

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.

Method

Analytical Conditions

Column: MYCOTOX™ Reversed-phase Column,
4.6 x 250 mm, P/N 1612124

Guard Column: Reversed-phase guard cartridge, P/N 18ECG001

Column Temperature: 42 °C

Flow Rate: 1.0 mL/min

Mobile Phase: MeOH, CH₃CN, H₂O; 22:22:56, Isocratic

Injection Volume: 10-50 µL

Post-column Conditions

Post-Column System: Onyx PCX, Pinnacle PCX or Vector PCX

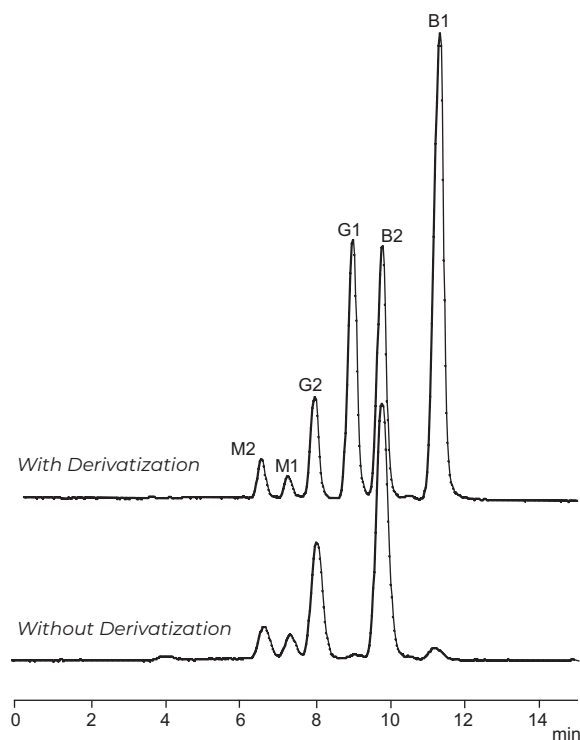
Reactor Volume: 1.4 mL

Reactor Temperature: 95 °C

Reagent: Iodine 100 mg/L in water

Flow Rate: 0.3 mL/min

Detection: FLD Detector,
 λ_{ex} : 365 nm, λ_{em} : 430 nm



References

- 1) R. Buchi in "Aflatoxins," L. Goldblat, Ed., Academic Press, New York, NY (1969)
- 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