



Effect of Kombucha intake on postprandial blood glucose in non-diabetic adults

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ABSTRACT

Introduction: Diabetes mellitus is a chronic metabolic disease characterized by hyperglycemia resulting from a deficiency in insulin secretion or action, with type 2 diabetes being the most prevalent form in adults. When uncontrolled, it is associated with severe complications, including retinopathy, nephropathy, and an increased cardiovascular risk. According to the International Diabetes Federation, 10.5% of the world's adult population lives with diabetes, and a substantial rise is expected in the coming decades. In Portugal, prevalence has likewise increased. Monitoring postprandial glycemia is of particular relevance in the early detection of alterations in glucose metabolism and in the prevention of cardiovascular disease. Despite the available therapeutic options, these entail high costs and potential adverse effects, reinforcing the need for complementary strategies. Kombucha, a fermented beverage rich in bioactive compounds, has demonstrated potential hypoglycemic effects; however, clinical evidence in humans remains limited, thereby justifying the investigation of its impact on postprandial glycemia.

Objective: To assess the impact of Kombucha consumption on postprandial blood glucose levels in non-diabetic adults.

Methodology: This study involved 22 healthy adults aged between 20 and 60. The study was conducted on two separate days, one week apart. On the first day, after 12 hours of fasting, the participants signed an informed consent form, completed a general survey and a dietary survey, and anthropometric assessments were made. Next, fasting blood glucose was measured, after which the participants consumed a carbohydrate-rich meal. Immediately afterwards, postprandial blood glucose was measured at 30, 60, 90 and 120 minutes after the meal. On the second day, the procedure was identical, but the participants drank 240 mL of Kombucha immediately after eating the meal. The student's t-test for paired samples was used to check postprandial blood glucose levels at different times and the student's t-test for independent samples was used to differentiate between the different groups (age and gender).

Results: No significant differences were observed in anthropometric parameters between the intervention days. Fasting blood glucose was similar on both days, with no significant changes ($p > 0.05$). Kombucha consumption significantly reduced postprandial blood glucose at 30 minutes ($p=0.006$),

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maximum blood glucose variation ($p=0.031$) and the area under the glucose curve ($p=0.009$). Men showed a greater reduction in postprandial glycemia compared to women, especially in the younger age group (20-35 years). There were no significant differences in glycemic responses between age groups in the female group.

Conclusions: Kombucha consumption showed a positive effect on postprandial blood glucose control in non-diabetic adults, with a greater impact observed among younger men. These results suggest the potential of Kombucha as an adjuvant in regulating glycemia. However, there is a need for further studies with larger samples to validate these results and better explore the potential of Kombucha as a nutritional intervention tool for controlling glucose metabolism.
