Abstract

This study reports the presence of two fractions from corn seeds inhibitory to aflatoxin formation. Using a sensitive laboratory assay that can measure both inhibition of fungal growth and inhibition of aflatoxin biosynthesis, we examined aqueous extracts from seeds of Tex6, a corn inbred shown to be highly resistant to aflatoxin accumulation in field and laboratory evaluations. In these extracts, we identified two biologically active fractions. One inhibited growth of *Aspergillus flavus* and, thus, aflatoxin accumulation, and the other inhibited aflatoxin formation with little effect on fungal growth. The compounds responsible for these activities appear to be proteaceous, as they are water soluble, heat labile, and sensitive to proteinase K treatment. The compounds were partially purified by ultrafiltration and chromatography. The estimated molecular mass of the growth inhibitor is approximately 28 kDa, and that of the aflatoxin biosynthesis inhibitor appears to be greater than 100 kDa. Partially purified preparations of the growth inhibitor and aflatoxin biosynthesis inhibitor cause 50% inhibition at 26 and 75 μg of protein/ml, respectively. The presence of these compounds in Tex6 may explain its resistance to aflatoxin accumulation.