

11TH EUROPEAN NUTRITION AND DIETETICS CONFERENCE

June 29-July 01, 2017 Madrid, Spain

The effect of probiotic bacteria on aflatoxin M1 detoxification in phosphate buffer

Gulsum Gizem Topal, Sumeysra Sevim, Merve Tengilimoglu Metin, Banu Sancak and Mevlude Kizil
Hacettepe University, Turkey

Statement of the Problem: Aflatoxin M1 (AFM1) is a major toxic and carcinogenic molecule in milk and milk products. Therefore, it poses a risk for public health. There are some studies that probiotics have a binding ability to AFM1, so that they can remove the AFM1 from yoghurt. The aim of this study is to evaluate the AFM1 binding ability of some probiotic bacteria in phosphate buffer saline.

Methodology & Theoretical Orientation: The PBS samples artificially contaminated with AFM1 at concentration 100 pg/ml were prepared with probiotics bacteria that including monoculture (*L. plantarum*, *B. bifidum* ATCC, *B. animalis* ATCC 27672) and binary culture (*L. bulgaricus* + *S. thermophiles*, *B. bifidum* ATCC + *B. animalis* ATCC 27672, *L. plantarum*+*B. bifidum* ATCC, *L. plantarum*+*B. animalis* ATCC 27672). The samples were incubated at 37°C for 4 hours and stored for 1, 5 and 10 days. The toxin was measured by the ELISA.

Findings: The highest levels of AFM1 binding ability (63.6%) in PBS were detected yoghurt starter bacteria, while *L. plantarum* had the lowest levels of AFM1 binding ability (35.5%) in PBS. In addition, it was found that there was significant effect of storage on AFM1 binding ability in all groups except the one including *B. animalis* ($p<0.05$).

Conclusion & Significance: Results demonstrate that AFM1 detoxification by probiotic bacteria has a potential application to reduce toxin concentrations in yoghurt. Moreover, probiotic strains can react with itself as synergic or antagonist.

Biography

Gulsum Gizem Topal works as Research Assistant in the Department of Nutrition and Dietetics at Hacettepe University. She holds a Master's degree on Food Service System. Her Master's thesis topic is the determination of the aflatoxin M1 levels in different yogurt types in the markets. She wants to continue her academic life with food carcinogens that she is interested in.

gizemtopal@hacettepe.edu.tr

Notes: