

Determination of Glycemic Indices of Bakery Products Available in Jaffna

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The glycemic index (GI) is an important parameter of food quality which compares the hyperglycemic effect of a tested meal with pure glucose (or another defined standard food). Glycemic index of different types of bakery products such as bread, normal bun, butter cake, hard bun and rusk were determined. The determination of the glycemic response and the glycemic index of the bakery products were objectives of this study. Glucose was used as the reference food. A group of 22 with the mean age, weight, height and body mass index of volunteers were 24.62 (± 1.43) years, 63.42 (± 10.50) kg, 1.70 (± 0.07) m and 21.90 (± 2.74) kgm² respectively selected for this study. The mean fasting blood glucose level of the volunteers was 84.81 (± 4.37) mgdL⁻¹. The mean blood glucose level at 30 and 60min after the orally administered 75g glucose were 147.43 (± 11.67) and 125.95 (± 9.30) mgdL⁻¹ respectively. The mean glycemic response of pure glucose at 30 and 60 min were 62.62 (± 11.45) and 41.14 (± 8.93) mgdL⁻¹ respectively. The higher glycemic response for the pure glucose was obtained at 30min. To the volunteers, different types of bakery products such as wheat flour bread, normal bun, butter cake, hard bun and rusk containing 75g digestible carbohydrate were administered, the peak blood glucose response was obtained at 30min. The mean glycemic response of wheat flour bread, bun, cake, hard bun and rusk were 42.95 (± 2.34), 42.14 (± 3.15), 40.53 (± 4.03), 33.05 (± 3.39) and 31.50 (± 6.34) mgdL⁻¹ respectively. The glycemic response obtained after administration of 75g digestible carbohydrate containing wheat flour bread differed significantly ($p < 0.05$) from hard bun, butter cake and rusk. The glycemic response of normal bun differed significantly ($p < 0.05$) from hard bun. The glycemic response obtained after administration of 75g digestible carbohydrate containing butter cake differed significantly ($p < 0.05$) from wheat flour bread, hard bun and rusk but, did not differ significantly from normal bun ($p > 0.05$). The glycemic response of rusk differed significantly ($p < 0.05$) from wheat flour bread, normal bun and butter cake but, did not differ significantly from hard bun ($p > 0.05$). The mean GI values of wheat flour bread, normal bun, butter cake, hard bun and rusk were 68.59 (± 3.74), 67.30 (± 5.03), 64.72 (± 6.44), 52.78 (± 3.40) and 50.30 (± 4.85)% respectively. When comparing bakery products, hard bun and rusk have lower GI than normal bun and butter cake. Hence, hard bun and rusk are a better choice for the diabetics and coronary heart disease patients, while wheat flour bread, bun and cake are a better choice for athletes.