

Title Micotoxins and fungus determination in irradiated corn grains

Author Antonio L.S. Lima, Keila S. Cople Lima, Maysa J. Coelho, Ronoel L.O. Godoy and Otniel Freitas Silva

Citation Abstracts, 14th World Congress of Food Science & Technology, October 19-23 2008, Shanghai, China. 721 pages.

Keyword corn; micotoxin; irradiation

Abstract

Introduction: Brazil is one of the biggest world producers of corn. The production internal market attends mostly the food industry, including animal food production. However, corn is a crop susceptible to pathogenic fungus attack that may carry micotoxins and cause micotoxicosis in animals and in humans. The most important agents causing diseases are the fungus of genus *Fusarium*, *Cephalosporium* spp. and others such as *Nigrospora* spp., *Aspergillus* spp. e *Penicillium* spp., considered as post-harvesting or storage fungus. These fungus induce grain infection with consequent quality and commercial value reduction. The use of gamma irradiation in corn grains has the objective of reducing micotoxins and toxigenic fungus incidence during storage time, promoting food safety. **Materials and Methods:** This study was performed by Instituto Militar de Engenharia (IME/RJ), having Centro Tecnológico do Exército (CTEx/RJ) and EMBRAPA Agroindústria de Alimentos (RJ) as partners. The corn grains were irradiated using a Cs-137 radiation source, with the doses of 0.5, 1.0, 2.5, 5.0 and 10 kGy, in a research irradiator. Analysis of fungal percentage, fungi toxicological potential which could produce micotoxins and the micotoxins themselves were held in control (without irradiation) and in irradiated grains. **Results and discussion:** The results showed that gamma irradiation significantly decreased the presence of fungus potentially producers of micotoxins of genus *Aspergillus* spp. in corn as from the dose of 1.0 kGy and genus *Penicillium* spp., *Fusarium* and *Rhizopus* and from the dose of 5.0 kGy during storage time of 60 days.