

Estimation of the pesticide exposure during spraying among applicators.

ABSTRACT

Pesticide exposure used in paddy farming was estimated using whole body dosimetry. The respondents were applicators from Sekinchan, Selangor who participated voluntarily in this study. They were given cotton coveralls to wear before spraying pesticide in the fields. After they had completed their task, the coveralls were collected from pesticide applicators immediately. The coveralls were cut into nine pieces representing parts of the body from shoulder to leg to assess the part of the applicator's body that will be exposed the most to pesticide during spraying. Each cutting pieces of the coveralls was extracted using acetone: hexane (1:1) solvent mixture followed by cleanup using C-18 Solid Phase Extraction. The solvent extracts were analyzed for chlorpyrifos using GCMS. The result indicated that different pieces of the coveralls have different concentrations of chlorpyrifos residues. The highest concentration of chlorpyrifos residues was found at the bottom left leg and bottom right leg of the body. Biomonitoring of pesticide exposure was also performed on the same applicators using their urine samples collected four times that is before and within two days after spraying. The result showed that 2,3,6 trichloro 2-pyridinol (TCP), a chlorpyrifos metabolite was detected in the urine samples.

Keyword: Chlorpyrifos; Dermal exposure; Cotton coveralls; GCMS.