



# Formosan Entomologist

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## 【Scientific note】

### 台灣蘆筍園土壤中有機氯化烴殺蟲劑之殘留【科學短訊】

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## Abstract

### 摘要

本報告在研究有機氯化烴殺蟲劑及其代謝物包括P,P-DDT,P,P'-DDD,P,P'-DDE, $\gamma$ -BHC、阿特靈、地特靈、飛布達及飛布氧化物在台灣蘆筍園土壤中及蘆筍植株中之殘留量。土壤樣品採自台灣西南部平原之六大水域(大肚溪、濁水溪、北港溪、八掌溪、曾文溪及下淡水溪) 沿岸41鄉鎮蘆筍園之120個地方，每一地方分別採取自畦頂往下30公分深之土壤當作耕犁層及自畦底往下20公分深之土壤當作犁底層分析。雖然此類有機氯化烴殺蟲劑已被禁止使用至已五年，但仍可被檢出在土壤中殘留。本研究發現土壤中殘留之最大量依次為P,P'-DDE, 252.2ppb, P,P'-DDT 127.1ppb, 地特靈74.2ppb, P,P'-DDD 66.9ppb, 飛布氧化物42.2ppb, $\gamma$ -BHC 34.2ppb, 阿特靈23.7ppb, 飛布達13.8ppb。耕犁層與犁底層間及不同種類土壤間之殘留量，沒有顯著差異。蘆筍植株之五年生根盤中亦發現有此類殺蟲劑殘留，然以ppb程度殘留，對於蘆筍可食部份之影響，似乎可不予重視。

### Key words:

### 關鍵詞:

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## RESIDUES OF CHLORINATED HYDROCARBON INSECTICIDES IN THE ASPARAGUS FIELDS IN TAIWAN

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### ABSTRACT

Residues of chlorinated hydrocarbon insecticides and some of their metabolites including *p,p'*-DDT, *p,p'*-DDD, *p,p'*-DDE,  $\gamma$ -BHC, aldrin, dieldrin, heptachlor and heptachlor epoxide in the soils collected from 120 locations of the asparagus fields in Taiwan were checked.

Although these chlorinated hydrocarbon insecticides were banned for at least more than five years, still minor amounts of their residues in the soils have been detected. The maximum amounts found were up to 252.2 ppb for *p,p'*-DDE (119), 127.1 ppb for *p,p'*-DDT (120), 74.2 ppb for dieldrin (56), 66.9 ppb for *p,p'*-DDD (101), 42.2 ppb for heptachlor epoxide (10), 34.2 ppb for  $\gamma$ -BHC (120), 23.7 ppb for aldrin (86) and 13.8 ppb for heptachlor (52) out of 120 samples (positive cases in parentheses). No significant difference has been secured among the different types of soils and between the plowing layer and plow-sole layer. Small amounts of these insecticides were also found in the asparagus plants, but the actual residual amount in the edible part of asparagus seemed to be negligible.

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# 台灣蘆筍園土壤中有機氯化烴殺蟲劑之殘留

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本報告在研究有機氯化烴殺蟲劑及其代謝物包括 *p,p'*-DDT, *p,p'*-DDD, *p,p'*-DDE,  $\gamma$ -BHC, 阿特靈, 地特靈, 飛布達及飛布達氧化物在台灣蘆筍園土壤中及蘆筍植株中之殘留量。

土壤樣品採自台灣西南部平原之六大水域(大肚溪, 濁水溪, 北港溪, 八掌溪, 曾文溪及下淡水溪)沿岸41鄉鎮蘆筍園之120個地方, 每一地方分別採取自畦頂往下30公分深之土壤當作耕犁層及自畦底往下20公分深之土壤當作犁底層分析。

雖然此類有機氯化烴殺蟲劑已被禁止使用至少已五年,但仍可被檢出在土壤中殘留。本研究發現土壤中殘留之最大量依次為 *p,p'*-DDE, 252.2 ppb, *p,p'*-DDT 127.1 ppb, 地特靈 74.2 ppb, *p,p'*-DDD 66.9 ppb, 飛布達氧化物 42.2 ppb,  $\gamma$ -BHC 34.2 ppb, 阿特靈 23.7 ppb, 飛布達 13.8 ppb。耕犁層與犁底層間及不同種類土壤間之殘留量, 沒有顯著差異。蘆筍植株之五年生根盤中亦發現有此類殺蟲劑殘留, 然以 ppb 程度殘留, 對於蘆筍可食部份之影響, 似乎可不予重視。