Effects of Flavanoids and their Derivatives on Growth and Toxin Production.of Aspergillus flavus (A00-woodruff162718-Poster)

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Abstract:

Aflatoxin is produced by Aspergillus flavus and A. paraciticus. Very few detoxification and utilization options are available once maize is found to be contaminated. Some flavanoid compounds and their derivatives can alter the growth rate of fungi including A. flavus and/or the amount of toxin produced. In maize a defect in chalcone synthase(c2), a gene controlling the rate-limiting stepin anthocyanin biosynthesis, results in a 7-fold increase in toxin production. A. flavus strain NRRL3357 was grown on Czepak's media with 10g/L NaCl. The media was supplemented with compounds at different concentrations. Fungal grwoth was measured every 2 days for 14 days after inoculation. Aflatoxin levels were assayed on fungal samples at day 14. At concentrations of 250 mM rutin, 250mM quercitin, and 100 mM or more of hesperitin fungal growth is slower. Naringenin had no apparent affect on growth. Additional compounds will be analyzed in future experiments. With this information we hope to identify which enzymatic reactions are critical to reducing aflatoxin production and identify naturally occurring maize alleles that can be used to produce maize varieties that inhibit toxin production.

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