

Ability of immobilized starter cells and metabolites to suppress the growth rate and aflatoxins production by *Aspergillus flavus* in butter

Kawther El-Shafei

National Research Centre, Egypt

Antifungal activity of lactic acid bacteria (LAB) starter cultures, *Lactococcus lactis* sp. *lactis* and *Leuconostoc mesenteroides* and their metabolites in single and mixed cultures were found to inhibit spoilage and aflatoxin production by *Aspergillus flavus* in butter, and have potential as bio-preservative agents. Also, treating cream before churn with free cells culture proved to give the greatest antifungal control upon *A. flavus* growth and aflatoxin production; while the use of immobilized cells showed lower activity, then the immobilized metabolites of the mixed culture. In cream, artificially contaminated with aflatoxin (B1, B2, G1 and G2) treated with immobilized cells or immobilized metabolites of the mixed cultures revealed a reduction of the concentration of aflatoxins recovered from butter made from this cream. The study indicated that the use of lactic acid bacteria and their metabolites in cream or butter have the potential to be as food-grade bio-preservatives for extending the shelf-life of butter and combating the problem of moulds and associated toxins.

dr.k.elshafei@hotmail.com