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EVALUATION OF FOUR PESTICIDES RESIDUES CONTENTS IN THE CITRUS FRUITS FROM SOUSS-MASSA AREA (MOROCCO)

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Abstract

A number of 138 samples of citrus fruits (oranges), produced in Souss-Massa area in south of Morocco, were analysed. A multiresidue method was assessed for the determination of several organophosphorus pesticides using gas chromatography. The extraction of pesticides was carried out by liquid-liquid extraction and solid-phase clean-up. The pesticide were separated by capillary column gas chromatography and detected by the Nitrogen Phosphorus Detector (NPD). The majority of pesticides recoveries from citrus fruits were greater than 80 %. Linearity and precision were satisfactory. The limits of quantification (LOQs) were in range of 0.005 - 0.01 mg/kg and lower than maximum residue limits (MRLs) established by the European Union legislation. The results obtained show the presence of methidathion, chlorpyrifos ethyl, malathion and dimethoate. In all analysed samples, methidathion and chlorpyrifos ethyl are the most detected pesticides as 38% and 25 % of the 138 sample analysed respectively. Although 16 samples contained residues of two or three of the studied pesticides, one sample exceeded the European Maximum Residue Limits (MRLs).

Key words: Citrus fruits, gas chromatography, organophosphorus

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