

# Study on the Development of Simultaneous Analytical Method for the Residual Organic Phosphine Pesticides by Gas Chromatography

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## Abstract

Pesticides are extracted 70% Acetone and then transferred to dichloromethane, extractives are open-column chromatography with Florisil. The final extract is analyzed by Gas chromatography with Nitrogen-phosphorous detection(GC/NPD). Recoveries of the 18 pesticides ranged from 88.7% to 115.4% for the narrow -bore capillary GC(Ultra-2) The minimum detectable levels of 0.019-0.035mg/kg. Sample throughput(extraction, open-column chromatography, G.C analysis) was 8hr.

## Introduction

The multipesticides residue method is an efficient way to screen a large number of samples for multiple pesticides in a relatively short time period. organochloride multi-residue Gas chromatography(G.C) methods have been reported.(1)

We have reported a narrow-bore column multi-residue method for organophosphate pesticides. We propose another organochloride pesticides

method, based on further modification of J. of the Korean Environment Sciences Society.(1) This method was a Florisil as peaking material.

### Preperation of sample

(a) Sample extraction

take up. SA 10-20g  
↓ 70% Acetone 100ml  
shaling for 20 mins  
↓  
eva  
↓  
water layer  
↓ CH<sub>2</sub>Cl<sub>2</sub> 100ml(×2)  
organic layer, filter with Watmann No.1ps  
↓  
eva  
↓  
residue solin.

(b) Florisil open-column chromatography - Prepare Florisil column(20cm×11mm, id). plou small plug of glass wool at the bottom of the column and add a 1cm layer of analysis Na<sub>2</sub>SO<sub>4</sub>. Introduce 10g activated florisil into the column and top with a 1cm layer of analysis Na<sub>2</sub>SO<sub>4</sub>. Prowash the column with other : benzene(2:8)20ml, acetone 20ml, and Methanol 20ml. Transfer the concentrated sample extract to the column. Pirre the round-bottom Mark tusce with 10ml CH<sub>2</sub>Cl<sub>2</sub>, transfer washes onto the column, allow it to pass through the aolumn.

Then eluteorganophosphate pesticides with other : benzene(2:8) 20ml, Hexane : Benzene(1:1) 30ml, 40% Hexane saturated Benzene 20ml and Acetone 30ml eluant, collecting the elute in a 150ml round buttom blank.

### Conclusion

Sample throughput(extraction, Florisil cleanup and an line G.C analysis)

increased considerably(Sample per 8hr) with this method.

Recoveries of the 18 pesticides at LOD levels were shown in table 1.

Therefore, the proposed method can be applied for simultaneous determination of 18 organophosphate pesticides in samples.

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