FUNGI AND LICHENS
IN THE BALTIC REGION

13 INTERNATIONAL CONFERENCE

Abstracts
FUNGI AND LICHENS IN THE BALTIC REGION

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Abstracts

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The abstracts contains summaries of mycological and lichenological investigations in recent years in the Baltic republics as well as in some other countries.

Main attention is paid to the problems of ecology, distribution, protection, systematics, biology and utilization of fungi and lichens.

All abstracts are published from disquettes received from authors.

Editorial board:

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**Fungi and Lichens in the Baltic Region**

**GENUS RUGOSOMYCES** Raithelh. emend. Bon

   *R. pseudoflammula* (J. Е. Lange) Bon 1991

25. *R. fallax* (Peck ex Sacc.) Bon 1991 - E, La, Li
   *Calocybe paissapu* (Munill) Singer 1962 (inval.);
   *C. cerinoides* Kalamees 1994b;
   *C. cerina* sensu Singer 1943

   *R. obscurissimus* (A. Pearson) Bon 1991

27. *R. persicolor* (Fr.) Bon 1991 - E, La, Li

**GENUS ASTEROPHORA** Ditmar : Fr.

28. *A. lycoperdoides* (Bull.) Ditmar : Fr. 1829 - E, La, Li

29. *A. parasitica* (Bull. : Fr.) Singer 1951 - E, La

**GENUS HYPSIZYGUS** Singer

30. *H. ulmarius* (Bull. : Fr.) Redhead 1984 - E, La, Li

**LITERATURE**


**FUNGUS UNDER THE STRESS CONDITIONS**

Lilija Kalėdienė, Institute of Botany, Žaliųjų ežerų St. 47, Vilnius, Lithuania.

The fungi can survive and produce intensively under the new conditions of growth, including the heavily assimilation of synthetic polymers, by the good enzyme systems and excellent adaptive properties. The rich complexes of constitutional and adaptive enzymes induce decomposition of materials of different molecular weight which are used for fungus growth as a nutritional sources.

Materials, raw materials and industrial articles are estimated like a new specific ecological habitat of fungi. The degree of their contamination depends on structure, type of materials, characteristics of fungi. Primary sources of contamination of technogenic substrates are soil and remnants. But only some species of fungi can adapt to this conditions. The growth conditions of microorganisms in this ecological nischa are connected with the growth on such substrates with which organisms have never met in its evolutionary development. The results is that they can use these unusual and often difficult accessible sources of nutrition and energy most of which have the small concentrations.

The main aims of research were to investigate the possibilities of fungus adaptation to various materials, to determine the contamination and utilisation of the new substrates by fungi under the different ecological conditions and to establish the stress factors influencing on the fungus growth.

**INTERRELATIONS BETWEEN BOTRYTIS CINEREA PERS. AND SOME MICROORGANISMS**

A. K. Khramtsov, A. S. Shukanov, Byelorussian State University, Department of Botany, Minsk, Belarus.

During its development in vivo fungus *Botrytis cinerea* Pers. enter into complicated interrelations with various bacteria and micromycetes.

We explored the influence of a number of strains of rhizosphere and epiphytic bacteria and soil fungi upon the development of *B. cinerea* (a test-object) in vitro. Bacteria and soil fungi strains are obtained from collections of the laboratory of Mycology of the Institute of Experimental Botany of the Academy of Science of the Republic of Belarus and of the laboratory of Molecular Genetics of Bacteria of Byelorussian State University.

It is established that bacterium strains *Bacillus* sp. 494 and *Pseudomonas putida* M inhibit both linear growth of the colony *B. cinerea* and his sporulation. In presence of *Bacillus* sp. 494 the linear growth of the colony of the test-object made approximately 8% and with *P. putida* M available – a little bit more – 32% from control (100%). The intensity of sporification of *B. cinerea* reached accordingly 23.8% and 80%. The mycelium of test-object in presence of the indicated bacteria was a thin film, the formation of sclerotia was inhibited.
The colonies of strains of the soil fungi *Trichoderma hamatum* 431, *T. polysporum* 407, *T. viride* 408, 434, 457 grew on to the surface of the colony *B. cinerea* showing different extent of fungicide parasitic antagonism. The most active at speed of inhibition of the test-object were *T. viride* 408, 457, *T. hamatum* 431. The stimulation of sporification of *B. cinerea* by fungus *T. polysporum* 407 is observed. Fungi *T. viride* 408, 434, 457, *T. hamatum* 431 showed strong mycoparasitic activity on the sclerotia of the test-object. It manifested itself in solid overgrowing of the last by the mycelium of mycophyles and absolute inhibition of vitality of sclerotia within 10 days. It is established that conidia of the investigated fungi *Trichoderma* inhibit germination of spores *B. cinerea* by 62-93%.

