

TITLE: INIHIIBITORY EFFECT OF CINNAMALDEHYDE AGAINST ASPERGILLUS SPECIES

AUTHORS: NOGAS, F.; PINTO, A. C. S.M.; OTENIO, J.V.A.; CRIPPA, D.; LUCIANO, F.B.; BORDIN. K.

INSTITUTION: PONTIFÍCIA UNIVERSIDADE CATÓLICA DO PARANÁ, PUCPR, CURITIBA, PR. (RUA IMACULADA CONCEIÇÃO, 1155, CEP 80215 – 901)

ABSTRACT:

The use of natural compounds has been proposed to reduce fungal contamination and mycotoxin production in grains. Among these natural compounds, cinnamaldehyde is an antimicrobial compound extracted from cinnamon. The use of cinnamaldehyde in green coffee could also be favored by its taste. The aim of this study was to evaluate the use of cinnamaldehyde as an alternative to mitigate toxigenic fungal growth. Three species of *Aspergillus* known as AFB₁ producers (*Aspergillus parasiticus*, *A. flavus* and *A. nomius*) and OTA producers (*A. ochraceus*, *A. lacticoffeatus* and *A. sclerotium*) were used in this study. For minimum inhibitory concentration (MIC), serially diluted doses (2x) of AITC, from 0.977 to 500 µL/L, were added to spore solutions (2.10⁴ spores/mL) and incubated for 2 days at 25° C. After, it was observed the partial growth, compared to the control, and considered as MIC 50%. The halo inhibition was evaluated by inoculation of 1.10⁴ spores/mL of each species in PDA plates, conditioned in hermetic bottles with AITC in concentration from 0.00312 to 0.5 µL/L and incubated for 5 d at 25 °C. After incubation, halos were measured with a pachymeter and compared to the control. The MIC 50% was 250 µg/mL for the 6 *Aspergillus* species studied. Cinnamaldehyde completely inhibited the strains at concentrations of 0.5 µL/L, 0.25 µL/L, 0.125 µL/L and 0.0625 µL/L. The use of cinnamaldehyde was efficient in reducing the growth of fungi, which was more efficient in the gas phase than liquid. Cinnamaldehyde could be used to control mycotoxigenic fungal growth.

Keywords: mycotoxin, cinnamaldehyde, *Aspergillus*

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