

Improvement of Glucose Tolerance in Nondiabetic Rats Compared to Diabetes-Induced Rats by Feeding Virgin Coconut Oil or Soya Oil

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Diabetes mellitus is a chronic disease caused by either absolute insulin deficiency or impaired insulin action and characterized by hyperglycaemia that causes many derangements in the normal physiology. Its high prevalence worldwide and in Sri Lanka calls for novel measures to alleviate this condition. Earlier studies have shown an implication of coconut oil, in regulating blood sugar levels with varying results. This study aimed to elucidate the effect of virgin coconut oil (VCO) or soya oil (SO) on glucose tolerance in diabetic (D) and non-diabetic (ND) rats. Sprague Dawley male rats (n=48) of 6-8 weeks of age weighing 150-200 g were divided to six groups. Three groups were ND, and the other three groups were in the D state, induced using alloxan. The three groups in each category received, either water, VCO or SO as the test material, orally at 7.5 ml/1000 g for each rat. Water and food were given *ad libitum* to all the groups. Oral glucose tolerance test (OGTT) was performed on all animals, on Day 45 and 90 of being on test diets and the results were analyzed by one way ANOVA. In the diabetic groups, the three test treatments did not show significant difference in the results of OGTT. However, in the case of ND animals there was a statistically significant difference in the glucose tolerance, between the animals fed with water and the animals fed with VCO, and with the animals fed with SO, with a very high significance level ($p < 0.001$). These results clearly show that VCO and SO were capable of improving the glucose tolerance when insulin was available, but not in its absence as seen with the alloxan treated diabetic animals.

Keywords: Diabetes, Glucose tolerance, Virgin coconut oil, Soya oil

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