timERIC structure of the receptors, as postulated by other authors; anyhow, the possibility of an uncomplete purification, cannot be ruled out. In order to clarify this point other approaches, such as the use of monoclonal antibodies or of photoaffinity labels, are under investigation.

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PRODUCTION OF ENNIATIN B BY FUSARIUM AVENACEUM AND ITS TOXICITY TO ARTEMIA SALINA L.


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Investigations on a strain of Fusarium avenaceum (Fr.) Sacc. (ITEM-620) from wheat kernels collected in Yugoslavia, producing highly toxic extracts to brine shrimp (Artemia salina L.) larvae when grown on maize kernels in laboratory, led to the isolation of enniatin B.

Enniatin B was purified in yields of 121 mg/Kg of culture by CC and preparative TLC, using brine shrimp bioassay to monitor the toxicity of the fractions, and characterized essentially by $^1$H-, $^13$C-NMR and by EI-HRMS and FAB-MS. Moreover its physical properties resulted very consistent with the literature data. The 50% lethal dose of enniatin B on A. salina was calculated in 8.6 μg/ml of sea water.

These results prompt to extend the investigation on enniatin B production by 13 F. avenaceum isolates on different substrates (corn, wheat). Enniatin B was produced (20 to 167 mg/Kg) by 5 isolates and higher yields were obtained on wheat.

In considering its toxicity, it appears that enniatin B could represent serious problems especially for wheat crops.

TOXIC METABOLITES OF PYRENOPHORA GRAMINEA

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Leaf-stripe of barley (Hordeum vulgare L.), caused by Pyrenophora graminea Ito et Kuribayashi, occurs throughout the world and can induce serious yield losses. Until now the control of the pathogen, which is essentially seed-transmitted, has
been prevalently carried out by seed dressing with chemicals. A better knowledge of mechanisms involved in pathogenesis could contribute to the establishment of suitable breeding programmes for disease resistance. Toxins produced by the fungus could be involved in pathogenicity and/or virulence, as it is known for other species related to P. graminea.

As a first approach to the study of plant-pathogen interactions, toxin(s) production by isolates of P. graminea differing in virulence was investigated. Filtrates from static cultures in modified Fries' medium were tested for toxic activity by a leaf infiltration assay on resistant and susceptible host varieties. The results indicated the presence of a toxic compound(s) in the culture filtrates, which is able to cause leaf-stripe symptoms within three days after infiltration. Susceptible and resistant cultivars showed differences both in the timing and intensity of symptom expression. Moreover, electrophoresis performed on protein extracts from leaves of two barley cultivars showed that both mycelial infection and culture filtrates of P. graminea induced an identical protein set, lacking in the leaves treated with Fries' medium and in the untreated tests.

Toxin is thermostable, culture filtrate remains active after a treatment at 121 °C for 15 minutes. Probably toxin has at least a component of high molecular weight, since filtrate toxicity is unaffected by dialysis when it is tested on barley leaves.

Culture filtrate has been tested also on non-host species. In this case toxicity was shown by the whole filtrate and by the water used for dialysis, but not by the dialyzed fluid. This suggests the presence of another compound of a lower molecular weight.

When culture filtrates were submitted to extraction by various solvents with different polarity, toxic activity was found always in the most polar phase. Ion exchange chromatography is now in progress in order to purify the toxin(s).

RECENT RESULTS ON PERYLENEQUINONES FROM PHYTOPATHOGENIC STRAINS: THE CLADOCHROMES

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Some fungal strains of the genus Cladosporium produce red perylenequinone pigments (1), natural compounds of growing interest, due to their photodynamic and phytotoxic activity. These compounds show intriguing stereochemical features, i.e. axial chirality due to the helical shape of the constrained pentacyclic ring, combined with asymmetric carbons in the side chains. Cladosporium pblei produces only phleochrome (with P axial chirality and S configuration of the side chain carbons), which can be converted thermally into the unnatural diastereoisomer isophleochrome with opposite helicity and different conformations of the side chains.