

The health and toxic adverse effects of Fusarium fungal mycotoxin, fumonisins, on human population.

Abstract

Problem statements: Fumonisin was a mycotoxin produced mainly by fungi belonging to the genus *Fusarium* in various foods and feeds. They occurred worldwide and were found predominantly in corn and in corn-based animal feeds and also can be found in other crops. Contamination of food and feed with fumonisins has been implicated in and associated with a number of diseases in both livestock as well as human beings. Approach: A review was done on the effect of fumonisins on animal and human and detoxification method for the prevention. ScienceDirect, Scopus, PubMed, Google and Yahoo were used in the preparation of this review. Results: This review clarified that the major forms of fumonisins found in food were the B series, fumonisin B1, B2 and B3. Fumonisin B1 (FB1) was the most common and the most thoroughly studied. FB1 caused toxicities in animals including Equine Leukoencephalomalacia (ELEM), Porcine Pulmonary Edema (PPE) in pigs and nephrotoxic, hepatotoxic and hepatocarcinogenic in rats. Furthermore, FB1 had been implicated to be associated with high rates of human esophageal cancer. In addition to their natural occurrence in corn-based animal feeds and in home-grown corn used for food, fumonisins were frequently found in commercial corn-based foods. Methods for prevention and detoxification for fumonisins included prevention of plants contamination at the field level and harvest and post-harvest control of fumonisins. Furthermore, the diseases occurred in livestock will pose the additional economic losses in livestock farmers. Conclusion: Due to economic losses engendered by fumonisin, several strategies for detoxifying and preventing contaminated foods and feeds had been described in the literature including physical and biological process. However these methods still in demonstrated. Awareness of fumonisin-related animal diseases, contamination of fumonisin in foods and feeds and adherence to guidance recommendation in prevention methods were important for reducing fumonisin-induced diseases in agriculturally important species.

Keyword: Fumonisin B1; Leukoencephalomalacia; Pulmonary edema; Toxicity.