

原著論文

シロアリ防除剤クロルピリホスと S-421 の 処理後約 9 年間の室内空气中及び精白米中濃度

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Chlorpyrifos and S-421 Residues in Indoor Air and Polished Rice around Nine Years after Application for Termite Control

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要 旨

シロアリ防除家屋における有機リン系殺虫剤クロルピリホスと有機塩素系共力剤 S-421 のヒト曝露の程度についての研究を、空気および貯蔵米中残留レベルを調査することにより行った。防除処理後 5 年間の調査結果は既に報告した。今回、防除処理後 5～7 年間（家屋 B）と 5～9 年間（家屋 F）の空気および貯蔵精白米中クロルピリホスと S-421 レベルを報告する。家屋 B リビング空气中のクロルピリホスと S-421 濃度はそれぞれ $0.005 \sim 0.09 \mu\text{g}/\text{m}^3$, $0.15 \sim 1.03 \mu\text{g}/\text{m}^3$ の範囲であった。家屋 F 和室空气中のクロルピリホスと S-421 濃度はそれぞれ $0.05 \sim 0.11 \mu\text{g}/\text{m}^3$, $0.01 \sim 0.02 \mu\text{g}/\text{m}^3$ の範囲であった。室内空气中防除剤濃度は季節変動し、夏期に高く、冬期に低かった。貯蔵精白米中防除剤濃度は空气中濃度を反映して変動した。家屋 B の室内空气中クロルピリホスと S-421 濃度は夏期においては 7 年間減少せず、家屋 F におけるそれらの濃度は防除後 9 年間で若干の低下傾向を示した。

Abstract

We investigated the extent of human exposure to chlorpyrifos (an organophosphorus insecticide) and S-421 (an organochlorine synergist) by examining the residue levels in air and stored rice in two houses treated for termite control. Data for the five years following termiticide application were reported in a previous paper. In this paper, we report on the chlorpyrifos and S-421 levels in ambient air and polished rice, measured during the fifth to seventh (house B) and fifth to ninth (house F) years after termiticide application. Chlorpyrifos and S-421 levels detected in the air of the dining room of house B ranged from 0.005 to $0.09 \mu\text{g}/\text{m}^3$ and from 0.15 to $1.03 \mu\text{g}/\text{m}^3$, respectively. Chlorpyrifos and S-421 levels detected in the air of a Japanese-style room in house F ranged from 0.05 to $0.11 \mu\text{g}/\text{m}^3$ and from 0.01 to $0.02 \mu\text{g}/\text{m}^3$, respectively. Termiticide concentration in the air depended on the season, being higher in summer and lower in winter. Variation in termiticide concentration in polished rice reflected the concentration in the air. Summertime levels of chlorpyrifos and S-421 in the indoor air of house B did not decrease throughout the seven years while those in house F showed a slight decrease during the nine years after application of the termiticide.

Key words: indoor air pollution, human exposure, residue analysis, termiticide, chlorpyrifos, S-421