

**AFLATOXIN CONTENT IN THREE TYPES OF READY-TO-EAT  
CHILI PASTE FROM BANGKOK MARKETS AND EFFECT OF  
SORBIC ACID ON AFLATOXIN CONCENTRATION**

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Ready-to-eat chili pastes that are traditional Thai foods consist of several ingredients and also have various tastes. Thailand is a warm and humid environment, where aflatoxin-producing fungi can grow well. The ingredients of chili paste are frequently contaminated with aflatoxins. In this study; three types of ready-to-eat Thai chili paste, nam prik tadang, nam prik pau and nam prik narok, were collected and aflatoxin levels and the levels of mixed preservatives (benzoic and sorbic acid) were determined. There were 46 out of 60 (76.67%) samples were contaminated with aflatoxin G<sub>1</sub> and B<sub>2</sub>. Median total aflatoxins contamination of nam prik tadang, nam prik pau and nam prik narok were 3.65, 6.26 and 1.96 ppb, with ranges of 0.39-21.67, 1.11-347.50, 0.41-13.30 ppb, respectively. The median of total mixed preservatives of nam prik tadang, nam prik pau and nam prik narok were 855.3, 170.4 and 746.7 ppm; ranges were 73.6-1679.4, 58.0-647.8 and 42.4-954.5 ppm, respectively.

Nam prik narok was chosen and prepared to study the effect of sorbic acid on changes in aflatoxin contents in closed and opened systems of storage. In the closed system, the range of aflatoxins increased from 0.78-0.98 ppb to 1.37-1.66 ppb (range of all twelve groups of prepared samples). No level of sorbic acid was significantly different in aflatoxin contents ( $p < 0.05$ ). In the Opened system, the range of aflatoxins increased from 4.11-5.30 ppb to 5.50-8.97 ppb (range of all four groups). Sorbic acid in sample was shown to completely inhibit of aflatoxin contamination because of the antimicrobial activity of sorbic acid is pH dependent. The pH of nam prik narok samples was in the range in which sorbic acid which is effect. Nam prik narok from markets was studied for storage conditions which affect aflatoxin contents. The ranges were about 1.01 ppb at the beginning and 4.22 ppb at the last week. (Range of all four groups).

From a consumption survey, it can be concluded that 92.44% of the selected population in Bangkok had been consuming some ready-to-eat Thai chili paste (nam prik tadang, nam prik pau and nam prik narok.). The estimated mean of the consumption of ready-to-eat Thai chili paste was 24.88 g/person/day. The probability of exposure to aflatoxins by nam prik tadang, nam prik pau and nam prik narok in Bangkok was 0-304.56, 0-1462.81 and 0-219.11 ng/kg bw/day. This study covers only ready-to-eat chili paste, so the exposure seems to be low. However, the possibility of exposure to high levels of aflatoxin exists in the case of consuming other kinds of foods with contamination of aflatoxins. It is advised to use all possible means to prevent the contamination.

The estimated risk of liver cancer from aflatoxin exposure from daily intake of nam prik tadang, nam prik pau and nam prik narok were 4, 11 and 3 cases per 100,000 persons per year, respectively. Interview data showed the most frequently consumed ready-to-eat Thai chili paste 1-2 day per week (not everyday). The estimated risk of liver cancer from intake of nam prik tadang, nam prik pau and nam prik narok were 3, 4 and 2 cases per 100,000 persons per year, respectively.

**KEY WORDS: AFLATOXIN/READY-TO-EAT CHILI PASTE /SORBIC ACID**

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