

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

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

RESPIRATORY EFFECTS OF FUSICOCCIN IN CONDITIONS OF INHIBITED H⁺ EXTRUSION

V. TROCENNER, R. FAZIO and E. MARRE

Dipartimento di Biologia, Università di Milano.

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_{o2} 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_{o2} 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_{o2} 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

S.A. VAN DER ESCH,¹ O. MACCIONI² and G. PANFILI²

¹ ENEA, TECAB-BIO, C.R.E. Casaccia, Roma.

² ARBA K7, Roma.

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-

tion, by biotic or abiotic stimuli, of the plant cells in culture. It is hypothesized that elicitation in tissue culture can enhance secondary metabolism in general.

To test this hypothesis, the current work aims to establish a model tissue culture system, in order to monitor the production of 6-methoxymellein (6MM), a phytoalexin of *Daucus carota*, after elicitation with culture filtrate of the fungus *Sclerotium rolfsii*.

Data are presented on the investigation that has been carried out to construct a model system of Ptc in suspension culture. Different cell lines and culture media have been tested and a HPLC method for monitoring 6-MM production has been developed. Other important culture parameters as fresh weight, dry weight, pH and viability have been investigated. The greatest 6MM production (600 µg/culture) was obtained with the cell line 3L incubated in the light with the culture medium Gamborg B5. The 6MM produced after elicitation was found in the cells as well as in the spent culture medium.

PRODUCTION OF CYTOCHALASINS BY *PHOMA EXIGUA* VAR. *HETEROMORPHA*

M. VURRO,¹ A. BOTTALICO,¹ M. ZONNO,¹ A. EVIDENTE,² R. CAPASSO,² G. RANDAZZO¹ and A. RITTIENI¹

¹ Istituto tossine e micotossine da parassiti vegetali del CNR, Bari.

² Dipartimento di Scienze chimico-agrarie, Università «Federico II», Portici (Napoli).

³ Istituto di Industrie agrarie, Università «Federico II», Portici (Napoli).

The cytochalasins are a group of fungal metabolites showing characteristic biological activities, including inhibitory effect on specific tissues or organs, toxicity to animals, bacteria, algae, fungi and protozoans. Some cytochalasins are also known for their phytotoxic activity.

The analysis of the CH₂Cl₂ organic culture extracts of *P. exigua* var. *heteromorpha* (Schulzer *et* Sacc.) Noordeloos *et* Boerema, responsible of a severe foliar blight of Oleander, led to the purification of the known cytochalasins A and B.

A further investigation on the organic extracts revealed the presence of two more cytochalasins: deoxaphomin, and a new cytochalasin, named ascochalsin. The investigations up to now realized made it possible to establish the presence of some other cytochalasins.

Using HPLC in combination with HPTLC methods cytochalasins A and B were detected in Oleander leaves naturally infected by the fungus, suggesting that these two metabolites could play a role in the disease. However, it appears that the cytochalasins have only a limited importance in Oleander leaf blight because, even if they are toxic to tomato seedlings, no toxic symptoms were observed either on healthy oleander leaves or on tomato cuttings, after injections with cytochalasins A and B. Moreover, a very strong phytotoxic activity remains in the culture filtrates after exhaustive CH₂Cl₂ extraction. Investigations are in progress to purify this main phytotoxic compound.