Effects of Neem Oil On Growth And Development Of *Aspergillus flavus* in peanuts**

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Aspergillus flavus is known to contaminate peanuts and produce aflatoxin which are carcinogenic metabolites. According to the USDA more than $1 billion is spent on infection and prevention. Currently there is no single method known to eradicate *Aspergillus* spp. in peanuts and the industry continue to face the aflatoxin problem. There has been an increased interest in use of plant based antifungal products which are environmentally friendly and do not pose the health risks. In our previous studies, essential oil (EO)s such as cinnamon, clove and thyme have been shown to display antifungal properties against *A. flavus*. This study evaluates the antifungal effect of Neem oil against *A. flavus* in peanuts. The Minimum Inhibitory Concentration (MIC) and Minimal Fungicidal Concentration (MFC) were determined by the plate diffusion procedure (Hadaceck & Greger, 2000) by exposing *A. flavus* to neem oil at different concentrations. Filter paper disc impregnated with 500ppm, 1000ppm, 1500ppm, 2000ppm, and 2500ppm of neem EO were placed on 7 days old cultures on PDA and incubated at 28±2°C. Experiments were repeated thrice, and untreated samples served as control. After incubation, the zone of inhibition (mm) was measured using calipers (Lopez et al., 2000). Increase in oil concentration increases zone of inhibitions and morphological changes in somatic structures. Mycelial growth is also expected to decrease and will be measured by weighing treated and untreated PDA plates. At the end of this study, we may conclude that Neem oil may offer potential as a biological control agent against *A. flavus* in peanuts.

Keywords: *Aspergillus flavus*, Neem oil, fungicide, peanuts, fungi, essential oils.

1. Hadaceck, F. and Greger, H. 2000. Inhibitory effect of some spice essential oils on Aspergillus ochraceus NRRL 3174 growth and ochratoxin production. Lett. Appl. Microbiol., 29: 238-241.

2. Lopez, A., Alzamora, S.M. and Guerrero, S. 2000. Natural antimicrobials from plants. In Minimally Processed Fruits and Vegetables. Fundamentals Aspects and Applications (S.M. Alzamora, M.S. Tapia and A. Lopez-Malo, eds.) pp. 237–264, Aspen Publishers, Gaithersburg, MD.