

TITLE: EFFECT OF *Lactobacillus plantarum* AND PREBIOTICS IN REDUCTION OF AFLATOXIN B₁ IN MILK

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ABSTRACT

Aflatoxins are a group of mycotoxins that can cause harmful effects on human and animal health. The most prevalent and toxic is aflatoxin B₁, which is classified as belonging to group 1, that is carcinogenic to humans according to the International Agency for Research on Cancer (IARC). Recent studies have detected this aflatoxin B₁ in samples of pasteurized milk and UAT. With the concern that food must be free of contaminants, is great the demand for strategies that promote the reduction of this aflatoxin in previously contaminated foods. The aim of this study was to evaluate the influence of *Lactobacillus plantarum* isolated and associated with prebiotics (inulin, oligofrutose, β-glucan and polydextrose) on the aflatoxin B₁ reduction in artificially contaminated milk. All runs promoted the reduction of aflatoxin B₁. When compared to the positive control (whole milk fortified with aflatoxin) the reduction of AFB₁ in milk ranged from 7.56 to 55.84%; from these values, it can be verified that the *Lactobacillus plantarum* isolate or in combination with prebiotics has a potential to reduce aflatoxin B₁ concentrations in milk. In addition, in most runs the probiotic had a better performance when used in the isolated form. These results indicate that the *Lactobacillus plantarum* can be effectively used for the reduction of aflatoxin B₁ in milk, decreasing the intake of this aflatoxin. The most likely mechanism involved in the reduction of AFB₁ is that the probiotic binds to the toxin thereby reducing its presence in milk. Therefore, the exploration of the decontaminating potential of isolated probiotic microorganisms or in combination with prebiotics against the chemical contaminants will open a new biotechnological approach, further leveraging its application in the food industry.

Keywords: Synbiotic; probiotic; mycotoxins; reduction percentage

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