Separation of Aflatoxins on HxSil C18

Since the discovery of aflatoxins in 1960, many areas of human food sources have shown considerable propagation of the fungal infection. Although the majority of food samples are cereals, the toxins can be found in a variety of medias, including corn, peanuts, legumes, livestock, milk, and even cannabis to name a few. The aflatoxins mentioned above are part of approximately forty secondary metabolites derived from the fungus, *Aspergillus Flavus*. An *A. Flavus* infection can be found in both the pre-harvest, and the post-harvest analysis of the crop. Analogously, the effects from these metabolites can be either acute or chronic, and have been found to be teratogenic, mutagenic, carcinogenic, immunotoxic, or hepatotoxic in nature. Due to the nature of these attributes, the toxins have been implicated in liver cancer, Reyes Syndrome, Cirrhosis, and chronic Gastritis. As such, the FDA has imposed strict guidelines on the amounts of acceptable aflatoxins present in these media, <20 ppb. Adding even stricter guidelines for milk, at <0.5 ppb.

In this application note we have developed an HPLC method that isolates five different aflatoxins with the aid of Hamilton's HxSil-C18 (3 µm) column. The fast isocratic method is completed in under 6 minutes and provides excellent resolution between the various aflatoxins. The low level of sensitivity shown in the method affords the analyst a robust, accurate, and affordable product.

Column Information

Packing Material	HxSil, 3 µm
Part Number	79641
Dimensions	150 x 4.6 mm

Chromatographic Conditions

Gradient	Isocratic
Temperature	40°C
Injection Volume	2 µL
Detection	UV at 365 nm
Eluent	Water:Acetonitrile:Methanol (50:25:25)
Flow Rate	1.0 mL/min

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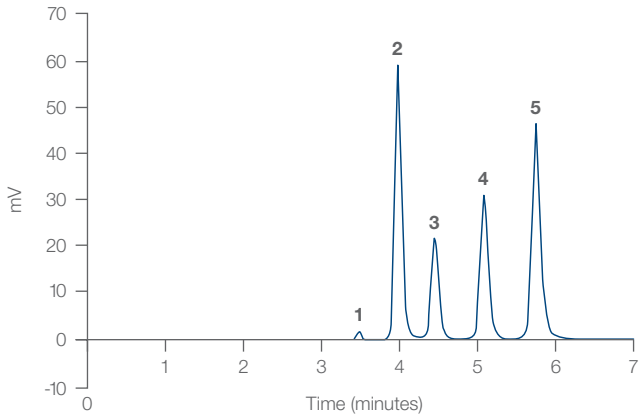

Compounds:

1: Aflatoxin M1 (2.5 ng)
2: Aflatoxin G2 (20 ng)
3: Aflatoxin G1 (10 ng)
4: Aflatoxin B2 (10 ng)
5: Aflatoxin B1 (10 ng)

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Lit. No. L80099 — 09/2019