DETERMINATION OF ORGANOCHLORINE PESTICIDE RESIDUES IN CHICKEN TISSUE USING QUECHERS METHOD

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ABSTRACT. A rapid multi-residue procedure with gas chromatography mass spectrometry (GC-MS) detection was developed to screen for the presence of organochlorine pesticide residues in chicken tissue. The method used a new sample preparation procedure based on QuEChERS (Quick, Easy, Cheap, Effective, Rugged and Safe) methodology. An extraction procedure consisting of a liquid extraction of the chicken tissue with acetonitrile, centrifuged and purified by dispersive solid-phase extraction (d-SPE). The procedure was optimised for simultaneous screening of 20 compounds: α-lindane, β-lindane, δ-lindane, heptachlor epoxide, γ-chlordane, α-chlordane, endosulfan (I), DDE, DDD, endosulfan (II), endrin aldehyde, endosulfan sulfate, methoxychlor, endrin ketone, lindane, heptachlor, aldrin, dieldrin, endrin and DDT. Six of the latter compounds were quantified for routine monitoring, with the calibration curves were linear in the range of 25-150 µg/kg and R2 values higher than 0.98. The LOD and LOQ were lower than the respective maximum residue limits (MRLs). The mean recoveries for lindane was 88%, heptachlor 94%, aldrin 99%, dieldrin 97%, endrin 103% and DDT 79%.

Keywords : organochlorine pesticides, QuEChERS, chicken tissue, GC-MS