

Glycaemic Responses to Four Types of Bread Made Using Different Composition and Processing Methods

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Background: Bread made with commercially available premixes is available for public. However, there is modest information with regard to their health benefits and the glycaemic responses.

Objective: The objective of this study was to determine the glycaemic responses to four types of bread made using different composition and processing methods.

Methods: *Kurakkan* (finger millet) bread (KB), Multigrain bread (MB), and white sliced bread [(diesel oven) (WB)] were prepared according to the standardized recipes. Ordinary white bread [(wooden oven) (OB)] was purchased from market. A 50 g available carbohydrate portion of bread was given with 05 g of *lunumiris* (chili chutney) and glucose was taken as the standard food for determination of glycaemic indices (GI). Normal healthy volunteers (06 males and 06 females; 20-30 years, BMI- 18.5-23.5 kgm⁻²) not under any medical treatment participated in the study. Blood samples were taken at fasting, 15, 30, 60, 90 and 120 min incremental area under the curve (IAUC) were calculated. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, University of Kelaniya, The results were analyzed using t-test and Minitab (version 15), taking the 95% confidence interval.

Results and Discussion: The GI values (mean +SEM) of MB, KB, OB and WB were 76±2.6, 88±3.0, 90±2.4, and 91±2.6 and Glycaemic Loads (GL) were 14 ±1.7, 18±2.2, 22±2.0 & 23±2.5 respectively. The blood glucose peak values of MB, KB, OB, WB and glucose were 7.5 mmol/L, 7.3 mmol/L, 8.0 mmol/L (low peak in ordinary bread even with high GI), 7.1 mmol/L and 8.3 mmol/L respectively and all the breads types peaked at 30 minutes.

Conclusion: All bread varieties belong to high GI (GI ≥ 70) and multigrain bread and *kurakkan* bread belong to medium GL (GL = 10-20) and ordinary white bread and white sliced bread belong to high GL (GL ≥ 20). Thus there is a need to improve on the ingredients on especially multigrain bread to prepare a bread with a medium GI.