S2-6

TWO HIGHLY SENSITIVE AND QUANTITATIVE IMMUNOAFFINITY COLUMN CLEAN UP METHODS FOR MEASURING AFLATOXIN M1 IN MILK AND CITRININ IN CORN

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Aflatoxin M1 is a metabolite found in milk of dairy cattle that have consumed feed contaminated with Aflatoxin B1. Aflatoxin M1 has been reported to be carcinogenic and hepatotoxic. The European Commission has established maximum permissible limits of 50 parts per trillion (ppt) for Aflatoxin M1 in milk.

VICAM has developed an assay for Aflatoxin M1 that meets the EU sensitivity requirements and can be performed using a simple single-well fluorometer. The method utilizes a novel “mobile bead” configuration immunoaffinity column and requires less than 40 minutes. The assay has excellent linearity ($R^2 = 0.998$) over a concentration range of 0-200 ppt. Precision at 25 ppt and 50 ppt was excellent with %CV below 10%. Limit of detection was 12.5 ppt.

Citrinin is a naturally occurring fungal metabolite produced by several species of the genera *Penicillium* and *Aspergillus* that causes kidney and liver damage. Citrinin has been found to be mutagenic in hepatocytes and has been implicated as a potential cause of human Endemic Balkan Nephropathy as well as porcine nephropathy.

CitriTest™ HPLC is a quantitative method for the detection of citrinin in corn. VICAM’s advanced biotechnology permits detection of citrinin without the use of toxic solvents like chloroform or methylene chloride. CitriTest™ HPLC has a limit of detection of 10ppb, linearity ($R^2 = 0.981$) over a range of 0-500ppb. This method shows good precision with a % CV of less than 8% at 10, 200, and 500ppb.