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Monitoring of aflatoxin B₁ in grains, peanuts, foodstuffs and feeds

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To systematically screen the aflatoxin B₁ contaminated in foodstuffs and a extensive feeds, monitoring was carried out. For the monitoring of aflatoxin B₁, we got the total 652 samples including 303 grain samples, 88 peanut samples, 82 cereal samples and 179 feed samples from june, 2003 to october, 2003 throughout the country such as Seoul, Gyeongin, Gangwon, Chungchang, Chunla and Gyeongsang province. Direct competitive ELISA(DC-ELISA) established in our laboratory was applied. This system was very sensitive and showed a low detectable limit from 0.01ppb to 10ppb levels. Recoveries of aflatoxin B₁ spiked in grains, peanuts, cereal and feeds at the level of 1 or 10ng/g were all in the range of 82-112% with low coefficients. Total assay time including sample preparation and ELISA procedure was 1.5 hour. After ELISA work, HPLC was also applied for re-detecting aflatoxin B₁ from positive sample on ELISA. On the results of ELISA and HPLC tests, some grain and feed samples showed 10ppb more levels of aflatoxin B₁ contamination. This assay has been validated for application to food samples and demonstrated many advantage over conventional methodology, including the requirement for minimal sample preparation before assay, its technical simplicity, and its potential high sample through-put. In conclusion, more systemical and long term monitoring of aflatoxin B₁ from various samples is strongly needed, with those monitoring results, we can do a reliable risk assessment and can suggest the more effective guideline for the protection from risk of aflatoxin B₁.