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# Acute oral toxicity evaluation of synbiotic mixture containing Streptococcus salivarius K12 and Musa acuminata aqueous peel extract in Sprague-Dawley rats

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**Abstract** Background: The combination of S. salivarius K12 and M. acuminata are being used as synbiotic, but its safety evaluation is required. Objective: This study aimed to determine the LD50 of synbiotic

containing probiotic Streptococcus salivarius K12 and prebiotic Musa acuminata peel extract. **Materials and Methods:** The determination of LD50 is done according to the Acute Oral Toxicity test No. 425 (AOT425). For limit test, five female Sprague Dawley rats were given a limit dose of 2000 mg/kg of the synbiotic mixture once orally, and observed for 12 days. For subacute toxicity test, twenty female Sprague Dawley rats were randomised into 4 groups (n = 5). Control group received saline, others received synbiotic mixture at doses 175 mg/kg, 550 mg/kg, and 2000 mg/kg, respectively, and observed for 14 days. Animals were euthanised on day-15, blood was collected, and subjected to haematological and biochemical analyses. Kidney and liver were preserved for histopathological examination. **Result:** No significant changes on the average body weight of the animals throughout the study. Haematological parameters and biochemical analysis do not depict any changes related to acute toxicity. Histopathology analysis depicted mild changes on kidney and liver. **Conclusion:** Based on the data, the LD50 of the synbiotic formulation is higher than 2000 mg/kg, with no sign of acute toxicity observed on all parameters.

**Keywords**

**Author Keywords:** Acute oral toxicity; LD50; Synbiotic mixture; Streptococcus salivarius; Musa acuminata

**Keywords Plus:** PROBIOTICS; BACTERIA; PREBIOTICS; SAFETY; INULIN

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