

A new species of *Coniochaetidium* from soil

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A new species of *Coniochaetidium* isolated from soil of Iraq is described. The species *C. nuciforme* differs from *C. savoryi* in the shape and size of the ascospores. A key to differentiate the accepted species of the genus is reported.

Key Words—Ascomycetes; *Coniochaetidium nuciforme*; Iraq.

During a survey of ascomycetes from different substrates of Iraq, an interesting fungus, characterized by globose, non-ostiolate ascomata and large oblate ascospores with a conspicuous longitudinal germ slit, was found. According to these characteristics, this fungus was considered as a species of *Coniochaetidium* Malloch & Cain (Coniochaetaceae). It is described as a new species of the genus.

Coniochaetidium nuciforme Guarro, Gené, Al-Bader & Abdullah, sp. nov. Figs. 1–8

Coloniae in agar farina avenacea restrictae, albae, velutinae; reversum incoloratum. Hyphae vegetativae hyalinae vel dilute brunneae, 1.5–2.5 μm crassae, tenuitunicatae, septatae, ramosae. Ascumata solitaria, sparsa vel gregaria, non ostiolata, tarde maturescentia, globosa vel subglobosa, 80–130 μm diam, dilute brunnea, levissima. Peridium 4–8 μm crassum, hyalinum vel dilute brunneum, translucens, 4- vel 5-stratum; stratum externum ex textura angularis vel epidermoidea compositum; cellulis 5–10 μm diam. Asci 4-spori, cylindranei vel clavati, 50–60 \times 15–20 μm , brevi-stipitati, evanescentes. Paraphyses filiformes, septatae, simplices, 2–2.5 μm diam. Ascosporae uniseriatae, primum hyalinae, deinde olivaceo-brunneae, oblatae, leves, 19–22.5 \times 13.5–17.5 \times 12–14.5 μm , fissula germinali longitudinali praeditae. Status anamorphus non visus.

Holotypus: IMI 372758, colonia exsiccata in cultura ex solo, Nineva, Mosul, Iraq, in 20.III.1995 a S.M. Al-Bader et S.K. Abdullah isolata. ISOTYPUS FMR 5776.

Colonies on oatmeal agar growing restrictedly, white, becoming dark at centre due to the development of ascumata, aerial mycelium scarce and white, cottony, margin diffuse; reverse uncoloured. Mycelium hyaline, dark in the immediate vicinity of the ascumata. Hyphae 1.5–2.5 μm wide, hyaline to pale brown, thin-walled, septate, branched, frequently anastomosing. Ascumata

