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**M.Sc. (FOOD AND NUTRITION FOR DEVELOPMENT)**

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**LACTOSE INTOLERANCE / YOGURT**

**LAONG KVAMMANA : LACTOSE DIGESTION AND TOLERANCE AFTER  
YOGURT TABLET CONSUMPTION IN ADOLESCENTS. THESIS ADVISOR :**

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Milk is the major source of calcium, high quality protein and other nutrients. It contains the unique disaccharide lactose—consisting of galactose and glucose which require hydrolysis by a brush border enzyme  $\beta$ -galactosidase or lactase. High incidence of lactose maldigestion in both Thai children and adults were reported. Lactase deficient person may avoid milk and other dairy products consumption because intolerance symptoms such as abdominal pain, flatulence and diarrhea may occur. Previous studies in Thailand, explored several means to reduce the undesirable symptoms when milk was consumed. For example, reducing milk consumption volume per time, having milk after meals, drinking milk with solid food and having fermented milk in form of yogurt. It is well established that lactase deficient subjects digest and tolerate lactose in yogurt better than that in milk. Yogurt tablet is a new product which has been developed from fresh yogurt with a longer shelf life in room temperature and still contains certain viable lactic acid bacteria.

This study aims to evaluate the effect of fresh yogurt consumption compared with yogurt tablet consumption on lactose digestion and tolerance based on breath hydrogen production in adolescents. Lactose maldigestion and intolerance were studied in 107 Thai adolescent students from Mahidolwithayanusorn Secondary School, aged 14-16 years, using 250 ml of milk as the test diet. Among these subjects, 32% were lactose maldigesters with 29% were lactose intolerant maldigesters. However, among lactose digesters, 10% were lactose intolerants. Thirty volunteers out of 34 lactose maldigesters were subsequently tested for breath hydrogen and gastrointestinal symptoms after consumption of 2 cups (300 g) of fresh yogurt and 28 yogurt tablets. At least 5 days were required for washout period between each experiment. Subjects who consumed fresh yogurt produced significantly lower levels of breath hydrogen than those who had had 250 ml of milk and yogurt tablet ( $p < 0.05$ ). Breath hydrogen level after yogurt tablet consumption was not significantly lower than that produced after drinking 250 ml of milk. Mild gastrointestinal symptoms experienced by the subjects did not differ after consumption of fresh yogurt and yogurt tablet. It is concluded that consumption of yogurt tablets was not as effective as fresh yogurt in reduction of breath hydrogen production, but it had the same effect in reduction of gastrointestinal symptoms.