

## DETERMINATION OF AN EQUATION TO FIND GLYCEMIC INDICES OF SRI LANKAN TUBERS USING HYDROLYSIS INDICES

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Increased interest in glycemic response of food derives from its linkage with sedentary life style and non communicable diseases such as cardiovascular diseases, obesity and type 2 diabetes. Glycemic indices (GI) of food items are measured by *in vivo* method which is laborious and time consuming. The objective of the current study was to determine an equation to estimate the GI of starchy tubers available in Sri Lanka using the hydrolysis index (HI) of the selected tubers cassava (*Manihot esculanta*), potato (*Solanum tuberosum*), *hulankeeriya* (*Maranta arundinaceae*), sweet potato (*Ipomea batatas*), *raja ala* white and violet (*Dioscorea alata*). The digestible carbohydrate levels were determined in six replicate samples for each of the selected tubers. The boiled tuber portions which contained equivalent amount of carbohydrate were subjected to enzymatic incubation with pepsin and pancreatic  $\alpha$  amylase. After 3 hours of incubation, percentage of starch hydrolyzed to maltose was taken as the degree of hydrolysis and plotted against time. The HI of tubers was calculated using the ratio between incremental areas under the hydrolysis curve for the tested food and the standard food (white bread). The HI for cassava, potato, *hulankeeriya*, sweet potato, *raja ala* violet and white were  $114 \pm 9$ ,  $89 \pm 10$ ,  $84 \pm 6$ ,  $79 \pm 6$ ,  $74 \pm 4$  and  $69 \pm 7$  respectively. The HI was correlated to the previously published GI values of the six selected tubers and a significant correlation ( $r=0.922$ ;  $p=0.009$ ) was found.  $GI=1.333HI-32.93$  was obtained as an equation to predict the GI of starchy tubers using the HI. Future, similar *in vitro* evaluation among other starchy tubers will help refining the above found equation.

**Keywords:** Glycemic index, Hydrolysis index, Sri Lankan starchy tubers