



ASSESSMENT OF PERSISTENT ORGANOCHLORINATED PESTICIDES RESIDUES IN COCOA BEANS FROM SELECTED COCOA FARMS IN EKITI STATE, NIGERIA

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ABSTRACT

With the importance of cocoa beans and its products, it is imperative to know whether the levels of pesticides residues are kept below the recommended levels to minimize the risk to human health. This study investigates the incidence and levels of organochlorinated pesticide residues in cocoa beans from eighteen selected cocoa farms in Ekiti State, Nigeria. Method 3550C of USEPA was employed to extract the pesticides from the samples, while a Gas Chromatography coupled with Electron Capture Detector (GC-ECD) was used for pesticides identification and quantification after careful extraction and clean-up on silica gel. The mean OCPs concentrations ranged from 0.0003 µg/g (α -BHC) to 0.163 µg/g (endosulfan sulphate) with α -BHC as the most frequently found pesticide residue. The concentration levels of lindane, α -BHC, p,p'-DDT, p,p'-DDD, heptachlor, heptachlor-epoxide and endosulfan II were below the maximum residual limit (MRL) in food as reported by European Union, while 0.92%, 2.78%, and 4.6% of endosulfan I, (β -BHC and δ -BHC) and (aldrin and dieldrin) respectively were above the MRL. The detectable levels of OCPs in the beans make it inevitable to conduct regular monitoring so as to ensure that the levels remains below prescribed limits by national and international standards.
