

**Title** Freeze drying-solvent extraction, a simple and rapid method for determination of organophosphorus pesticides in vegetables

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#### **Abstract**

A fast and simple method based on freeze drying and solvent extraction of pesticide residues using a gas chromatograph equipped with NPD detector for the determination of six organophosphorus containing pesticides (diazinon, chlorpyrifos, parathion-methyl, malathion, parathion ethyl, and tetrachlorvinphos) on potatoes and red peppers has been developed. The sample, disintegrated on a high speed homogenizer, was mixed with an exact amount of pesticide on a magnetic stirrer for 10 minutes. The mixture was freeze dried at  $-75^{\circ}\text{C}$  and 500 mm Hg for one hour. These drying conditions were established as optimal after several tests. The dry pesticide containing sample was dissolved in ethyl acetate-acetone (90:10) and stirred for 10 minutes. No posterior cleaning was required. Identification and quantification was performed by gas chromatography using an NPO detector with triphenylphosphate as an internal standard. Linearity coefficients were larger than 0.998 with pesticide recovery was 86% to 118%, and a standard deviation of  $< 15\%$ . With the proposed method, quantification limits between 0.0075 mg/kg and 0.05 mg/kg were obtained.