E2-16 Investigation of malathion contamination in commercially available apples

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Malathion is an organophosphorous insecticide widely used in Sri Lanka as a vector control measure against malaria. Reports on the unauthorized use of malathion as a preservative for imported fruits were investigated. Samples of apples from the fruit markets at Pettah, Nugegoda, and Kandy, were analyzed for the presence of malathion, after extraction into acetone, within 24h of

purchase. The analysis was performed by GC-MS. The analysis did not show contamination of apples by malathion.

Malathion was also artificially sprayed to the surface of apples (5 ml, 5ppm solution) to investigate the effect of washing with water, and the ability of malathion to penetrate the rind of the apple. Washing with water reduced the concentration of malathion to below the detection limit.

Separate analysis of the rind and the core of the apple revealed that contamination of malathion is essentially localized to the rind.

The maximum amount of malathion that could be present in apple samples where no malathion was detected, according to our experimental protocols, is 0.05 mg/kg (apple). This value is well below the tolerance limit for malathion in fruits (4.0 mg/kg - from *Prevention of Food Adulteration Act, India*), and appears to indicate that the apple samples were safe for human consumption. However, it is possible that malathion contamination was not detected due to its relatively short half-life at ambient temperature. Therefore, while the present investigation does not rule out contamination of apples by malathion, it reveals that prior washing of apples with water, or peeling of the rind, significantly reduces the risk of malathion poisoning from contaminated apples.

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