## Effect of Goat Milk Kefir and Soy Milk Kefir on IL-6 in Diabetes Mellitus Wistar Mice Models Induced by Streptozotocin and Nicotinamide

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Abstract: Hyperglycemia in Diabetes Mellitus (DM) is an important factor in cellular and vascular damage, which is caused by activation of C Protein Kinase, polyol and hexosamine track, and production of Advanced Glycation End-Products (AGE). Those mentioned before causes the accumulation of Reactive Oxygen Species (ROS). Oxidative stress increases the expression of proinflammatory factors IL-6 as one of many signs of endothelial disfunction. Genistein in soy milk has a high immunomodulator potential. Goat milk contains amino acids which have antioxidative potential. Fermented kefir has an antiinflammatory activity which believed will also contribute in potentiating goat milk and soy milk. This study is a quasiexperimental posttest-only research to 30 Wistar mice. This study compared the levels of IL-6 between healthy Wistar mice group (G1) and 4 DM Wistar mice with intervention and grouped as follows: mice without treatment (G2), mice treated with 100% goat milk kefir (G3), mice treated with combination of 50% goat milk kefir and 50% soy milk kefir (G4), and mice treated with 100% soy milk kefir (G5). DM animal models were induced with Streptozotocin & Nicotinamide to achieve hyperglycemic condition. Goat milk kefir and soy milk kefir are given at a dose of 2 mL/kg body weight/day for four weeks to intervention groups. Blood glucose was analyzed by the GOD-POD principle. IL-6 was analyzed by enzyme-linked sandwich ELISA. The level of IL-6 in DM untreated control group (G2) showed a significant difference from the group treated with the combination of 50% goat milk kefir and 50% soy milk kefir (G3) (p=0,006) and the group treated with 100% soy milk kefir (G5) (p=0,009). Whereas the difference of IL-6 in group treated with 100% goat milk kefir (G3) was not significant (p=0,131). There is also synergism between glucose level and IL-6 in intervention groups treated with combination of 50% goat milk kefir and 50% soy milk kefir (G3) and the group treated with 100% soy milk kefir (G5). Combination of 50 % goat milk kefir and 50% soy milk kefir and administration of 100% soy milk kefir alone can control the level of IL-6 remained low in DM Wistar mice induced with streptozocin and nicotinamide.

Keywords: diabetes mellitus, goat milk kefir, soy milk kefir, interleukin 6

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