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The Proximate Composition and Phytochemical Screening of Momordica Balsamina (Balsam Apple) Fruit and Leaves

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Abstract : Malnutrition is a global issue that affects both children and adults, irrespective of their socio-economic status. It is, therefore, important to find various means to tackle malnutrition. This is especially important as undernutrition and overnutrition can be linked to a variety of non-communicable diseases (NCDs). This study aimed to gather more insight into the nutritional and phytochemical quality of Momordica balsamina leaves and fruit (fruit pericarp, fruit flesh and seeds). Results showed that Momordica balsamina had a nutritional composition that would be advantageous to the human diet. The nutritional quality is verified by the presence of a high protein percentage across all samples (19.72%-29.08%), with the leaves containing the highest protein content (29.08%±0.77). There was also a low-fat content present across all samples, which ranged from 1.03% to 2.40%. The ash content indicated the presence of total minerals to be adequate (2.93%-21.16%), where the pericarp had the highest ash quantity (21.16%±0.09). The moisture levels were low (7.11%-13.40%). Momordica balsamina seeds had the highest carbohydrate content (67.84%±0.30). Rich in the major phytoconstituents, Momordica balsamina extracts were found to contain alkaloids, saponins, cardiac glycosides, steroids and triterpenoids. Based on these findings, it can thus be said that the incorporation of Momordica balsamina into an individual's diet could prevent diseases associated with malnutrition, as well as it could be used to supplement the human diet in managing certain NCDs. Even though there were a number of bioactive compounds detected, further studies which would correlate the phytochemical constituents detected in Momordica balsamina and its effectiveness in treating various diseases are recommended.

Keywords : momordica balsamina, nutrients, proximate composition, bioactive compounds, phytoconstituents
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