

### Abstract

Carotenes and xanthophylls occurring in yellow corn and related terpenoids were tested for their effect on growth and aflatoxin B(1) production by *Aspergillus flavus* NRRL 3357, using the suspended disc culture method. Aflatoxin synthesis was inhibited at concentrations of beta-carotene, lutein, and zeaxanthin comparable to those found in the horny endosperm of mature corn. Usually growth was not significantly affected. Inhibition of aflatoxin biosynthesis was greater for compounds with an alpha-ionone-type ring (alpha-carotene, lutein, or alpha-ionone) compared with compounds with a beta-ionone ring. The presence of hydroxy groups on the rings tended to decrease inhibition, but did not override the effect of the ring type; lutein was similar to alpha-carotene and zeaxanthin was similar to beta-carotene in inhibition. A mutant accumulating norsolorinic acid (NA), *A. parasiticus* SRRC 162, incubated with alpha-carotene produced reduced levels of both NA and aflatoxin, indicating that inhibition occurred before NA. Additional *A. flavus* strains tested against 50 µg/ml of beta-carotene had 89 to 96% inhibition, which was significantly more sensitive than NRRL 3357. *A. parasiticus* strains were less sensitive and generally had similar or lower inhibition than NRRL 3357. The results indicate that the presence of carotenoids in endosperm may decrease the amount of aflatoxin produced by *A. flavus*.