



## Formulation and Characterization of a Healthy Snack with a Low Glycemic Index

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### ABSTRACT

**Background:** The rate of starch digestion and glycemic response are influenced by the composition of food.

**Objectives:** To formulate a healthy snack utilizing locally accessible ingredients and to determine the energy and macronutrient composition of the snack, the glycemic index, insulinemic index, and *in vitro* starch digestibility properties of the carbohydrate fractions of the snack and its main ingredients, which may be important in predicting the *in vivo* responses.

**Materials & Methods:** A healthy snack was formulated using Olu rice, foxtail millet, barley, and chickpeas as main ingredients, together with wheat flour, cinnamon, butter, raisins, egg white, baking powder and vanilla essence. Laboratory analysis was carried out to achieve the objectives.

**Results:** The proximate compositions of protein, fat, soluble dietary fiber, insoluble dietary fiber and digestible starch in g/100g were  $12.35 \pm 0.77$ ,  $15.00 \pm 0.36$ ,  $3.47 \pm 0.31$ ,  $1.8 \pm 0.45$  respectively with 441.8 kcal energy. The fiber content of the formulated healthy snack had a higher soluble fiber to insoluble fiber ratio. The starch digestion index (SDI) of the four main ingredients ranged from 21.60 to 38.50. The predicted glycemic indices (pGI) of the ingredients varied from 24.69-41.49, whereas the pGI of the formulated snack was 43.69 and the actual glycemic index was 36.5. All these values fell within the low GI category of foods.

**Conclusions:** A healthy snack with a low glycemic index can be prepared with locally available food items ensuring the cultural acceptability of Sri Lankans.