DETOXIFICATION OF AFLATOXIN B_1 IN CORN MEAL AND PEANUTS BY CHLORINE GAS TREATMENT

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Corn meal spiked with aflatoxin B_1 (AFBI) at a concentration o 10 ug/g and artificially infected peanuts blended with uninfecte peanuts or peanut flour to aflatoxin concentrations of 3.5 t 335.5 ug/g were treated with chlorine gas in a chlorinatio apparatus[1].

More than 75% degradation of AFB1 occurred in corn meal ar peanuts on treatment with 11 and 35 mg chlorine gas per substrate, respectively. The duration of exposure needed fo maximum degradation was 2.5 hr and 24 hr for corn meal ar peanuts respectively. The treatment of different blends o peanut flour did not alter the chlorine requirement fo degradation of AFB1. The percentage decrease in mutagenicity o peanut extracts on chlorine gas treatment, as tested by Ames Salmonella-mutagenicity assay[2], showed a high correlatio (r^2=0.88; p=0.001) with percentage degradation of AFB1 observe chemically. Reactions of chlorine with AFB1 or substrat constitutes (lipids and proteins) did not appear to generate ne mutagenic compounds. Further studies on chlorine gas treatmer and biological assay for toxicity of treated products i suggested.