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使用超高液相層析-螢光偵測法檢驗穀物、花生及中藥材中的黃麴毒素

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摘　要

食品中最常見的黃麴毒素菌是 *Aspergillus flavus* 及 *A. parasiticus*。台灣的氣候適宜真菌生長，這種麴菌很容易在各類食物中滋生，因此極易造成黃麴毒素污染。本研究採用免疫親和性管柱淨化檢體，再以超高效液相層析-螢光偵測器檢驗黃麴毒素。本檢驗方法之黃麴毒素 AFB1、 AFB2、 AFG1、 AFG2 檢出的最低限量值分別是 0.0159, 0.00304, 0.115, 0.00788 ppb；在蓬萊米中的回收率分別是 80.63，81.91， 86.75，107.4 %。以此方法檢測市售十件穀類樣品的黃麴毒素，結果五件有黃麴毒素，其總量在白米是 0.86 ppb、蓬萊米是 1.28 ppb、在來米是 1.13 ppb、黃豆粉是 2.16 ppb 及洋薏仁是 0.047 ppb；花生粉七件結果均檢出黃麴毒素，其含量在 0.032~2.85 ppb；中藥十件，其中甘草、葛根、玄參、香附、杏仁均驗出黃麴毒素，其含量分別是 1.18，2.05，5.06， 7.77 及 3.97 ppb。上述檢體之黃麴毒素均低於規定限量值(10 ppb)，然而已顯示黃麴毒素污染的普遍性。普洱茶樣品二件，黃麴毒素檢測值高達 43 及 27 ppb，應加強檢驗。

關鍵詞：黃麴毒素、超高效液相層析、黃麴菌

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Detection of aflatoxins contamination in cereals, peanut and Chinese herbs by using ultra-high performance liquid chromatography with fluorescence detector

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Abstract

Aspergillus flavus and *A. parasiticus* are common aflatoxigenic fungal strains isolated from a widely variety of foods. The climate of Taiwan is favorite the proliferation of these fungi, hence the fungal spores inevitably spread to every corner of the environment. Corn, rice as well as peanut are susceptible to their infection that leads to contamination of aflatoxin on these foodstuffs very often. In this study, samples were purified by using immunoaffinity column, and aflatoxins were detected by an Ultra-high Performance LC system with FLR detector. The lowest detectable quantity of aflatoxin B1, B2, G1 and G2 were 0.0159, 0.00304, 0.115 and 0.00788 ppb, respectively; the recoveries in japonica rice were 80.63，81.91， 86.75，107.4 %, respectively. This analytical system was applied to detect aflatoxins of ten cereal samples, that included seven peanut meal samples, and ten various Chinese herbs. In the cereal samples, four samples contained aflatoxin. The total aflatoxin of polished rice was 0.86 ppb; japonica rice was 1.28 ppb; indica rice was 1.13 ppb; soy bean meal was 2.16 ppb and pearl barley was 0.047 ppb. All seven samples of peanut meal contained aflatoxin, and the range of total amount was 0.032~2.85 ppb. About the herb samples, liquorice, tuber of the kudzu vine, figwort, red nut sedge and apricot kernel were detected containing aflatoxins, the total amount were 1.18, 2.05, 5.06, 7.77 and 3.97 ppb, respectively. The aflatoxin amounts of samples mentioned above were all below the limit amount of official regulation, but the result has already reflected the ubiquity of aflatoxin contamination. In addition, two samples of Pu'er tea were found containing aflatoxin at the level of 43 and 27 ppb.

Key words: aflatoxin, ultra-high performance liquid chromatography, *Aspergillus*

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