

Some notes on the remarkable variability of *Ascobolus scatigenus*  
(Discomycetes, Pezizales)

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The significant variability of the habitus of apothecia of *Ascobolus scatigenus* (Berk.) Brumm. from various localities is mentioned. The variability of their size, shape and colour is emphasized by the fast changing of their coloration in the course of ascospore discharge. Ascospore ornamentation was observed by SEM and the microphotographs as well as a photograph of the apothecia accompany the paper. Yet unpublished localities of *A. scatigenus* are given.

**Key words:** Discomycetes, Pezizales, *Ascobolus scatigenus*, distribution, taxonomy, variability.

Antonín V. a Moravec J. (2001): Poznámky k pozoruhodné variabilitě druhu *Ascobolus scatigenus* (Discomycetes, Pezizales). – *Czech Mycol.* 52: 295–298

Je uvedena pozoruhodná variabilita tvaru a zbarvení plodnic *Ascobolus scatigenus* (Berk.) Brumm. sbíraných na různých lokalitách. Tato variabilita je umocněna schopností okamžité změny zbarvení hymenia při uvolňování výtrusů. Ornamentika výtrusů byla pozorována rovněž ve skenovacím elektronovém mikroskopu a tyto fotografie, stejně jako barevné vyobrazení, článek doplňují. Jsou rovněž zveřejněny nové a doposud nepublikované lokality.

*Ascobolus scatigenus* (Berk.) Brumm. 1967 is the type species of the section *Gymnoascobolus* Brumm. 1967 which accommodates species having eugymnohymenial apothecia with an active marginal outgrowth and possessing a well-developed excipulum with a differentiated hypothecium, medullary and ectal excipulum.

The fungus was well described and illustrated by Brummelen (1967). Nevertheless, although Brummelen stressed the conspicuous shape of the apothecia, he stated that “although much named, the species itself is not variable” (Brummelen 1967, p. 163). However, we have found *A. scatigenus* to be one of the most variable species of the genus and really a chameleon among fungi. Because of the variability, especially the very different size, shape and colour of the apothecia, the fungus was described by Berkeley himself under six different names, and the variability resulted into 13 synonyms (Brummelen 1967). Recently, Wang (1999)

has tentatively considered *Aleurina nigrodisca* Sawada 1931 ("with large yellow apothecia") also to be a synonym of *Ascobolus scatigenus*.

The large conspicuous "pezizoid" apothecia of *A. scatigenus* are very variable in size, shape and colour. Regarding the size, apothecia may measure only 5 mm in diameter, whilst those collected in another place may reach 40 mm (specimen from Sumatra mentioned below). Also the shape and colour of the apothecia may be very different depending on their habitat, environment and stage of development.

The apothecia are subglobose, cup-shaped to discoid and concave to flat, externally smooth to wrinkled, pruinose to granular, with white to dark-brown, entire to flexuous or variously undulate to involute margin, with a smooth to variously undulate yellow-green to dirty-brown or dark reddish hymenium.

A certain apothecial variability itself is not rare also in other discomycetes, but regarding *A. scatigenus*, it is exceptional in the fact that very often the apothecia from a particular locality and a certain substrate differ conspicuously from those collected on another locality or different substrate. Obviously, the apothecia are not variable merely due to their stage of development, but also the substrate and environment are important for their habitus.

