

## ABSTRACT

Aflatoxins occur as natural contaminants in cereals. Poultry feeds are mainly formulated using maize because of its high metabolizable energy. It has been suggested that fermentation can reduce levels of aflatoxins in contaminated maize. This study evaluated the effect of fermentation, under different conditions, on aflatoxin levels in contaminated maize flour. Clean (aflatoxin-free) maize was moistened in water and inoculated with *Aspergillus flavus* then incubated at 30°C for 60 days with frequent moistening. In the first and second experiments, maize flour was fermented with and without yeast *Saccharomyces cerevisiae* between 5-8 days. In the third experiment, the flour to water ratio was adjusted from 1:1 to 1:1.5 and fermented for 72 hours. During fermentation there was reduction in pH (6.9-5.0) as well as total aflatoxins by 52 and 53.4% when fermented either naturally or with yeast respectively. The final Aflatoxin levels reduced from 20.4ppb (unsafe for poultry) to 10.9ppb (safe) level. However, the level of aflatoxins steadily increased when fermentation proceeded after 72 hours. These results show that natural fermentation (without yeast) was as effective as that with yeast since there were no significant difference in percentage of aflatoxin reduction. It is concluded that the best ratio of flour to water for fermentation was 1:1.5 and fermentation period of 72 hours. Therefore, this simple method of fermentation contributed to reduced aflatoxin levels in flour for poultry feed production. A prerequisite would be to carry out organoleptic tests and proximate analysis of feed material.

**Key words:** *feed, natural fermentation, poultry*