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**Prediction of glycemic indices of coconut (*Cocos nucifera* L) jaggery and value-added coconut jaggery through in vitro method**

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**Abstract**

Sweeteners are highly interconnected with non-communicable diseases such as obesity, type II diabetic and heart diseases. Hence, there is a huge demand for natural sweeteners with low blood glucose responses. Food Glucose responses can be determined in vivo using human subjects or in vitro using enzymetic digestion systems. In comparison to in vivo, the in-vitro approach is less expensive and more convenient. Coconut (*Cocos nucifera* L.) jaggery is an alternative sweetener specially among rural Asian communities. The focus of this study was to evaluate the in-vitro digestibility and prediction of glycemic index (PGI) for four types of coconut jaggery namely: jaggery produced from traditional sap collection method using hal bark (*Vateria capalifera*) (HAL Jaggery), the jaggery prepared from pure sap collected from a novel sap collection device (NSCM Jaggery), jaggery prepared from collected sap through a novel sap collection method with the value added by 0.2 % cinnamon (*Cinnamomum zeylanicum*) (CIN Jaggery) and the jaggery value added with 0.05% of nutmeg (*Myristica fragrans*) (NUT Jaggery) and cane sugar. Glucose was used as a standard. Digestion and digestibility tests for each type of sweeteners were carried out. Results revealed that the rate of starch hydrolysis of glucose was significantly higher than the other sweeteners and four types of jaggery have different hydrolysis rates from 30 to 180 minutes. Hydrolysis Index (HI) of cane sugar was significantly higher than that of the others (55±0.023 %) whereas the lowest HI was observed in NUT Jaggery (32±0.014%). According to the in vitro glycemic prediction, all four types of coconut jaggery samples were categorized under a medium GI sweetener while cane sugar categorized as a high GI (69.91±0.02) sweetener.

**Keywords:** Coconut Jaggery, In vitro starch digestibility, *Myristica fragrans*, Predicted glycemic index, *Vateria capalifera*

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