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CONTAMINATED FLUORIDE IN BIOLOGICAL SAMPLES FROM MOUNTAINOUS AREAS IN THAILAND

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Abstract

The aims were to determine the contamination of fluoride in edible plants, meat and poultry products in contaminated areas. The urine samples from 373 village health volunteers living in 21 villages in Ma Khuea Chae, Lamphun province, Thailand, were collected and the fluoride concentration was measured by Ion Selective Electrode. Their village health volunteers were selected for further surveys regarding the consumption of edible plants, meat and poultry products which were produced in the areas. The results showed that the highest concentrations of fluoride in urine were found in Village 21: Ban Hong Ko Muang Song (7.07 $\pm$ 3.57 µg ml^{-1}), Village 15: Ban Nong Hiang (6.26 $\pm$ 2.01 µg ml^{-1}) and Village 9:Ban Pa Pao (4.73 $\pm$ 2.79 µg ml^{-1}). The total average of fluoride from the 21 villages was 3.50 $\pm$ 2.72 µg l^{-1}. There were 12 villages with a value of fluoride in urine higher than the standard recommendation, compared to the rest of the villages. The means of urinary fluoride residues in both male and female samples were slightly higher than the normal range (female > male). In addition, the average levels of contamination of fluoride on edible plants, meat and poultry products were significantly higher than the standard range in their villages. The residents of these areas were likely to risk the intake of fluoride to their bodies from the surrounding contaminated environment..

Key words: edible plant, fluoride, meat, poultry products, village health volunteers

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