ABSTRACT

Cassava is one of the largest agricultural commodities in Indonesia. However, its use is still limited on the tubers. It also happens in mocaf production which produces cassava peel waste. In fact, cassava peel has a high carbohydrate content reaching 50% of the carbohydrate content in the tubers. Apart from that, the high price of sugar and inability of the national sugar industry to meet the sugar needs in Indonesia are problems that currently being faced. So, this research aims to utilize cassava peel waste as an alternative raw material for glucose syrup which is hoped to be a substitute for sugar. In this research, nine treatments or combinations are carried out to produce the best glucose syrup. Determining the best glucose syrup is carried out using combination of Analytical Hierarchy Process (AHP) and Weighted Product Method (WPM). AHP is used to determine priority weights for criteria and sub criteria, then followed by WPM to determine alternative weights and rankings. Thus, the best alternative was obtained with a weight of 0.124; it is the third treatment with a combination of 60 grams of cassava peel starch; 0.06 ml glucoamylase and 2 ml α-amylase. The results of the cassava peel glucose syrup test in the third treatment are reducing sugar content 33.51%; water content 64.419%; ash content 0.137%; organoleptic color value is 3 (slightly cloudy); tase value is 3.93 (sweet) and smell value is 2.93 (slightly odorous). Based on experiments and recommendation for the best glucose syrup composition, the cost of production and selling price of the product are calculated. The results obtained were that the cost of production is Rp2.850,31 and the selling price is Rp3.420,37.

Keywords: analytical hierarchy process; cassava peel waste; glucose syrup; weighted product method