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# 气相色谱法检测22种基质中的4种二硫代氨基甲酸盐类农药残留

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# Determination of 4 dithiocarbamate residues in 22 matrices by gas chromatography

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摘要 在密闭加热的容器中用SnCl2-HCl溶液酸解二硫代氨基甲酸盐类（DTCs）农药,反应生成的二硫化碳气体被瓶中的正己烷吸收,形成二硫化碳的正己烷溶液;使用气相色谱-火焰光度检测器(硫滤光片)测定有机相中二硫化碳的含量,即得到DTC农药的残留量。采用该方法对苹果、葡萄等22种基质中残留的代森锰锌、代森联、丙森锌和福美双进行了方法确证: 添加水平为0.06～3.0 mg/kg时,平均回收率为72%～110%,相对标准偏差为0.8%～22.0%,采用外标法定量,方法的检出限范围为0.01～0.1 mg/kg(信噪比(S/N)为3),定量限范围为0.02～0.2 mg/kg (S/N=10)。该方法简单、快速、准确、重复性好,适用于不同基质中DTCs农药的残留检测。

关键词： 气相色谱 二硫代氨基甲酸盐农药 残留 蔬菜；水果；植物；土壤

Abstract： A gas chromatographic method with flame photometric detection (FPD (sulfur filter)) for analyzing the residues of 4 dithiocarbamates in 22 matrices in a heated closed vial has been established. The dithiocarbamate residues were decomposed to carbon disulfide (CS2) by SnCl2-HCl solution. The liberated CS2 was absorbed by hexane in the vial, and then determined by gas chromatography with FPD (sulfur filter). The results were expressed as the residues of dithiocabamates. The residue analysis method was validated by mancozeb, metiram, propineb and thiram in 22 matrices (apple, grape, etc). The average recovery ranges were from 72% to 110% with the relative standard deviations (RSD) between 0.8% and 22.0% when the fortified concentrations were between 0.06 and 3.0 mg/kg, and the quantitative analysis was performed by using external standard method. The limits of detection were in the range of 0.01~0.1 mg/kg (S/N=3), and the limits of quantification were between 0.02 and 0.2 mg/kg (S/N=10) for the 4 dithiocarbamate residues in the 22 matrices. This method is simple, fast, accurate, reproducible, and suitable for the determination of the 4 dithiocarbamate residues in the matrices mentioned in this paper.

Keywords： gas chromatography (GC) dithiocarbamate pesticides residues vegetable fruit plant soil

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