

The Determination of Aflatoxins in Paddy and Milled Fractions of Rice in Guyana: Preliminary Results

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Abstract : A survey was conducted in the five rice-growing regions in Guyana to determine the presence of aflatoxins in multiple fractions of rice in June/October 2015 growing season. The fractions were paddy, steamed paddy, cargo rice, white rice and parboiled rice. Samples were analyzed by High Performance Liquid Chromatography. A subset of the samples was further analyzed by enzyme-linked immunosorbent assay (ELISA) for concurrence. All analyses were conducted at the University of Missouri, USA. Of the 186 samples tested, 16 had aflatoxin concentrations greater than 20 ppb the recommended limit for aflatoxins in food according to the United States Food and Drug Administration. An additional three samples had aflatoxin B₁ concentrations greater than the European Union Commission maximum levels for aflatoxin B₁ in rice at 5 µg/kg and total aflatoxins (B₁, B₂, G₁ and G₂) at 10 µg/kg. The survey indicates that there is no widespread aflatoxin problem in rice in Guyana. The incidence of aflatoxins appears to be localized.

Keywords : aflatoxin, enzyme-linked immunosorbent assay (ELISA), high-performance liquid chromatography (HPLC), rice fractions

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