

INCORPORATION OF HERBAL PLANT EXTRACTS; *Zingiber officinale* Roscoe AND *Phyllanthus emblica* L TO SUPPRESS GLYCEAMIC IMPACT OF CANE SUGAR

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In Ayurvedic medicine herbal extracts have been used to reduce blood glucose responses for thousands of years. Addition of selected extracts to normal cane sugar and determining its glycaemic indices were main objectives of this study. Ginger (*Zingiber officinale*) and Gooseberry (*Phyllanthus emblica*) extracts were chosen to incorporate considering their reputation in traditional diet therapies and the cost effectiveness. By adding extracts 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 Ethical 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. According to the above, Incorporation of suitable herbal extracts to food like rice and wheat flour may be a suitable option to reduce their glyceamic impact. Consuming few Gooseberries or few drops of Ginger after a starchy meal may reduce its glyceamic impact significantly.

Keywords: Cane sugar, Ginger, Glycemic index, Gooseberry