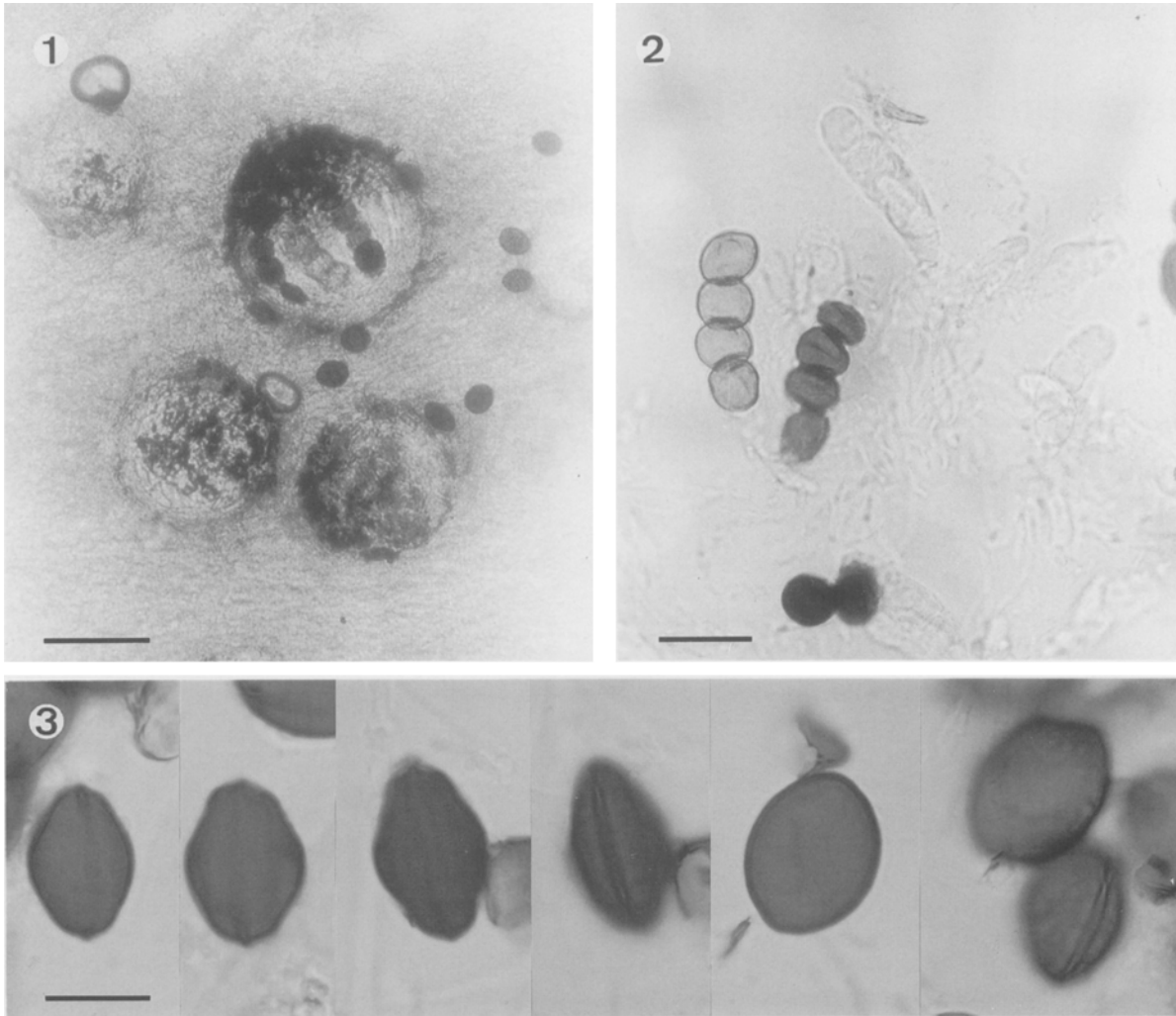
solitary or partly gregarious, non-ostiolate, maturing after approximately 20 d of incubation, globose to subglobose, 80–130 μm in diam, pale brown but appearing dark brown from the mass of mature ascospores, glabrous. Peridium 4–8 μm thick, consisting of 4–5 layers of thin cells; outer layer hyaline to pale brown, of “textura angularis” to “textura epidermoidea”, cells measuring 5–10 μm in diam. Asci 4-spored, cylindrical to clavate, 50–60 \times 15–20 μm , short-stipitate, thin-walled, without apical structures, evanescent. Paraphyses hyaline, filiform, septate, simple, 2–2.5 μm in diam. Ascospores uniseriate, at first hyaline, becoming dark olivaceous brown, oblate, with the convex hemispheres slightly umbonate, broadly fusiform to elliptical or slightly hexagonal in frontal view, smooth-walled, 19–22.5 \times 13.5–17.5 \times 12–14.5 μm , with a longitudinal germ slit lying between two prominent and close ridges. Anamorph not observed.

Habitat: Forest soil, Nineva, Mosul, Iraq.

Etyymology: From the Latin, *nux*=nut, referring to the ascospore shape.

The genus *Coniochaetidium* of the Coniochaetaceae (Sordariales) at present comprises five species, which have been isolated from soil, decayed wood and salted food. The main characteristics of the genus are the non-ostiolate, globose ascumata and dark ascospores with a germ slit laterally extending nearly the entire length of the ascospore. *Coniochaeta* (Sacc.) Cooke is a closely related genus but its ascumata are ostiolate and usually with stiff hairs. One species of *Coniochaeta*, *C. nodulisporium* D. Hawksw. (1978a), also has four-spored asci and ascospores with a protruding rim, but they are smaller (15–18(–20) \times 9–11 \times 12–15 μm) and a *Nodulisporium* anamorph is formed. A key to the accepted species of *Coniochaetidium* is reported below. *Coniochaetidium coprophilum*, described by Pathak and Agarwal (1977), was transferred to *Thielavia* Zopf by Hawksworth (1978b), who demonstrated that the indicated “germ slits” in the original description really were simple folds in collapsed ascospores. Of the five accepted species, three have small ascospores and asci are usually 8-

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Figs. 1–3. *Coniochaetidium nuciforme*, IMI 372758.