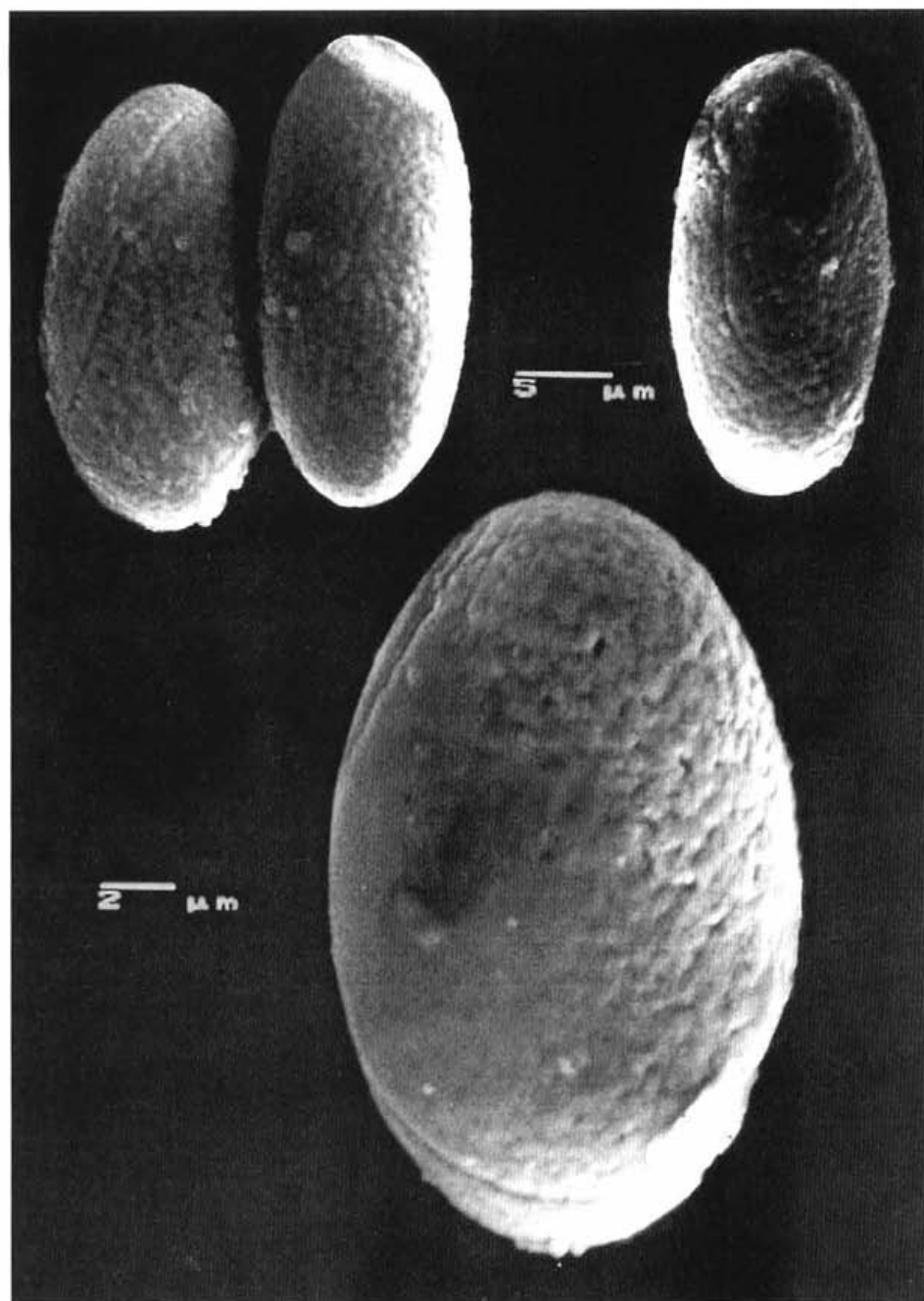
The apothecial variability is emphasized by the yet unpublished fast changing of colour of the apothecia in the course of ascospore discharge after touching. The amazing chameleon-like changing of colour of a great number of apothecia collected and observed by the former author in Boukombe (Benin, West Africa, coll. Antonín B97.103) is worth describing.

#### A description of the remarkable collection from Benin:

Apothecium 5–20 mm broad, broadly attached to the substrate, discoid, flat, mostly with slightly convex centre, margin elevated and involute when single, almost cupulate when in dense groups. Hymenium smooth, glabrous, dark black-purplish-brown (up to 9F8, Kornerup et Wanscher 1978) when untouched, very quickly changing colour radially up to olivaceous yellow to olivaceous brownish (4C-D6) after touching. Excipulum whitish, (woolly) tomentose. Margin very finely tomentose, involute to inflexed.

Apothecia of the collection from Sumatra mentioned below resembled rather a *Peziza* sp. than an *Ascobolus*, measuring up to 40 mm in diameter.

The microfeatures of the collections reported below are not very variable and correspond well with the description in Brummelen (1967). The ascospores of *A. scatigenus* when observed under a light microscope are ellipsoid, 20.5–27.5 (–28) × 11–14  $\mu\text{m}$ , smooth, mostly without or with only one thin irregular stria, rarely with two or more fine striae which only very rarely form an irregular reticulum (see also Brummelen 1967). Under the scanning electron microscope the ascospore perisporium appears to be shallowly wrinkled to verrucose and the



**Fig. 1.** SEM of ascospores of *Ascobolus scatigenus* (West Africa: Benin, Boukombe, 25 Aug. 1997)



*Ascobolus scatigenus* (Berk.) Brumm., West Africa: Benin, Boukombe, 25 Aug. 1997.

Photo V. Antonin

occasional striae are really very fine and simple (Fig. 1). A SEM photomicrographs of the ascospores of this species has already been published by Wang (1999) but show nearly smooth ascospores. The asci of the material examined are of the same variable size as stated by Brummelen (1967) and conspicuously diverse regarding their stage of maturity – obviously, they mature very irregularly.

*Ascobolus scatigenus* is not a rare species. It occurs in tropical and subtropical regions of both hemispheres occurring mostly in coprophilous but rarely also lignicolous habitats. Detailed localities were given by Brummelen (1967) who examined a great number of collections. The distribution of the species in Taiwan has recently been given by Wang (1999).

The following localities represent not yet published ones, and include the first records for West Africa and also for Sumatra (although already known from Indonesia as it has been collected in Java).

1. West Africa: Benin, Atacora prov., Boukombe, NE of the town, on bare soil mixed with excrements, 25 Aug. 1997 leg. V. Antonín B97.103, A. De Kesel, A. De Groote and J. Rammeloo (BR, BRNM).
2. Indonesia: West Sumatra, Bukittinggi, Ngarai Sianok Canyon, 700 m. on cow (buffalo) dung mixed with sand in a partly dried river bed, 7. V. 1991 leg. Jiří Moravec (herb. J. Moravec, CUP).
3. Madagascar: Fianartsoa prefecture, vicinity of the village of Ranomafana, on cow (zebu) dung in a secondary forest, 29. I. 1995 leg. Jiří Moravec (herb. J. Moravec).

The synonyms of *A. scatigenus* were thoroughly given by Brummelen (1967). Ascospore germination and gymnohymenial development of its apothecia was described by Dodge (1920) and Lohwag (1927, 1941).

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