

Determination of Glycemic Indices of Plantain Varieties (‘Kathali’, ‘Kappal’ And ‘Itharai’) 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). The GI appears to be useful in treatment and prevention of diabetes mellitus, coronary heart diseases, cancer and obesity. It is also important for weight management programme and sports health. The plantain (*Musa spp*) varieties, ‘Kathali’ (‘Embul’), ‘Kappal’ (‘Kolikuttu’) and Itharai (‘Poo kesel’) are frequently consumed because, they are available in Jaffna through out the year. The determination of the glycemic response and the glycemic index of the local plantains varieties were objectives of this study. Glucose was used as the reference food. A group of 22 healthy volunteers from Faculty of Agriculture, University of Jaffna was selected. 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) kgm⁻² respectively. 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. The higher glycemic response for the pure glucose was obtained at 30min. To the volunteers, different varieties of plantains (‘Kathali’, ‘Kappal’ and ‘Itharai’) containing 75g digestible carbohydrate were administered, the peak blood glucose response was obtained at 30min. The mean fasting blood glucose levels of ‘Kathali’, ‘Kappal’ and ‘Itharai’ plantain varieties were 86.21 (± 5.44), 85.89 (± 3.60) and 86.10 (± 4.17) mgdL⁻¹ respectively. The mean blood glucose levels of ‘Kathali’, ‘Kappal’ and ‘Itharai’ plantain varieties at 30min were 120.31 (± 6.35), 117.47 (± 5.79) and 116.45 (± 7.16) respectively. The mean glycemic response of ‘Kathali’, ‘Kappal’ and ‘Itharai’ plantain varieties were 34.10 (± 5.80), 31.58 (± 3.63) and 30.35 (± 6.34) mgdL⁻¹ respectively. The glycemic response after the consumption of 75g digestible carbohydrate containing ‘Kathali’ variety of plantain has significantly differed ($p < 0.05$) from ‘Itharai’ variety of plantain. While the glycemic response between ‘Kathali’ & ‘Kappal’ varieties of plantains and ‘Kappal’ & ‘Itharai’ varieties of plantains did not differ significantly ($p > 0.05$). The mean GI values of ‘Kathali’, ‘Kappal’ and ‘Itharai’ plantain varieties were 54.45 (± 9.26), 50.43 (± 5.79) and 48.47 (± 10.13)% respectively. Based on these GI values, it can be suggested that among the three varieties of plantains, the ‘Itharai’ variety has the GI less than 50%. Hence is a better choice for the diabetics and coronary heart disease patients, while ‘Kathali’ is a better choice for athletes.