

A new terricolous species of *Gelasinospora*¹

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Gelasinospora udagawae sp. nov. is described from soil collected in Pakistan. It is illustrated using both light microscopy and SEM.

Gelasinospora DOWDING (1933) is a genus of the Sordariaceae characterized by one-celled, darkly pigmented, pitted ascospores. Initially it was described for an organism with ostiolate ascocarps but subsequently both ostiolate and non-ostiolate species were included in the genus (eg. CAILLEUX, 1971; VON ARX, 1973). Numerous additional species have been described, with many being from the warmer climatic zones, including both coprophilous and terricolous taxa (eg. CAIN, 1950; CAILLEUX, 1971; HORIE & UDAGAWA, 1974; FURUYA & UDAGAWA, 1977). In order to assimilate the available information VON ARX (1982) presented a key to all known species.

During our studies of coprophilous and terricolous fungi we have frequently encountered species of *Gelasinospora*. Recently we described from East Africa a number of the new coprophilous ones (KHAN & KRUG, 1989). While examining isolates from a soil sample collected in Pakistan we observed a species which appears to be unrecorded. Since it differs from all known taxa it is being described here as a new species.

Gelasinospora udagawae KHAN & KRUG, sp. nov. Figs. 1-10.

Coloniae in agar „V-8 juice“ et „Leonian“ ad 8.7 cm. diametrum ad 26 °C vel 28 °C in septem diebus crescentes, primum byssaceae, albidae, deinde arachnoideae et appressae, cinereae, azonatae, reversum atro-cinereum exhibentes. Perithecia dispersa vel laxe aggregata, ex immerso ad partim immersum positionem pertinentia, pyriformia, ostiolata, brunnea vel atro-brunnea, 350–600 × 250–450 µm magna, laevia aut in basi pilis pallide brunneis vel atro-brunneis, flexuosis, septatis, 3.5–8.5 µm crassis oblecta; perithecii collum papilliforme vel conicum, atro-brunneum vel paene nigrum, glabrum, 125–190 × 110–140 µm magnum; peridium membranaceum vel subcoriaceum, pseudoparenchymatosum, brunneum vel atro-brunneum, e stratis

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tribus compositum. Asci octospori, cylindracei, 165–275 × 18–26 µm magni, in apice truncati, basin versus in stipitem brevem attenuati. Paraphyses filiformes vel ventricosae, evanescentes. Ascospores unicellulares, oblique uniseriales, ellipsoideae vel ovoideae, raro ovoideae vel cymbiformes, 20–22 × 11–14 µm magnae, primum hyalinae, deinde olivaceo-brunneae vel atro-brunneae, maturitate confirmata paene nigrae et opacae, foveolas numerosas, aequabiliter dispersas, parvas, rotundatas aut ovatas, 0.5–1.5 µm diametro crassas et foramen germinale circa 1.0–1.6 µm diametro crassum in utroque apice exhibentes. Conidia nulla.

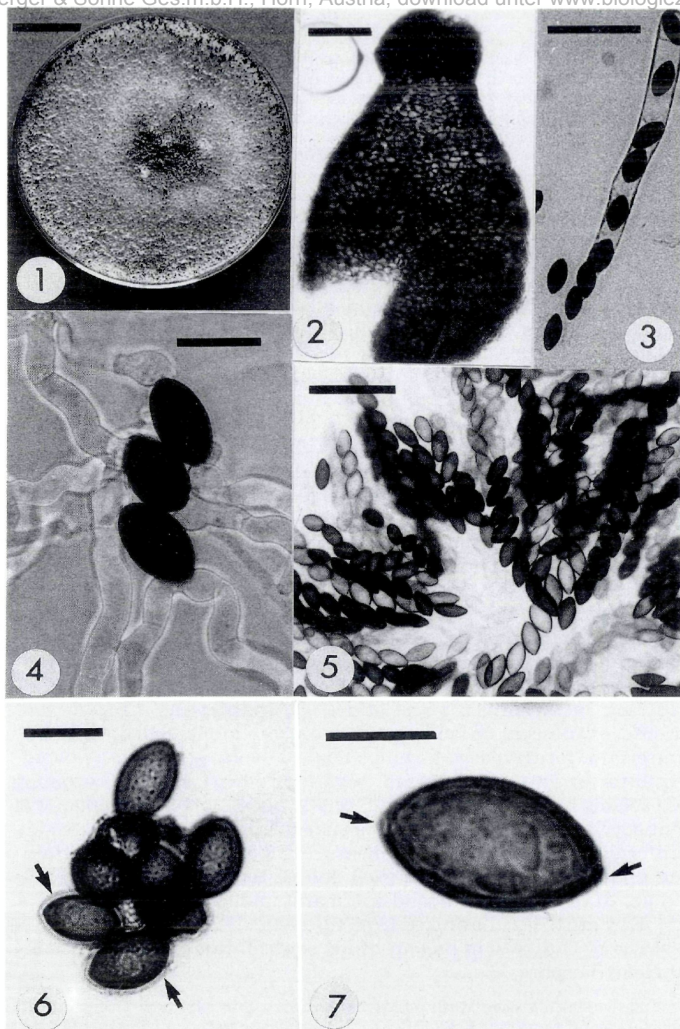
Holotypus: in solo lectus est, in loco ab via University vocata circa 3 km. remoto, in urbe Karachi vocata, in Karachi pago, in Sind provincia reipublicae Pakistanae, 9 Sept. 1987, R.S. KHAN, TRTC 51005. In Torontoensis universitatis Cryptogamarum herbario.

