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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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8

9 **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
12 extraction and determination of aflatoxins (AFs) B₁, B₂, G₁ and G₂ from food was successfully
13 developed. After the extraction, AFs were desorbed from the μ -SPE device by ultrasonication
14 using acetonitrile. The optimum extraction conditions were: sorbent material, C8; sorbent mass,
15 20 mg; extraction time, 90 min; stirring speed, 1000 rpm; sample volume, 10 mL; desorption
16 solvent, acetonitrile; solvent volume, 350 μ L and ultrasonication period, 25 min without salt
17 addition. Under the optimum conditions, enrichment factor of 11, 9, 9 and 10 for AFG₂, AFG₁,
18 AFB₂ and AFB₁, respectively were achieved. Good linearity and correlation coefficient was
19 obtained over the concentration range of 0.4-50 ng g⁻¹ (r^2 0.9988 - 0.9999). Good recoveries for
20 AFs ranging from 86.0-109% were obtained. The method was applied to 40 samples involving
21 malt beverage (19) and canned coffee (21). No AFs were detected in the selected samples.

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