EESTI NSV TEADUSTE AKADEEMIA TOIMETISED. 19. KÖIDE
BIOLOOGIA. 1970. Nr. 4

EESTI NSV TEADUSTE AKADEEMIA TOIMETISED. 19. KÖIDE
BIOLOOGIA. 1970. Nr. 4

https://doi.org/10.3176/biol.1970.4.11

LÜHITEATEID * КРАТКИЕ СООБЩЕНИЯ

A. RAITVIIR

ON THE DIMORPHISM OF THE ASCOSPORES IN THE *HYALOSCYPHACEAE*

A. RAITVIIR. KOTTEOSTE DIMORFISMIST SUGUKONNA *HYALOSCYPHACEAE* ESINDAJATEL

А. РАЙТВИЙР. О ДИМОРФИЗМЕ АСКОСПОР У НЕКОТОРЫХ ПРЕДСТАВИТЕЛЕЙ СЕМЕЙСТВА *HYALOSCYPHACEAE*

There are only few well-known cases of ascospore dimorphism in Discomycetes. The dimorphism of ascospores is an outstanding character of *Microglossum longisporum* (Mains, 1955). A prominent case of ascospore dimorphism in *Monilinia oxycocci* is described by N. F. Buchwald (1956) in detail.

It appears, however, that several members of the *Hyaloscyphaceae* are characterized by ascospore dimorphism too, although it is rather difficult to observe.

Examining *Dasyscyphella nivea* (Fr.) Raitv. I noticed the fact that in these asci where the mature spores were clearly visible, the four basal spores were as a rule considerably longer than the four apical ones. The results of measurements are given in the Table. In Fig., *1* the distribution

The ascospore measurements (in μ) in 5 asci of an apothecium of *Dasyscyphella nivea*
(the numeration of the spores begins from the apex)

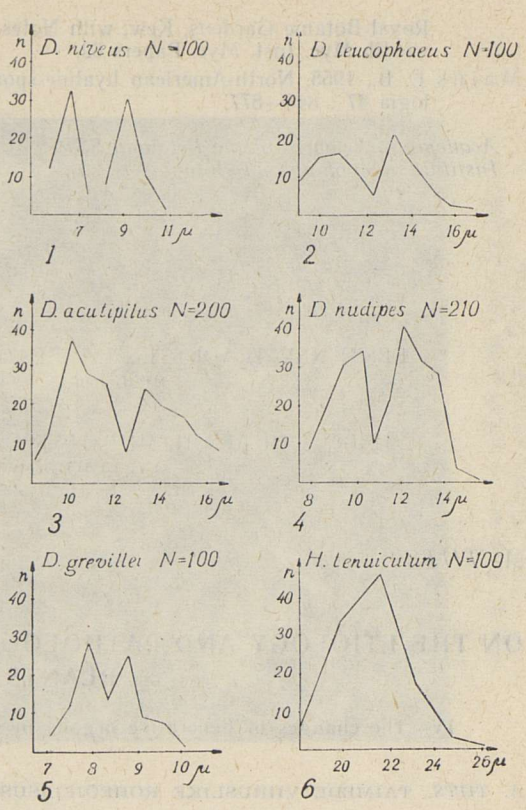
1	2	3	4	5	6	7	8
6.6	6.6	6.6	7.5	8.3	8.3	9.6	8.6
7.1	7.0	6.6	6.6	8.6	9.1	8.3	10.0
6.3	6.3	6.6	6.6	8.6	8.3	8.0	8.3
6.6	6.6	6.5	6.6	8.0	9.1	9.0	8.5
6.5	6.8	7.0	6.6	8.3	9.0	8.6	8.3
minimal length 6.3 μ maximal length 7.5 μ mean length 6.70 μ				minimal length 8.0 μ maximal length 10.0 μ mean length 8.70 μ			

curve of the spore length is given on the basis of 100 spores measured at random. According to their length the spores of this species belong to two equal distinct groups. Similar ascospore dimorphism with a distinct hiatus

between two length groups occurs in the closely related species *D. dryina* (Karst.) Raitv. and *D. crystallina* (Fuckel) Raitv., too.

