

Title Pressurized fluid extraction for quantitative recovery of aflatoxins B₁ and B₂ from pistachio
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Abstract

A pressurized fluid extraction method for the extraction of aflatoxins B₁ and B₂ from contaminated pistachio samples was developed using a modified supercritical fluid extractor. The parameters of temperature, pressure, and flow rate of the solvent were optimized for the extraction process. The pressure variation in the range of (10–100) bar had an insignificant effect on the aflatoxins extraction yield. Solution of 80% (v/v) methanol in water as the extraction solvent at flow rate of 0.5 mL/min and temperatures of higher than 80 °C were obtained for efficient extraction of aflatoxins B₁ and B₂ from spiked and naturally contaminated pistachio samples. The developed method in comparison with the AOAC method offered the repeatability (RSD) of 13.5% and 12%, respectively, while the extraction yield or recovery of the analytes was about 20% higher corresponding to those obtained with the AOAC method. The higher recovery of the developed method was validated by HPLC analysis and it was also applied to the peanut samples analysis.