

Aflatoxins

Aflatoxins occur naturally in peanuts, peanut meal, cottonseed meal, corn, dried chili pepper, etc. However the growth of mold does not always indicate the presence of toxin since the yield of Aflatoxins is dependent on growth conditions such as moisture, temperature, and aeration. The Aflatoxins are characterized as B for blue fluorescence and G for green fluorescence. The numerical subscripts indicate relative chromatographic mobility. Besides the toxins commonly found in vegetable matter (B1, B2, G1, and G2), Aflatoxins M (for milk) are found in milk of cows fed toxic meals. The highly toxic M metabolites are 4-hydroxylated Bs.

The most important feature of the post-column method described here is that all four Aflatoxins are detectable at the same fluorescence emission wavelength in a single run. The Pickering PCX5200 with a 1.4 mL reactor is recommended for this method.

METHOD

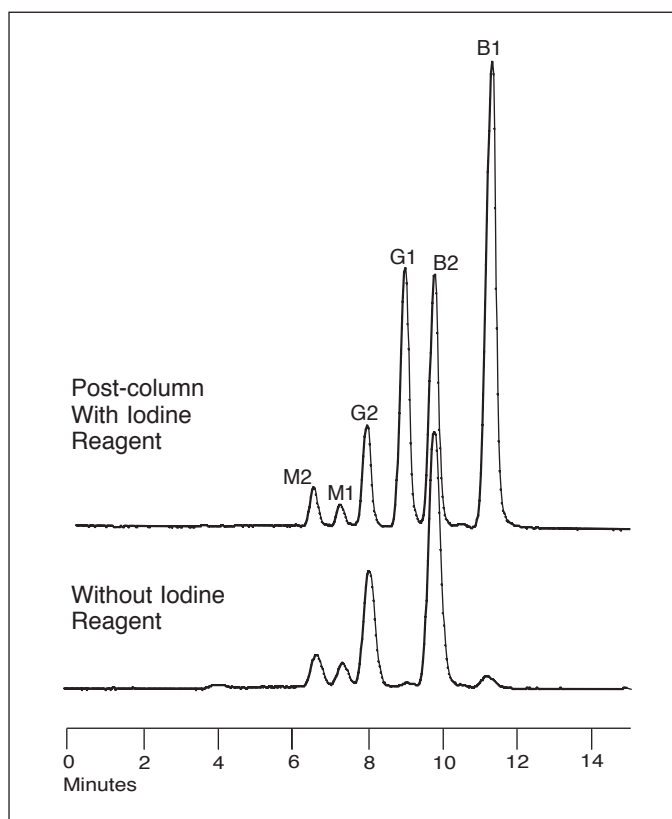
Analytical Conditions

COLUMN: MYCOTOX™ column, Catalog No. 1612124
TEMPERATURE: 42 °C
FLOW RATE: 1.0 mL/min
MOBILE PHASE: MeOH, CH₃CN, H₂O; 22:22:56, Isocratic

Post-column Conditions

POST-COLUMN SYSTEM: Pinnacle PCX or Vector PCX
TEMPERATURE: 90 °C
REACTOR VOLUME: 1.4 mL
REAGENT: I₂ 100 mg/L in water – dissolve in meott, then dilute in 1L using DI water
FLOW RATE: 0.3 mL/min
DETECTION: Fluorometer, Xenon lamp
 λ_{ex} : 365 nm
 λ_{em} : 430 nm

Toxins in Peanuts, Vegetable Matter, and Milk



REFERENCES

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- 2) C.W. Thorp, G.M. Ware, and A.E. Pohland, "Proceedings of the 5th International IUPAC Symposium on Mycotoxins and Phycotoxins," W. Pfannhauser and P.B. Czedic-Eysenberg (Eds.), Technical University, Vienna (1982) 52–55
- 3) J.W. Dorner & R.J. Cole, *J.A.O.A.C.*, **71** (1988) 43–47
- 4) M.J. Shepherd and J. Gilbert, *Food Additives Contaminants*, **1** (1984) 325–335