1. Ascomata, scale bar = 50 µm; 2. Asci, scale bar = 25 µm; 3. Ascospores, scale bar = 10 µm.

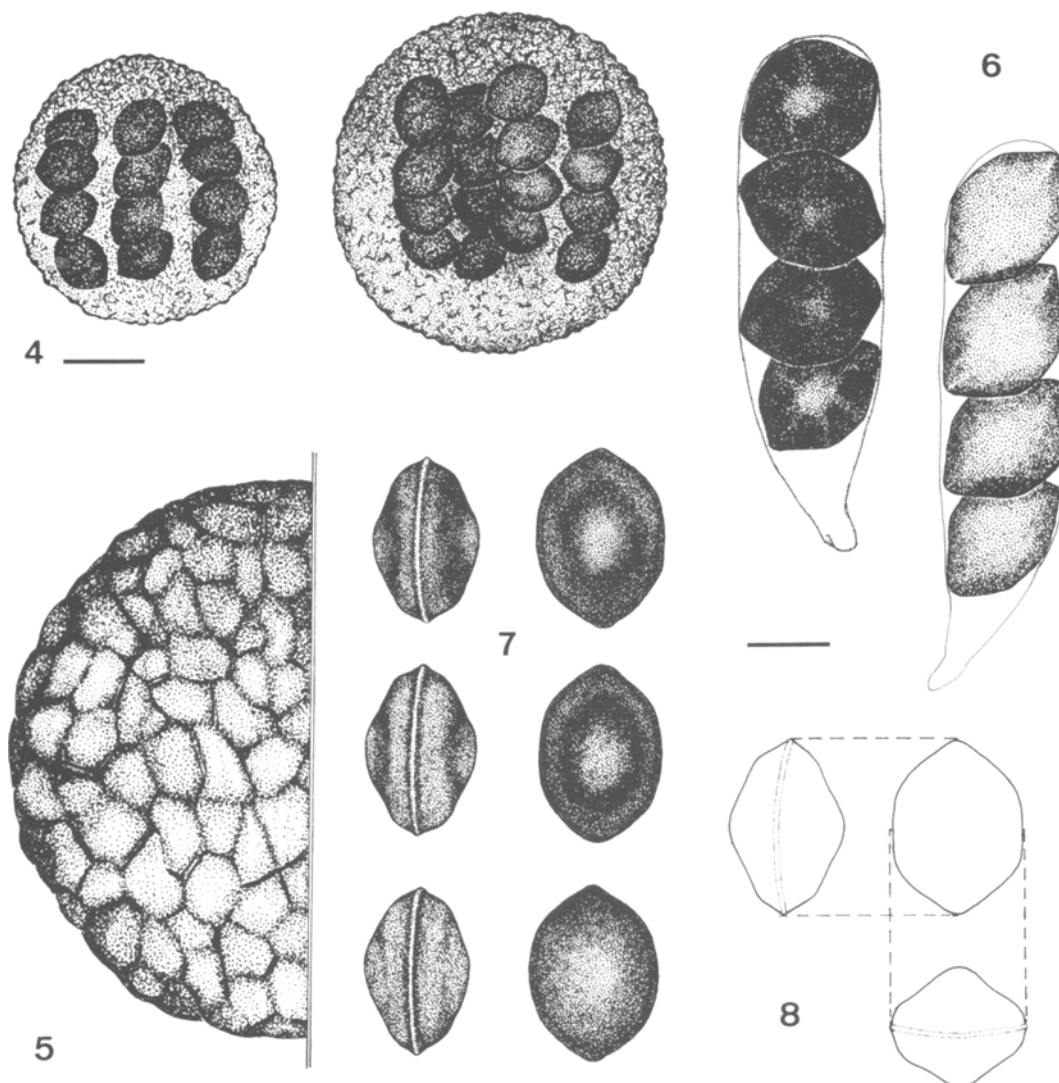
spored. These are: *C. ostreum* Malloch & Cain (1971) (5–8 × 4–5.5 µm), *C. mirabile* Udagawa & Tsubouchi (1986) (5–6(–10) × 4.5–5(–8) × 3.5 µm) and *C. boothii* (Manoharachary & Ramarao) Arx (1975) (6–8 × 4–5 × 3–4 µm). The other two species have bigger ascospores, usually twice as long as those of the former, and 4-spored asci. This second group comprises *C. savoryi*

(Booth) Malloch & Cain (Booth, 1961; Malloch and Cain, 1971; Udagawa and Furuya, 1975) and the present species. *Coniochaetidium savoryi* had been considered the type species of the new genus *Germ slitospora* Lodha (1978) but this genus has not been accepted (v. Arx, 1981; Hawksworth et al., 1995).

Key to the species

- 1a. Ascospores 5–8 µm long; asci usually 8-spored. Anamorph present 2
 1b. Ascospores longer; asci 4-spored. Anamorph absent 4
 2a. Ascospores reniform *C. boothii*
 2b. Ascospores lenticular 3
 3a. Asci clavate and long-stipitate; *Graphium*-like anamorph *C. ostreum*
 3b. Asci 2–8-spored, subglobose to ovoid or pyriform; *Basipetospora*-like anamorph *C. mirabile*
 4a. Ascospores ellipsoid, 16–20(–25) × 8–10(–11) µm* *C. savoryi*
 4b. Ascospores discoid, 19–22.5 × 13.5–17.5 × 12–14.5 µm *C. nuciforme*

*This measurement follows Udagawa and Furuya (1975); Booth (1961) described ascospores of 18–21 × 6.5–7.5 µm.



Figs. 4–8. *Coniochaetidium nuciforme*, IMI 372758.

4. Ascomata, scale bar = 25 μm ; 5. Part of peridium; 6. Asci; 7. Ascospores; 8. Diagram of an ascospore showing 3 planes (lateral, front and top views). Scale bars: Figs. 5–8 = 10 μm .

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