Colonies on V-8 juice and modified Leonian's agar media reaching a diameter of 8.7 cm. in 7 days at 26 °C to 28 °C, at first cottony, white, becoming arachnoid and appressed, grey, azonate, reverse dark grey; aerial hyphae branched and anastomosing, septate, 1.5–3.0 µm diam., hyaline to light brown; substrate hyphae thick-walled, septate, 3.5–10 µm diam., brown; ascocarp initials arising as side branches from the mycelium, involving neighbouring hyphae, coiled and contorted. – Perithecia scattered or loosely aggregated, immersed to semi-immersed, pyriform, ostiolate, brown to dark brown, 350–600 × 250–450 µm, glabrous or covered in the basal portion with light brown to dark brown, flexuous, septate hairs about 3.5–8.5 µm thick; neck papilliform to conical, dark brown to nearly black, glabrous, 125–190 × 110–140 µm, with distinct, apical, circular ostiole, lined with filiform, hyaline paraphyses; peridium membranaceous to semi-coriaceous, pseudoparenchymatous in surface view, brown to dark brown, three-layered. – Asci 8-spored, cylindrical, 165–275 × 18–26 µm, truncate at the apices, tapering below into a short stipe. – Paraphyses filiform-ventricose, evanescent or lacking. – Ascospores one-celled, obliquely uniseriate, rarely biseriata, ellipsoidal to ovoid, occasionally ovoid-cymbiform, 20–22 × 11–14 µm, hyaline when young, becoming olivaceous brown to dark brown, finally almost black and opaque at maturity, with walls uniformly ornamented with numerous, small, uniformly round or ovate pits measuring 0.5–1.5 µm diam., containing a circular germ pore at each end of the spore measuring 1.0–1.6 µm diam. – Conidia and spermatia unknown; homothallic.

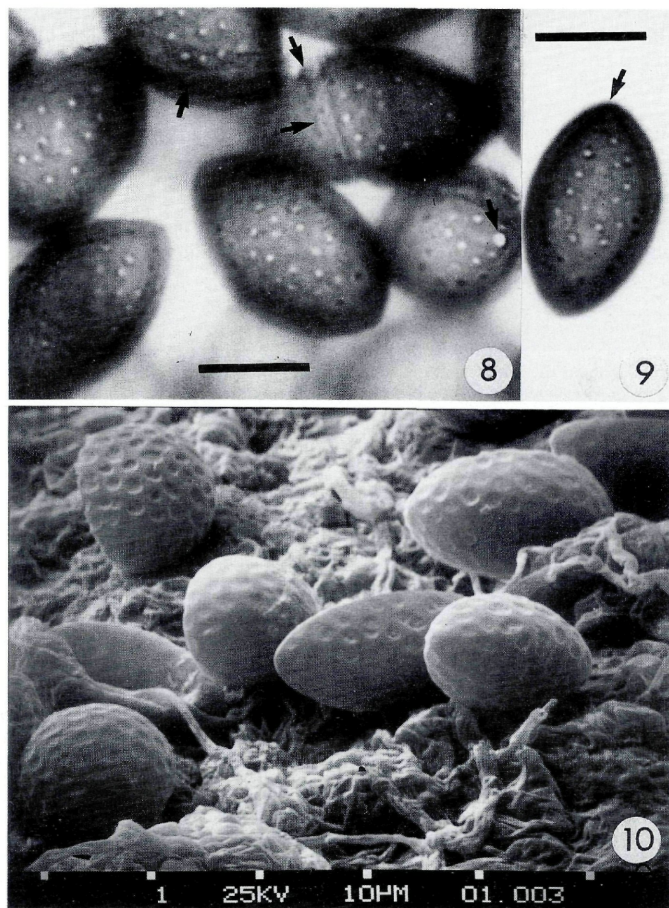
Etymology: Latinized from the name of the Japanese mycologist Dr. S. UDAGAWA, in honour of his contributions to the taxonomy of *Gelasinospora*.

Specimen examined. – PAKISTAN: Sind Prov.: Karachi Dist., Karachi, about 3 km. off University Road, P.C.S.I.R. Experimental Farm, soil, 9 Sept. 1987, R.S. KHAN, (ATCC, FH, CBS, IMI, NHL, S, TRTC, UAMH).

This species somewhat resembles *G. calospora* (MOUTON) C. & M. MOREAU (1949) in possessing relatively small ascospores. It differs



Figs. 1-7. *Gelasinospora udagawae*. - 1. Colony on V-8 juice agar medium after 7 days. - 2. Perithecium. - 3. Ascus. - 4. Germinating ascospores. - 5. Immature asci and ascospores. - 6. Ascospores with abnormal hyaline sheath (arrows). - 7. Ascospore with germ pores (arrows). (Scales, 1 = 5 mm; 2 = 100 μ m; 3, 5 = 50 μ m; 4, 6 = 20 μ m; 7 = 10 μ m)



Figs. 8-10. *Gelasinospora udagawae*. - 8. Ascospores showing abnormal markings (arrows) and germ pore (arrow). - 9. Ascospore showing apical germ pore (arrow). - 10. Ascospores under SEM. (Scales, 8-10 = 10 μ m)

from that taxon by the smaller spore size, nearly smooth, thin spore walls and the number, size and nature of the pits. These are more numerous, smaller and do not project inwardly. *G. pseudocalospora* UDAGAWA (UDAGAWA & al., 1973) has a similar kind of episporium but is distinguished by the larger, irregular biserially arranged ascospores.

In *G. udagawae* the ascospores occasionally have a hyaline sheath which disappears at later stages of development. Sometimes a few spores exhibit striations or twisted markings on the external wall. Similar spore ornamentations were reported for *Anixiella sublineata* FURUYA & UDAGAWA (1977) which VON ARX (1981) has transferred to *Neurospora* SHEAR & DODGE. Since none of these morphological features are constant in *G. udagawae*, they are considered as abnormalities.

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