Perhaps, such types of interrelations between the investigated organisms can be expected in vivo as well.

**THE WIDESPREAD AGENTS OF CEREAL FUNGAL FOLIAR DISEASES IN THE VEGETATION PERIOD IN LATVIA**

A. Klavinska, N. Trushko, Latvian State Centre of Plant Protection.

All data collected from most grown varieties untreated fields and plots, not constantly from fields with sufficient high cultivar conditions, with purpose to observe the diseases behaviour as possible closer to nature conditions. Because of strong correlation between the diseases occurrence and the weather conditions, the hydrothermal coefficient is used, easy to take a general view. Common for all most widespread foliar diseases is that the maximum of diseases development coincide with early to middle of July. The mentioned diseases assessments is related to this time.

The most important cereal crops in Latvia are winter and spring wheat and spring barley. The urgent fungal foliar pathogens on winter and spring wheat – mildew *Erysiphe graminis* D.C. f. sp. *tritici* Marchal; leaf spot diseases *Mycosphaerella graminicola* (Fckl.) Sanderson (con. st. *Septoria tritici* Rob. & Desm.), *Leptosphaeria nodorum* Müll.-Argov. (con. st. *Septoria nodorum* Berk.); rust *Puccinia recondita* Rob. & Desm.


Powdery mildew *Erysiphe graminis* just like *Septoria tritici* start to spread in early spring. But those occurrence doesn't mean the diseases outbreak in stage of last leaf. *Erysiphe graminis* last outbreak was observed in 1989 when disease infected up to 36.5% of leaf surface. The hydrothermal coefficient during May – July then were 0.4-1.1-1.1. But extremely dry summer 1994 with hydrothermal coefficient from 1.1-0.2 and lower mean temperature as usually in Latvia stressed the development of all diseases except *Pyrenophora teres* – come to 2.13% of infected leaf surface and 27.5% of attacked leaf. *Septoria tritici* in such conditions formed typical yellow spot without pycnidia developed (after appeared in laboratory on separated leaves).

*Septoria spp.* level were extremely high in 1995. This year was favourable for other diseases too.

<table>
<thead>
<tr>
<th>Hotro. coef. JUN-JUL</th>
<th>Septoria tritici</th>
<th>Pyrenophora teres</th>
<th>attacked leaf</th>
<th>infected leaf surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2-2.0</td>
<td>98%</td>
<td>98%</td>
<td>100%</td>
<td>31.6%</td>
</tr>
<tr>
<td>47.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For *Rhynchosporium secalis* the 1995 was too warm and disease appeared without any danger only late of July. This disease is more dangerous in the seaside area where more often happens the lowering of temperature and is higher humidity. Up to 1984 *Rhynchosporium secalis* was observed only as separate incidents, but in 1987 the disease was recorded in all area of Latvia. From the middle of 80th years there wasn't much problem with brown rust, but with starting to grow spring wheate *Puccinia recondita* appeared again. In favourable 1995 the last leaf of spring wheat was simultaneous covered by three diseases:

- *Septoria tritici* 9.3%
- *Erysiphe graminis* 3.3%
- *Puccinia recondita* 8.9%

of total leaf surface. It may be explained by incomplete selection of proper varieties to grow under Latvian conditions.

The level of diseases development varies from year to year. The list of dangerous fungal foliar diseases vary gradually with changing varieties, cultivar conditions and also weather conditions.

**WIDESPREAD FUNGI IN WORKING AND DWELLING ROOMS**

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Scientific investigations have been carried out in 10 flats, a secondary school, a kindergarten, archive rooms of Lithuanian Radio and Television company, Paper – producing joint venture “Naujieji Verkiai”, joint – stock company “Biosintežė”.

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