I have also studied in this respect several other members of the *Hyaloscyphaceae* not closely related to *D. nivea,* and the results are presented in Fig., *2—6*. The distribution curves of the spore length of *Belonidium leucophaeum* (Weinm.) Raitv., *Albotricha acutipila* (Karst.) Raitv., *Dasyscyphus nudipes* (Fuckel) Sacc. and *Clavidisculum grevillei* (Berk.) Raitv. are prominently bimodal. It means that the ascospores of these species are divided into two length groups, too, but the measurements of the two groups are somewhat overlapping. There seems to be no difference in the width or shape of the spores belonging to different length groups.

Clavidisculum tenuiculum (Karst.) Raitv., a closely related species to *C. grevillei* (Dennis, 1956) has typically uniform ascospores, as may be seen from the characteristic distribution curve in Fig., *6*.



The distribution curves of the ascospore length in 6 species of the *Hyaloscyphaceae.*

It is extremely difficult to establish the arrangement of the ascospores in the asci of these species due to the small sizes of asci and the biseriate arrangement of the ascospores. It seems, however, that all arrangement types discussed by N. F. Buchwald (1956) may occur.

Unfortunately, there exist neither genetic nor cytologic studies which could throw light on the nature of the ascospore dimorphism in the *Hyaloscyphaceae.* Monospore culture studies are needed to show whether the species with dimorphic ascospores are heterothallic and whether the ascospores of different size groups belong to different mating types, as could be supposed.

The taking account of ascospore dimorphism is important for taxonomy. It could clear up several confused cases of related species with slightly different spore measurements.

REFERENCES

Buchwald N. F., 1956. On the dimorphism of the ascospores and their arrangement in the ascus of *Monilinia oxycocci* (Wor.) Honey. (Syn. *Sclerotinia oxycocci* Wor.). Friesia **5** (3—5): 196—203.

Dennis R. W. G., 1956. A Revision of the British *Helotiaceae* in the Herbarium of the

Royal Botanic Gardens, Kew, with Notes on Related European Species. Commonwealth Myc. Inst. Myc. Papers 62.

Mains E. B., 1955. North-American hyaline-spored species of the Geoglossaceae. Mycologia 47 : 846—877.

Academy of Sciences of the Estonian SSR,
Institute of Zoology and Botany

Received
Aug. 28, 1969

EESTI NSV TEADUSTE AKADEEMIA TOIMETISED. 19. KÖIDE
BIOLOOGIA. 1970, Nr. 4

ИЗВЕСТИЯ АКАДЕМИИ НАУК ЭСТОНСКОЙ ССР. ТОМ 19
БИОЛОГИЯ, 1970, № 4

A. TIITS

ON THE ETIOLOGY AND PATHOLOGY OF VIRAL PHYLLODIES OF PLANTS.

IV. The changes of generative organs in witches' broom-diseased raspberry

A. TIITS. TAIMEDE VIIRUSLIKE ROHEÕIELISUSTE ETIOLOOGIAST JA PATOLOOGIAST
IV. Generatiivorganite muutused vaarikanõialuudsuse korral

А. ТИЙТС. ОБ ЭТИОЛОГИИ И ПАТОЛОГИИ ВИРУСНЫХ ПОЗЕЛЕНЕНИЙ ЛЕПЕСТКОВ РАСТЕНИЙ
IV. Изменения генеративных органов у малины, заболевшей ведьминой метлой

Raspberry witches' broom (*Rubus* stunt) has been known in Estonia for more than 12 years. It was introduced into the collection of raspberry varieties of the Polli Experimental Station by the medium of Russian varieties (Tiits, 1966). Since the disease could not yet be eliminated, it has been possible to observe it on many raspberry varieties. Special attention has been paid to the symptoms of the disease.

Character of floral symptoms

The floral symptoms can be seen at the beginning of the development of the disease. In plants with a developed disease, one can observe symptoms of vegetative organs mostly, viz. the witches' broom growth of canes.

The floral symptoms are varied. Infected plants of many varieties form small, but normal-type flowers in most cases. In some varieties, there are proliferations of sepals, and some varieties (particularly 'Preussen' and 'Obyknovennaya iz Nikol'ska') develop malformed flowers. As the author described it in the case of clover phyllody (Tiits, 1969), the gradual transformation of more or less morphologically normal floral organs to flower prolification can be seen in the case of raspberry witches' broom as well. According to the range of those changes, the malformations could be arranged in the following four main groups.