

## **Effects of Clarified Neem Oil on Growth and Aflatoxin B<sub>1</sub> Formation in Submerged and Plate Cultures of Aflatoxigenic *Aspergillus* spp.**

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An increase of 11–31% of dry mycelial mass was observed along with a slight decrease (5–10%) in aflatoxin B<sub>1</sub> production in 5-day-old aflatoxigenic *Aspergillus* spp. submerged cultures containing either 0.5 ml or 1.0 ml clarified neem oil (CNO) in 0.1% Triton solution. Fungal growth and aflatoxin B<sub>1</sub> production were also determined in potato-dextrose-agar petri plate cultures inoculated with aflatoxigenic *Aspergillus* spp. containing an atmosphere of volatiles emitted from 0.25 ml, 0.5 ml, and 1.0 ml CNO added to the plates. After 5 days' incubation, fungal radial growth was reduced by 7–29% and aflatoxin B<sub>1</sub> production by 0–67%. GC/MS analysis of the head space volatiles of the CNO indicated that the reduction of fungal growth and aflatoxin B<sub>1</sub> was probably due to low molecular weight hydrocarbons, aldehydes, alcohols, and sulfur compounds emitted at 30°C in the dry culture. These results suggest that volatiles emitted from CNO at 30°C in plate cultures were more fungistatic and consequently inhibited aflatoxin production more than neem oil added in liquid cultures.

**KEY WORDS:** Clarified neem oil; *Azadirachta indica*; *Aspergillus flavus*; *Aspergillus parasiticus*; aflatoxin.

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