



AGROFOOD

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Incorporation of selected herbal plant extracts to suppress glyceamic impact of cane sugar

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ABSTRACT

For thousands of years herbal plant extracts have been used to reduce blood glucose responses. In an aim to suppress glycaemic impact, incorporating Ginger (*Zingiber officinale*) and Gooseberry (*Phyllanthus emblica*) extracts to normal cane sugar and determining its glycaemic indices was the main objective of this study. By adding gooseberry extract and ginger extract at specific temperatures in a particular ratio, a novel sugar product was made from normal cane sugar. Then the GI value of this product was determined using a standardized methodology. In this study, 12 healthy volunteers randomly underwent 2 sets of food challenges involving glucose (reference) and novel sugar (test food), both providing 50 g available carbohydrates. Serum glucose was monitored at various time-points i.e., at 0 (fasting), 15, 30, 45, 60, 90 and 120 minutes after ingestion and GI values were calculated by dividing the incremental area under the curve (IAUC) for the tested food by that for the standard food (IAUCS). Enzymatic colorimetric method (GOD/POD/PAP) was used to measure biochemical variables. Data analysis was done using MS Excel and the statistical programme Minitab 17. This trial is registered with the Ethics Review Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura as 21/18. The mean GI value (95% CI) for novel sugar product was 38 ± 9 with a percentage GI reduction of 40.84%, compared to normal cane sugar (GI = 65). The results of the study indicated that incorporating selected herbal plant extracts; significantly ($p < 0.05$) lowers the GI of normal cane sugar.

Keywords: Cane sugar, Ginger, Glycemic index, Gooseberry

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