

Influence of different mobile phase compositions on detection of Ochratoxin A.

ABSTRACT

Ochratoxin A (OTA) is a possible human carcinogen that can be found in a variety of foodstuffs. High performance liquid chromatography (HPLC) is the chosen method for the quantification of OTA in food for human and animal consumption. The aim of the present study was to investigate the influence of different mobile phase compositions on the quantification (as measured by the peak area) of OTA. Different mobile phases were designed to study the effects of the mobile phase composition, pH, type and molarity of salt, the addition of acid and the chosen excitation wavelength on the detection of OTA. Results from thirteen mobile phase compositions showed that the mobile phase composition of ACN/NaAcetate (5 mM)/MeOH/Acetic acid (pH 3); (30:40:30; v/v/v) resulted in the highest quantification value for OTA. The designed mobile phase provided a significantly ($p < 0.05$) greater OTA peak area compared to other mobile phase compositions used as references. Results showed that for a mobile phase without salt, the best quantification value for OTA was achieved at low pH (~3). When comparing two mobile phases with equal pH, the mobile phase with the lower salt molarity resulted in a greater peak area. For two mobile phases with equal salt molarity, the mobile phase with the lower pH provided a greater peak area. OTA showed two different excitation maxima (333 nm and 226 nm) depending on the mobile phase composition.

Keyword: Quantification value; Ochratoxin A; Mobile phase composition; pH; Salt; Acid; Excitation wavelength.