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Activation of the ras oncogene and its relationship to aflatoxins-DNA adduct formation in the rat liver treated with aflatoxins

Sook Jin Lee[1], Tae Myoung Kim[1], Jae Hyun Kim[1], Cheol Beom Park[3], Jin Tae Hong[2], Hwan Soo Yoo[2], Beom Jun Lee[1], Dae Joong Kim[1], Young Won Yun[1]

[1]College of Veterinary Medicine and [2]College of Pharmacy, Chungbuk National University, Cheongju 361-763, [3]Biotoxtech, Cheongwon-gun 363-883, Korea

Aflatoxins are produced by *Aspergillus flavus*, *parasiticus* and their related fungi that grow in improperly stored foods such as corn, rice, peanuts and other cereals. In addition to its high mutagenicity and cytotoxicity, aflatoxin B_1 (AFB_1) is a potent hepatocarcinogen in experimental animals and an important factor for the human liver cancer. In spite of a high attention to the hepatocarcinogenicity of aflatoxins, the relative toxicity, for the risk assessment, of other types (AFB_2, AFG_1 and AFG_2) of the toxin was not fully studied. In the present study, the relative potency for the hepatotoxicity, mutagenicity, and DNA-adduct formation by aflatoxins B_1, B_2, G_1 and G_2 were investigated. Sprague-Dawley male rats were orally administered AFB_1, AFB_2, AFG_1 and AFG_2 at doses of 0.25, 1.25 or 2.5 mg/kg. Animals are killed at 12, 24 or 48 hrs following alflatoxin exposure, the histopathological examination, expression of ras oncogene and 8-OxodG formation as the biomarkers of hepatotoxicity, mutagenicity and DNA-adduct formation, respectively, were examined and analyzed for the relative toxicity of aflatoxins.