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Utilization of Cinnamon (*Cinnamomum verum*) and Turmeric (*Curcuma longa*) to develop novel low glycemic index bread products

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Type II diabetes is a major healthcare problem in the world affecting almost all households and economies. Diet is a crucial factor in the etiology of Type II diabetes and therefore, dietary interventions can be used effectively to prevent and manage the disease. Bread is a staple among all communities which is high in carbohydrates and glycaemic index. Regular consumption of high-glycaemic foods can lead to the onset and development of Type II diabetes. Hence, innovating low-glycaemic indexed bread products is a timely intervention. The study aimed to develop novel low-glycaemic bread products incorporating minuscule amounts of Cinnamon (*Cinnamomum verum*) and Turmeric (*Curcuma longa*) powder without affecting palatability and sensory properties. Initially, breads were formulated with different percentages of Cinnamon and Turmeric powder and separate sensory evaluations were carried out to select the best ones according to sensory perceptions. A semi-trained sensory panel consisting of 30 panellists was used for sensory evaluations and products were evaluated for their Appearance, Aroma, Texture, Taste, and Overall acceptability. Statistically selected best bread products proceeded to human study to calculate the glycaemic index along with a control. Twelve healthy adults were selected for the study on a voluntary basis and finger prick blood samples were drawn in a 2-hour time window, upon ingestion of test foods. Glycaemic index values were calculated using D-glucose as a standard. Calculated glycaemic index values were 57.1±14.94, 45.06±12.34, and 42.98±13.9 for control bread, Cinnamon bread, and Turmeric bread respectively. Thus, it could be concluded that the incorporation of Cinnamon powder and Turmeric powder in minuscule amounts has hindered the glycaemic impact of wheat bread reducing the glycaemic index from the 'medium GI (56-69)' to low GI (≤55) category. The study provides future insights into reducing the glycaemic impact of a diet incorporating functional ingredients. Future research is needed to explore whether the addition of antidiabetic plant ingredients could reduce the glycaemic impact of other high glycaemic foods. These novel products will be greatly beneficial to the diabetic community and the general public and will be highly marketable.

Keywords: Diabetes, Bread, Low glycemic, Cinnamon, Turmeric

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