# Prevention of Aflatoxin Formation by Natural Products

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Mycotoxins are secondary fungal metabolites which are highly toxic to animals and humans. Mycotoxins of the aflatoxin group are the most dangerous type, and their carcinogenicity to the liver has been demonstrated in many species of animals. Studies of the inhibitory effect of natural products on mycotoxin production were therefore conducted mainly with aflatoxins. Many natural compounds have been found to be inhibitory to aflatoxin biosynthesis, but in many cases the inhibition could be attributed merely to the restricted mycelial growth in the presence of the tested materials. Some compounds blocked aflatoxin synthesis without affecting fungal growth; among them, extracts of black pepper and cinnamon have been shown to be highly active. The inhibitory effect is dependent on the strain tested and is specific for the various aflatoxins: $B_1$, $B_2$, $G_1$, $G_2$. Since phenolic compounds are know to possess antimicrobial properties, the effect of many phenolic compounds of plant origin on aflatoxin formation was studied. Among the active compounds were the following: ferulic acid, vanillin, benzoic acid and pyrocatechol. The mechanism by which natural products block aflatoxin synthesis is still not yet known, and studies are needed to elucidate their mode of action.

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