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Changes in physicochemical properties, microbial loads, antioxidant activity and glycemic index of palm jaggery powder from Borassus flabellifer L. flower sap by different drying conditions

Dung Thi Le Huynh[1, 2], Po-Hsien Li[1], Sam Su[3] and Wen-Chien Lu[4]
[1]Dayeh University, Taiwan
[2]Ho Chi Minh City of University of Food Industry, Vietnam
[3]Lu Shu Healthfoods (Cambodia) Company Limited, Cambodia
[4]Chung-Jen Junior College of Nursing, Taiwan

Palm jaggery powder makes from the sweet sap that is extracted from cutting inflorescence of male/female of *Borassus flabellifer L.* trees. It contains essential minerals, vitamins, biological compounds that lead the benefits for human health. Specially, its unique flavor is suitable for using directly and ingredient in confectionery and baking products. This study was designed to investigate the changes in physicochemical compositions (water content, Aw, color, vitamins content, antioxidant activity, glycemic index, blood glucose and blood insulin level of 16 samples of palm jaggery powder. Four drying temperatures and four drying times under vacuum were applied to reach a water content of 2.82-5.28%, water activity: 0.297- 0.577, drying temperature: 70, 80, 90,100 °C and drying time: 60, 75, 90, 105 minutes. The results showed that palm jaggery powder exhibited the high L* value (115.20-122.57), a* value (-0.70-0.66) and b* value (1.50-4.91). They were found rich vitamins including A (1.52-1.90 mg/100g), B1 (0.7-1.3 mg/100 g), B2 (0.04-0.07 mg/100 g), B3 (1.84-2.15 mg/100 g), B5 (0.42-0.7 mg/100 g), B6 (0.06-0.2 mg/100 g), C (2.66-4.23 mg/100 g), D2 (2.08-2.23 mg/100 g), E (51.17-55.65 mg/100 g) and folic acid (2.51-3.33 µg/100 g). In addition, the calorific value indicated low about 382.5-388.6 Kcal/100 g. The microbiological quality (APC, E. coli, Coliform, LAB and molds/yeasts) of all the tests complied with regulatory standards. The samples also held the antioxidant activity that was proved by DPPH radical scavenging activity (16.12-40.23%). Besides, glycemic index was found moderate from 50 to 59. The blood insulin level appeared <20 pmol/L without the blood glucose level after 120 minutes of its intake. This investigation confirmed that the drying condition effects the quality, pharmaceutical value and sensory of palm jaggery powder.

Biography

Dung Thi Le Huynh has completed Master of Engineering in Food and Beverage Technology at Ho Chi Minh City University of Technology, Vietnam National University. She is currently pursuing PhD at Dayeh University, Taiwan.

huynhkate2018@gmail.com

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