TITLE: THE USE OF ALLYL ISOTHIOCYANATE TO CONTROL AFLATOXIGENIC SPECIES OF ASPERGILLUS

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ABSTRACT:

Brazil is one of the biggest grain producers worldwide, and the funghi growth and mycotoxins cause significant losses. The aim of this study was to evaluate the use of allyl isothiocyanate (AITC) as an alternative to mitigate aflatoxigenic species of *Aspergillus*. Three species of *Aspergillus* known as AFB_1 producers (*Aspergillus parasiticus, Aspergillus flavus* and *Aspergillus nomius*) were used. The *in vitro* study, was conducted by the halo inhibition by inoculation of 1.10^4 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 ºC. After incubation, halos were measured with a pachymeter and compared to the control. *Aspergillus parasiticus* was selected to the tests in green coffee grains, by its higher capacity to produce aflatoxin B_1 (previous studies). 10^7 spores/g of *Aspergillus parasiticus* was inoculated in green coffee beans and incubated for 35 days at 25°C in 1 L hermetic bottles with AITC in concentration from 0.25 to 54 µL/L. A KCl solution was also added to the system to establish relative umidity of 85%. All specie‘s halos were completely inhibited at 0,5 µL/L of AITC. In green coffee grains, after 14 days all the species were completely inhibited with levels above 9 µL AITC/L. AITC is safety to human health (GRAS compound), and could be used to avoid aflatoxigenic funghi growth.

Keywords: Aflatoxins, *Aspergillus*, coffee beans, food safety.

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