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Micro-solid phase extraction with liquid chromatography—tandem mass spectrometry for the determination of aflatoxins in coffee and malt beverage

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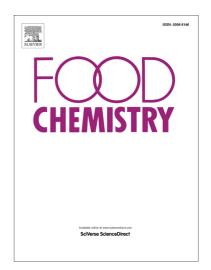
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## **ACCEPTED MANUSCRIPT**

- 1 Micro-solid phase extraction with liquid chromatography-tandem mass spectrometry for
- 2 the determination of aflatoxins in coffee and malt beverage.
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#### Abstract

10 A single step extraction-cleanup procedure using porous membrane-protected micro-solid phase 11 extraction (µ-SPE) in conjunction with liquid chromatography-tandem mass spectrometry for the extraction and determination of aflatoxins (AFs) B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> from food was successfully 12 13 developed. After the extraction, AFs were desorbed from the  $\mu$ -SPE device by ultrasonication using acetonitrile. The optimum extraction conditions were: sorbent material, C8; sorbent mass, 14 15 20 mg; extraction time, 90 min; stirring speed, 1000 rpm; sample volume, 10 mL; desorption 16 solvent, acetonitrile; solvent volume, 350 µL and ultrasonication period, 25 min without salt addition. Under the optimum conditions, enrichment factor of 11, 9, 9 and 10 for AFG<sub>2</sub>, AFG<sub>1</sub>, 17 AFB<sub>2</sub> and AFB<sub>1</sub>, respectively were achieved. Good linearity and correlation coefficient was 18 obtained over the concentration range of 0.4-50 ng g<sup>-1</sup> (r<sup>2</sup> 0.9988 - 0.9999). Good recoveries for 19 AFs ranging from 86.0-109% were obtained. The method was applied to 40 samples involving 20 malt beverage (19) and canned coffee (21). No AFs were detected in the selected samples. 21

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