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Value-added of defected banana chips into syrup using pectinase

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Banana has earned great importance in human nutrition due to rich content of essential nutrients, utilization and processing of banana is continuously increasing. Disposal of defected banana chips during the processing is leading to environmental problems and high cost of investment. Thus, there is an interesting way to convert defected banana chips into value-added product. The objective of this work is to produce syrup from defected vacuum dried banana. Effect of pectinase concentration (0.05-0.3%) and dried banana pulp to water ratio (1:1, 1:2, 1:3) on yield and properties of extracted banana juice were investigated. It was observed that pectinase was more effective in increasing the yield of juice extraction, while time of extraction did not significantly increase the yield of juice. When pectinase was used the maximum yield of 74% was obtained compared to 43% in the control. The suitable conditions for banana syrup were: 0.05% v/w pectinase concentration, ratio of vacuum dried banana pulp to water is 1:2, incubation temperature at ambient condition for 60 min, and then concentrated the banana juice under vacuum condition to obtain at least 65 oBrix of syrup. Banana syrup are mainly composed of fructose (35%) and glucose (24%), while the vitamins and minerals such as calcium, sodium, vitamin A, vitamin B as iron were found as minor components. The total phenolic content of banana syrup was presented, and it may contribute towards the antioxidant activity of this syrup. Conditions from laboratory work were applied to process banana syrup in large scale plant. Results showed that chemical composition of banana syrup obtained from large scale production is comparable with sample produced in lab scale. The disqualified banana chips which were discarded from dried banana processing could be developed as value-added banana syrup in large scale production.

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