

## DETECTION AND ESTIMATION OF AFLATOXIN B<sub>1</sub> IN FEEDS AND ITS BIODEGRADATION BY BACTERIA AND FUNGI

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### ABSTRACT

**M**ycological examination of 500 samples of animal feeds and feed ingredients for *Aspergillus flavus* and *Aspergillus parasiticus* revealed that 180 (36%) samples yielded isolates of *Aspergillus flavus* and 65 (13%) samples gave isolates of *Aspergillus parasiticus*. Testing of the same samples for AFB<sub>1</sub> contamination showed that 99 samples (19.8%) contained AFB<sub>1</sub> at a rate of 125 ppb, 45 samples (9%) at a rate of 25-50 ppb, 32 samples (6.4%) at a rate of 101-200 ppb and 19 samples (3.8%) contained aflatoxin B<sub>1</sub> at a rate of 201-2000 ppb. Screening of isolated strains of *Aspergillus flavus* and *Aspergillus parasiticus* for aflatoxin B<sub>1</sub> production by culturing on YES medium supplemented with 0.019% P-cresol revealed that 81 (45%) out of 180 isolates of *Aspergillus flavus* and 16 (24.62%) out of 65 isolates of *Aspergillus parasiticus* produced aflatoxin B<sub>1</sub>. Testing the ability of 4 *Lactobacillus* strains for removal of aflatoxin B<sub>1</sub> from liquid media after physical and chemical treatments revealed that the acidic and heat treatments of bacterial pellets significantly enhanced their ability to bind aflatoxin B<sub>1</sub> but heat treatment was not as effective as acidic treatment. Screening the ability of either intact mycelium or fragmented mycelium or culture cell - free system of non - aflatoxin B<sub>1</sub> producing *Aspergillus flavus* and *Aspergillus parasiticus* indicated that fragmentation increased the ability of tested strain to degrade aflatoxin B<sub>1</sub>. Culture cell free system showed the highest percent of aflatoxin B<sub>1</sub> degradation. *Aspergillus flavus* showed higher percent of degradation than *Aspergillus parasiticus*.

**Key words:** Aflatoxin B<sub>1</sub>, *Aspergillus flavus*, *Aspergillus parasiticus*, Biodegradation

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