ANALYSIS OF LOCAL POPULATIONS OF *FUSICOCCUM AMYGDALI* FROM PEACH AND ALMOND FOR PRODUCTION OF FUSICOCCINS

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An equal number of isolates (60) of *Fusicoccum amygdali* were obtained from infected peach and almond trees in two agricultural areas of southern Italy. Pathogenicity of the isolates was tested by cross inoculations on peach and almond.

The isolates were grown in stirred culture and screened for toxin production. The presence of fusicoccin (FC), monodeacetylfusicoccin (MAF) and dideacetylfusicoccin (DAF) was visualized on chromatograms by comparison with standards.

The results allowed to group the isolates of *F. amygdali* from peach as high producers of DAF (91%) and MAF (85%) and moderate producers of FC (25%), and the isolates from almond as high producers of MAF (81%), DAF (68%) and FC (51%). The ability to produce fusicoccins did not change after several inoculations on the same host plant. However, the toxin yield of the isolates from peach increased after reisolation from the artificially infected peach trees. Finally, the production of FC and its analogues decreased when the isolates from almond were inoculated on peach trees. It has been also observed that the isolates obtained from old cankers formed on proximal parts of the infected twigs of almond produced more toxins than the isolates from young cankers developed on distal parts of the same twigs.

TOXIN PRODUCTION IN CULTURE BY THREE STRAINS OF *SEIRIDIUM UNICORNE*

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Seiridium unicorne is a widespread and plurivorous fungus associated with a slow-growing canker of cypress in certain parts of the Mediterranean area.

A Portuguese isolate of *S. unicorne* from cypress was grown for one month on plates of Czapek's medium containing 2% corn meal, at 20 or 23 °C in the dark. Three variants were selected on the basis of their cultural characteristics. Pathogenicity of the three strains was assessed by inoculating 3-year potted plants of *Cupressus sempervirens*, *C. macrocarpa* and *C. arizonica* in a greenhouse. No canker developed on the artificially infected trees. However, a necrotic lesion extended over the bark around the inoculation wound.

The same strains were grown in liquid medium at 20 °C (at 23 °C the toxin

yield was poor). Several phytotoxic substances were extracted from culture filtrates and subsequently purified and identified using chromatographic procedures and standards of *S. unicorne* toxins (seiridin, *iso*-seiridin, seiricuprolide, seiricardin A and 4 related seiricardins).

One of the tested strains produced all the toxins. Another strain produced all the seiricardins and no butenolides or macrolide. Finally, the third strain produced only some of the sesquiterpenes (mainly, seiricardin A).

RESPIRATORY EFFECTS OF FUSICOCCIN IN CONDITIONS OF INHIBITED H^+ EXTRUSION

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Previous work in this laboratory showed that the stimulation of H^+ extrusion by fusicoccin plus K^+ out is associated in *Elodea densa* with an increase of Q_{02} corresponding to the utilization of ATP by the H^+ pump and presumably mediated by a decrease of the energy charge. The present results show that fusicoccin increases respiration even in the absence of K^+ out, a condition in which H^+ extrusion by the pump is completely inhibited by the hyperpolarization of the transmembrane electrical potential. The Q_{02} increase in this conditions is much larger (by about 100%) than that observed in the presence of K^+ out, and is suppressed by the addition of K^+ to the medium. When the H^+ pump is blocked by erythrosine B in leaves treated with fusicoccin and K^+ out, Q_{02} rises from the value typical of the fusicoccin plus K^+ out to that induced by fusicoccin in the absence of K^+. These data suggest that the interaction between fusicoccin and its receptor in the plasmalemma induces some until now unknown change affecting respiratory metabolism and that this change is in some way alternative to the activation effect on the H^+ ATPase.

PRODUCTION OF 6-METHOXYMELLEIN IN PLANT TISSUE CULTURE OF DAUCUS CAROTA

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Aiming to produce secondary plant metabolites of commercial interest, by means of biotechnology, it is important to assess the different strategies which can enhance the rate of production, in bioreactor, of those metabolites.

Contrasting strategies are clonal selection of high producing cell lines or induc-