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PRUNE AFLATOXIN SURVEY 1997

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BACKGROUND

In August of 1997, the DFA of California became aware that the European Community was adding prunes to the list of foods, imported into Europe, that have the potential for Aflatoxin contamination. Surveys have been conducted in the past for Aflatoxin in prunes by the DFA laboratory in Fresno California. Aflatoxin was shown to be a non problem in prunes. This recent project tested the 1997-8 prune crop for Aflatoxin at very low levels (limit of detection 0.2 ppb).

OBJECTIVE

Aflatoxin is a mycotoxin that occurs in many agricultural products. Cereal products, ground nuts, tree nuts and figs have been shown to allow the growth of the mold and consequently production of the mycotoxin. The FDA has placed administrative guidelines for Aflatoxin at 20 ppb on foods consumed by people.

PROTOCOL

Fifty samples of prunes, half natural condition and half processed were tested. The samples were collected throughout the industry from nine packing companies. This was an industry wide sampling. A ten pound sample was collected and ground. The sample was statistically sub-sampled for analysis. The method of analysis was an AOAC Internationally approved procedure (1). The HPLC method is capable of identifying all four Aflatoxins: B_1, B_2, G_1 and G_2. The limit of detection was 0.3 ppb for each one.

RESULTS AND DISCUSSION

All fifty prune samples were found to be free of Aflatoxin. This is consistent with analytical data generated by our lab in the past. There are various reasons that Aflatoxin should not be a problem in prunes.

As plums come into the dehydrator the moisture content is 75% to 85% (2). During the dehydration process the plums are exposed to temperatures of 160° to 175° F for a period of 20 to 30 hours (3). It has been shown that temperatures as low as 120° F for 30 minutes is sufficient to reduce *Aspergillis* mold conidia by greater than 99%(4). Therefore, it is highly unlikely any *Aspergillis flavus* will survive the dehydration process.

Aspergillis spores are ubiquitous. The mold requires water activity of 0.78-0.90 (5). If post dehydration spore contamination occurs, the water activity of 18% moisture prunes is less than 0.55 (6). This would not allow mold growth in dried prunes.

High moisture prunes are produced with sorbic acid added as a preservative. Numerous studies (7,8,9) have shown that sorbic acid or its salt ,potassium sorbate, have mold inhibiting capability at low pH. This preservative has been shown to inhibit Aflatoxin production (9).

Our findings indicate that prunes are not likely to be a potential source for Aflatoxin contamination.

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