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Analysis of Efficiency Production of Grass Black Jelly (Mesona palustris) in Double Scale

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Abstract : The aim of this research is to compare the results of black grass jelly produced using laboratory scale and double scale. In this research, the production from the laboratory scale is using ingredients of 1 kg black grass jelly added with 5 liters of water, while the double scale is using 5 kg black grass jelly and 75 liters of water. The results of organoleptic tests performed by 30 panelists (general) to the sample gels of grass black powder produced from both of laboratory and double scale are not different significantly in color, odor, flavor, and texture. Proximate test results conducted in both of grass black jelly powder produced in laboratory scale and double scale also have no significant differences in all parameters. Grass black jelly powder from double scale contains water, carbohydrate, crude fiber, and yield in the amount of 12,25 %; 43,7 %; 5,89 %; and 16,28 % respectively. The results of the energy efficiency analysis by boiling, draining, evaporation, drying, and milling processes are 85,11 %; 76,97 %; 99,64 %; 99,99% and 99,39% respectively. The utility needs including water needs for each batch amounted 0.1 m3 and cost Rp 220,5 per batch, the electricity needs for each batch is 20.01 kWh and cost Rp 18569.28 per batch, and LPG needs for each batch is 30 kg costed Rp 234,000.00 so that the total cost spent for the process is Rp 252,789.78 .

Keywords : black grass jelly, powder, mass balance, energy balance, cost
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