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Efficiency of different sources of *Saccharomyces cerevisiae* for decontamination of aflatoxin B1 in phosphate buffer saline solution

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A flatoxins, a group of carcinogenic mycotoxins, can cause acute and chronic intoxications and also liver cancer in humans and animals. Aflatoxin B1 (AFB1) is the most potent, having proven toxic properties. Biological decontamination of mycotoxins is one of the well-known strategies for management of mycotoxins in foods and feeds, presenting some advantages over physical and chemical methods. Among the different possible decontaminating microorganisms, *Saccharomyces cerevisiae* is a potential group since it is widely used in preservation and food fermentation. *S. cerevisiae* cell wall consists of a network of β -1,3 glucan back bone with β -1,6 glucan side chains, which is attached to highly glycosylated mannoproteins making the external layer. Binding of different mycotoxins to yeast cell surface has been reported. This study was carried out to investigate the efficiency of *S. cerevisiae* to remove AFB1 in phosphate buffered saline solution (pH 7.3 25°C). S. cerevisiae concentration from four different sources (inactivated dried yeast of sugar cane, autolyzed yeast, cell wall and brewery dehydrated residue) was determined by a Neubauer-counting chamber, using 1 x 1010 non-viable cells for each 3.0 mL of PBS containing 0.5 µg AFB1L-1. The assay was performed at contact times of 5, 10, 20 and 30 minutes. Among all analyzed yeasts, the inactivated dried yeast of sugar cane presented highest removal capacity of AFB1, with an average reduction of 98.3%. Autolyzed yeast and brewery dehydrated residue presented extensive removal capacity, with averages of 93.8 and 84.6%. The yeast cell wall showed the lowest removal capacity (82%).

Biography

Carlos Corassin has graduated in veterinary medicine, master of animal nutrition and PhD in animal science and post doctorate in food engineering. He is currently Professor at the Faculty of Animal Science and Food Engineering, University of Sao Paulo, Brazil. He is involved in microbiology and mycotoxins investigations. He also focuses on technology, safety and quality of food production. He has published more than 30 papers in reputed journals, several books chapters, besides being reviewer and editorial board member of several scientific journals.

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