

NEW SYNTHETIC COMPOUNDS AS INHIBITORS OF MYCOTOXIN SYNTHESIS

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Ochratoxin A (OTA) is a mycotoxin produced by some *Aspergillus* and *Penicillium* species which is often detected in beer, cereals, coffee, feeds, figs, sultanas and wine. Some fungicides have been found to be effective in preventing fungal growth, but, in other cases, an increase in the synthesis of mycotoxins was reported. Also, the pressure to use less harmful compounds to the environment stimulates the exploration of new and more benign compounds.

Synthetic compounds were tested on the growth and OTA production of one strain of *A. alliaceus*, *A. ochraceus*, *A. carbonarius* and *A. niger*. These new synthetic compounds have a linear structure incorporating urea and/or a phenolic unit. Fungi were grown in yeast extract sucrose (YES) medium supplemented with 50 µM to 200 µM of each one of 20 test compounds in triplicate, for 6 days. Growth was recorded by measuring the diameter of colonies every 24 hours, and OTA was quantified after 5 days of growth using HPLC and fluorescence detection.

Growth of the *A. ochraceus* and the *A. carbonarius* strains were not inhibited by most of these compounds. However, some led to a decrease in OTA detection. Compounds without the phenolic unit were found to be less effective, while those compounds with urea and phenolic units were the most effective. Growth of the *A. alliaceus* and of the *A. niger* strains were inhibited by compound-X by 22 and 27% respectively.

This approach will lead to the selection of functional groups able to inhibit the synthesis of OTA which could be incorporated into more powerful antifungal compounds.

Acknowledgements:

L. Abrunhosa, F. Areias and M. Zaki are grateful for grants SFRH/BD/11228/2002, SFRH/BD/3185/2000 and SFRH/BPD/12044/2003 respectively from Fundação para a Ciência e Tecnologia – FCT, Portugal.