Title – Return of Aflatoxin Production in *Aspergillus flavus* and *Aspergillus parasiticus* after Serial Passaging

Program of Study – Microbiology

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Mentor and Mentor Email - Dr. Michael Price (msprice2@liberty.edu)

Student name and email – Reagan Treadwell (rtreadwell@liberty.edu)

Abstract example: *Aspergillus parasiticus* and *Aspergillus flavus* both produce a secondary metabolite called aflatoxin. Aflatoxin is a carcinogen known to contaminate food and plant products and levels of aflatoxin on consumables is closely monitored by the FDA. Aflatoxin production is known to diminish after several generations of passaging, but the ability for aflatoxin production to return when the fungus is passaged on plant media has yet to be proven. This study aims to determine if production of aflatoxin, lost during serial passaging of *Aspergillus flavus* and *Aspergillus parasiticus,* can be restored when the fungi are passaged on plant-based media. It is hypothesized that strains which no longer produce aflatoxin will begin production again after passaging on V8 and coconut agar media. A wild-type strain of *A. flavus,* a wild-type strain of *A. parasiticus,* and a norsolorinic acid-accumulating strain of *A. parasiticus* were passaged in triplicate on SDA slants. Slants were originally allowed to grow for 7 days, stored at 28.0 °C, then were passaged onto new SDA slants for subsequent generations. As expected, secondary metabolite production began to diminish in the fourth and fifth generations. At that point, slants were allowed to grow for 14 days in the same environment before subsequent generational passaging. After loss of aflatoxin production is evident, affected generations will be passaged onto V8 and coconut agar media. Production will be evaluated through fluorescent visualization and norsolorinic acid coloration. By demonstrating that plant media instigates aflatoxin production, further studies can evaluate genetic and epigenetic control of this process.