Effects of fermentation time and turning intervals on the physicochemical properties of Rambutan (Nephelium lappaceum L.) fruit sweatings

ABSTRACT

Sweatings, the exudates that leach out from fermenting fruits during rambutan fruit fermentation are considered as a waste by-product and are allowed to be drained off. This could lead to a pollution problem. Besides, it is a waste if the sweatings are possible to be transformed into food products and ingredients. However, prior transformation, the fundamental knowledge of the sweatings should be understood. Hence, the main aim of this study was to investigate the physicochemical properties of sweatings as affected by fermentation time and turning intervals during natural fermentation of rambutan fruits. In this study, peeled rambutan fruit was fermented for 8 days and turned. Different batches of the fruits were turned every 24, 48 or 72 h and sweatings from the process were collected and analyzed. The results showed that fermentation time significantly reduced ($p<0.05$) the yield, pH and sucrose content of the sweatings by 79-84%, 32-33%, 76.5-80.8%, respectively. Fermentation time also significantly increased ($p<0.05$) the titratable acidity, total soluble solids, fructose, glucose, total sugar, citric acid, lactic acid, acetic acid and ascorbic acid contents of the sweatings by 5.6-6.0, 1.5-1.6, 2.4-2.6, 2.1-2.5, 1.0-1.1, 5.7-6.5, 2.4-2.6, 2.1-2.5 and 2.6-2.8 folds, respectively. However, turning intervals did not significantly affect ($p>0.05$) the physicochemical properties of the sweatings. High concentrations of sugars and organic acids allow the sweatings to have a balance of sweet and sour taste and they are suitable to be used in the production of syrup, soft drinks, jam, jelly, marmalade and vinegar.

Keyword: Fruit sweatings; Mixing; Organic acids; Solid-state fermentation; Sugars