FLUORIDE CONTENT OF COMMERCIALLY AVAILABLE NUT-BASED MILK PRODUCTS IN THAILAND

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Abstract. Milk consumption is common among children but some children are unable to tolerate cow's milk or cow's milk based formulas and may consume nut-based milk products instead. In this study we aimed to determine the fluoride content of nut-based milk products on the Thai market in order to inform child healthcare providers giving advice to their patients. We sampled all nut-based milk on the Thai market (consisting of almond, walnut, pistachio and coconut based milk) examining the fluoride content of each sample in triplicate using a fluoride (F) ion specific electrode. A total of 45 samples from 12 brands were included in the study. The independent *t*-test was used to compare sugar content (sweetened or unsweetened) and sterilization method (UHT or pasteurized). The Kruskal-Wallis test was used to evaluate differences among the types of nut-based product. A *p*-value <0.05 was considered statistically significant. The fluoride concentration of the studied products ranged from 0.00 μg/ml in So Good Original to 1.88 μg/ml in Hooray Kyoto Matcha. The fluoride concentration of studied products containing matcha powder ranged from 0.91 to 1.88 μg/ml. There were no significant differences in fluoride concentration by sugar content or sterilization method (p>0.05) but there were significant differences in fluoride concentration by nut type (p=0.00): the highest fluoride concentration was found in walnut milk (1.08 μg/ml) and the lowest fluoride concentration was found in pistachio milk (0.28 μg/ml). Thirty-nine nut-based milks had fluoride content below the optimal daily fluoride intake. Nut-based milk containing matcha powder (n=3) can increase the risk for dental fluorosis among young children. In conclusion, none of the products tested increase the risk for fluorosis by themselves but when combined with other foods and drinks they have high fluoride concentration or when combined with fluoride supplementation there is an increased risk for fluorosis.

Keywords: fluoride, nut-based milk, fluorosis

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