

Title: EVALUATION OF THE POTENTIAL OF COLONIZATION AND CAPACITY TO PRODUCE OCHRATOXIN A OF *Aspergillus carbonarius* IN DIFFERENT VARIETIES OF GRAPES

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Abstract:

Grapes are often infected with fungi, including *Aspergillus carbonarius* which has been identified as the main producing of ochratoxin A (OTA). OTA is a mycotoxin well-known as nephrotoxic agent and has been associated to the incidence of tumors of the urinary organs. Furthermore, OTA has proved to be immunosuppressive, teratogenic and carcinogenic. The factors related to susceptibility to fungal colonization include the grape variety, damage caused in grapes surface, in addition to temperature in which the grapes remain after fungal infection and before being intended for the production of juices and wines. The objective of this work was to evaluate the colonization potential and the capacity to produce OTA of *A. carbonarius* in five grapes varieties (Cabernet Sauvignon, Moscato Branco, Concord, Isabel and Italia). A solution containing the spores of *A. carbonarius* (10^6 spores ml⁻¹) was prepared and inoculated in berries, which were incubated at 25°C for 12 days. The OTA accumulation and diameter of rot damage were analysed at 3, 6, 9 and 12 days of incubation at 25°C. As control, uninoculated intact berries were incubated at the same time. A caliper rule was used to measure the rot damage caused by *A. carbonarius*. The mean value of the damage diameter of six berries was used to calculate the rot damage. No rotting or OTA production was found in undamaged grape berries used as control in this study. OTA was found in Concord, Isabel and Italia grapes only after 9 days of inoculation. Italia grapes proved to be the most susceptible to fungal colonization since 100% of damage was observed on the surface of grapes after 12 days at 25°C. Cabernet Sauvignon and Moscato Branco grapes had shown to be the most resistant to colonization by *A. carbonarius*. The lower damage was observed in these grape varieties after 12 days at 25°C. Furthermore, OTA was not produced in this condition of incubation. The knowledge of the degree of resistance to fungal colonization and consequent OTA production may be used to establish specific care during cultivation and rational application of pesticides according to the grape variety.

Key words: Ochratoxin, mycotoxin, *Aspergillus*

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