضافة الجديدة تتضمن ثلاثين نوعا من الفطريات التي لم تسجل من قبل في الكويت ، وقد تم عزلها من الهواء وأنواع مختلفة من التربة . وبهذه الاضافة الجديدة يصبح عدد الفطريات الموجودة في تربة وهواء الكويت ٢٤٦ نوعا . هذا وقد تم التأكيد على تعريف الفطريات المذكورة وكذلك تم ايداع نماذج من بعضها في مراكز الفطريات الدولية وخاصة في بارن (هولندا) وكيو (لندن) .