

The effect of purple passion fruit juice on superoxide dismutase and malondialdehyde levels in hypercholesterolemic rats

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Abstract	<p>BackgroundHypercholesterolemia due to a high cholesterol diet can increase free radicals resulting in oxidative stress. Superoxide dismutase (SOD) and malondialdehyde (MDA) have been used as the study markers of oxidative stress in cases of hypercholesterolemia. Purple passion fruit contains various compounds that may reduce free radicals. This study aimed to determine the effect of purple passion fruit juice on SOD and MDA levels in hypercholesterolemic rats. MethodsAn experimental analysis with post-test only control group design involving 28 male Wistar rats. They were divided into 4 groups: normal control (K1), hypercholesterolemic control (K2), purple passion fruit juice treatment at 4.2 mL/200 gBW/day (K3), and simvastatin treatment at 0.018 mg/200 gBW/day (K4). The purple passion fruit juice at 4.2 mL/200 gBW/day was administered for 14 days. SOD levels were examined by enzymatic colorimetric methods using the Ransod kit and MDA levels by the TBARS method. ResultsThe Kruskal-Wallis test showed a significant difference in SOD levels between the tested groups ($p < 0.05$). One-way ANOVA test for MDA levels showed a significant difference ($p < 0.05$). Post Hoc test (Mann-Whitney for SOD and LSD for MDA levels) also showed significant differences: K1 vs. K2, K2 vs. K3, K2 vs. K4, and K3 vs. K4 ($p < 0.05$). ConclusionThis study demonstrated that purple passion fruit juice significantly increases the SOD and lowers the MDA level in hypercholesterolemic male Wistar rats. Consumption of purple passion fruit juice may help to modulate oxidative stress caused by hypercholesterolemia in rats.</p>
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