

Abstract

Glycemic Index (GI) measures how fast or slow the blood glucose rises after consumption of a carbohydrate-based food. GI is important in the prevention and management of Type 2 diabetes mellitus (T2DM). Globally T2DM affects 10.5% of the population and in Kenya about 3% of adults. The economic burden on the T2DM patients is high and thus intervention strategies that are economic friendly are needed. Glycemic control using diet is a prevention and management strategy which unfortunately, very few patients (7%) practice. T2DM patients have been advised on the consumption of whole flour stiff porridges (*ugali*) which is the main staple food in Kenya. Limited data is available on GI of *ugali* from composite flours and impact of fermented milk on GI of *ugali* has not been studied despite its GI lowering effect reported on some foods. Therefore, the objective of this study was to determine the proximate composition of *ugali* from various cereal flours and flour blends and the impact of fermented milk on the GI. Moisture, fat, protein, ash, carbohydrate content was determined by oven drying (925.10), soxhlet (2003.05), Kjeldahl (988.05), dry ashing (923.03) method and by difference 100- (MC+ **Fat**+ Protein+ Ash+ Fiber) respectively. The energy content was determined via the Atwater formula. The GI was determined using 10 healthy individuals with normal body mass index, blood pressure, fasting blood glucose and were not under any medication or had undergone a recent surgery. The incremental area under the curve (IAUC) was calculated via the trapezoidal rule and the GI determined by (IUAC of test food/IAUC of reference food* 100). The GI of the test food was the average of the GI of ten participants. Data analysis was carried out via the Duncan multiple test using the GenStat software 14th edition. Results indicate that *ugali* from cassava flour was nutritionally poor in fat (0.7%) and protein (1.2%). Composite flour stiff porridges had improved nutritional content especially that of cassava *ugali*. Whole maize, millet and sorghum were a good source of fat (5.9%), ash (3.7%) and protein (10.2%) respectively. The GI of blended flour stiff porridges ranged from low to medium; cassava-sorghum (46), cassava-millet (45), maize-sorghum (45), maize-millet (47) and cassava-sorghum-millet (57). The GI of stiff porridge upon consumption of fermented milk increased for whole maize (79) and millet (67) stiff porridges and reduced for whole sorghum (57) stiff porridge. Stiff porridges with low to medium GI can be recommended in the prevention and management of T2DM whereas high GI *ugali* should be avoided.