ORGANOCHLORINE RESIDUES IN ESSENTIAL OILS BY GC/MSMS

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Brazil is one of the main world producer of citrus and also of its essential oils. The biggest barrier to export these essential oils is the presence of pesticides residues. The objective of this work was to implement a method for determination of organochlorine pesticides (OC) residues in essential oils of bitter orange (*Citrus aurantium*) and mandarin green (*Citrus reticulata blanco).*The extraction of pesticides was based in QuEChERS citrate buffer method. The purified extract was injected into the system Quattro Micro GC ® from Waters, gas chromatograph coupled to 3Q mass spectrometer. The chromatographic column used was a DB5-MS (30m x 0.25mm x 0.25mm), carrier gas helium (1.1mL/min.), splitless injection at 250° C and a mass spectrometer used in positive mode electron ionization (70eV). External standard was used for determination of these 22 OC pesticides: 2'4'DDE, 4'4'DDE, 2'4'DDT,4'4'DDT, α-BHC, β-BHC, γ-BHC (lindane), δ-BHC, heptachlor, aldrin, chlorothalonil, dicofol, α-endosulfan, β-endosulfan, endosulfan sulfate, endrin, dieldrin, methoxychlor, tetradifon and mirex. The concentration range of the calibration curve varied from 0,5-1,0µg/mL. No organochlorine residues were found in essential oils. Pesticides recovery was also evaluated in the samples with standard solution fortified with all analytes at the level of 200µg/kg. The mean recovery obtained was 89% for both essential oils tested. This value is within the recommended concentrations above 10µg/kg (70 to 110%), which shows that the applied method is suitable for measuring the OC residues in essential oils.

Keywords: organochlorine, essential oils, GC/MSMS.