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UMAPORN KAEWTONG: ANTIMUTAGENICITY OF YOGURT AND YOGURT CULTURES ON CYCLOPHOSPHAMIDE AND URETHANE IN THE WING SOMATIC MUTATION AND RECOMBINATION TEST USING *Drosophila melanogaster*. THESIS ADVISORS: KAEW KANGSADALAMPHAI, Ph.D., ANADI NITITHAMYONG, Ph.D. 80 P. ISBN 974-663-999-4

Some epidemiological studies have shown a decreased incidence of colon cancer in people consuming fermented milk products. This study investigated yogurt and a group of lactic acid bacteria to induce strains actually used for fermenting yogurt. Expected to decrease the incidence of mutagen. The protective effects of yogurt A (fermented with a mixture of *Streptococcus thermophilus* TUA196L and *Lactobacillus acidophilus* ATCC4356), yogurt B (fermented with a mixture of *Streptococcus thermophilus* TUA196L and *Lactobacillus bulgaricus* TUA093L) or yogurt cultures (*Streptococcus thermophilus* TUA196L, *Lactobacillus acidophilus* ATCC4356 and *Lactobacillus bulgaricus* TUA093L) against the somatic mutation and recombination induced by cyclophosphamide (2.79 mg/tube) or urethane (4.45 mg/tube) in the improved high bioactivation (IHB) cross of the wing spot test in the *Drosophila melanogaster* were evaluated. Larvae trans-heterozygous (3-day-old) for the wing spot cells markers *mwh* (multiple wing hairs) and *flr*³ (flare) were fed until pupation on medium containing a genotoxin or the combination of a genotoxin and UHT milk (2 ml/tube), each of yogurt (2 g/tube) or each yogurt culture (10⁷, 10⁸ or 10⁹ cells). Subsequently, the wings of the resulting adult flies were analyzed for the frequencies and size of single and twin spots. The results showed that yogurt, milk and yogurt cultures had significant antimutagenic effect on both cyclophosphamide and urethane. The antimutagenic effect of yogurts brought the activity of the two mutagens close to the effect produced in the water control group. The results of this study suggested that 1) components of both milk and yogurt decreased the availability of the genotoxic agents to the imaginal disc cells of larva by scavenging activity, 2) binding of mutagens to cell wall of the yogurt bacteria should decrease the mutagenicity of both standard mutagens. However more research could be done in the future to substantiate these finding.