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(P11) Extraction and detection of mycotoxins in medicinal and aromatic plants: a case study with Melissa officinalis l.

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Plants frequently suffer contaminations by toxigenic fungi, and their mycotoxins can be produced throughout growth, harvest, drying and storage periods. The objective of this work was to validate a method for detection of toxins in medicinal and aromatic plants, through a fast and highly sensitive method, optimizing the joint co-extraction of aflatoxins (AF: AFB1, AFB2, AFG1 and AFG2) and ochratoxin A (OTA) by using Aloysia citrodora P. (lemon verbena) as a case study. For optimization purposes, samples were spiked (n=3) with standard solutions of a mix of the four AFs and OTA at 10 ng/g for AFB1, AFG1 and OTA, and at 6 ng/g of AFB2 and AFG2. Several extraction procedures were tested: i) ultrasound-assisted extraction in sodium chloride and methanol/water (80:20, v/v) [(OTA+AFs)1]; ii) maceration in methanol/1% NaHCO3 (70:30, v/v) [(OTA+AFs)2]; iii) maceration in methanol/1% NaHCO3 (70:30, v/v) (OTA1); and iv) maceration in sodium chloride and methanol/water (80:20, v/v) (AF1). AF and OTA were purified using the mycotoxin-specific immunoaffinity columns AflaTest WB and OchraTest WB (VICAM), respectively. Separation was performed with a Merck Chromolith Performance C18 column (100 x 4.6 mm) by reverse-phase HPLC coupled to a fluorescence detector (FLD) and a photochemical derivatization system (for AF). The recoveries obtained from the spiked samples showed that the single-extraction methods (OTA1 and AF1) performed better than co-extraction methods. For in-house validation of the selected methods OTA1 and AF1, recovery and precision were determined (n=6). The recovery of OTA for method OTA1 was 81%, and intermediate precision (RSDint) was 1.1%. The recoveries of AFB1, AFB2, AFG1 and AFG2 ranged from 64% to 110% for method AF1, with RSDint lower than 5%. Methods OTA1 and AF1 showed precision and recoveries within the legislated values and were

found to be suitable for the extraction of OTA and AF for the matrix under study.

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