

**Mycotoxins adsorption by microorganisms isolated from Kefir grains**

Fadia Ben Taheur<sup>1</sup>; Kais Fdhila<sup>1</sup>; Kamel Chaieb<sup>2</sup>; Bochra Kouidhi<sup>3</sup>; Amina Bakhrouf<sup>1</sup>; Luis Abrunhosa<sup>4</sup>

**ABSTRACT**

A novel alternative for mycotoxins decontamination is the use of microorganisms that bind mycotoxins and reduce their gastrointestinal absorption. Lactic acid bacteria and yeasts were isolated from a Kefir culture and evaluated for their mycotoxin adsorption and biotransformation ability. Strains with high binding ability were identified based on DNA sequencing. The binding stability was determined by washing the complexes microorganism/mycotoxin with buffer solutions to simulate the pH conditions in the gastrointestinal tract. The results indicate that the microorganism consortium of Kefir grains adsorbed 82 to 100% of aflatoxin B<sub>1</sub> (AFB<sub>1</sub>), zearalenone (ZEA) and ochratoxin A (OTA) when cultivated in milk. The most effective strains in adsorbing the mycotoxins were identified as *Lactobacillus kefir*, *Kazachstania servazzii* and *Acetobacter syzygii*. The strains *L. kefir* KFLM3 was able to adsorb 80 to 100% of the mycotoxins when cultivated in milk. However, desorption experiments showed that yeast *K. servazzii* KFGY7 retained more mycotoxin (65, 69 and 67% for AFB<sub>1</sub>, OTA and ZEA, respectively) in the cells. Our findings revealed that kefir consumption can possibly reduce gastrointestinal absorption of these mycotoxins and consequently reduce their toxic effects. These Kefir isolates are promising for the development of fermented dairy products for human consumption.

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1 - Laboratory of Analysis, Treatment and Valorization of Environmental Pollutants and Products, Faculty of Pharmacy, Monastir University, Tunisia; 2 - College of Sciences, Biology Department, Yanbu el Bahr, Taibah University, AL MADINAH AL MONAWARAH, Kingdom of Saudi Arabia; 3 - College of Applied Medical Sciences, Medical Laboratory Department, Yanbu el Bahr, Taibah University, AL MADINAH AL MONAWARAH, Kingdom Saudi Arabia; 4 - CEB - Centre of Biological Engineering, University of Minho, 4710-057 Braga, Portugal