



UTILIZATION OF TANJUNG (*Mimusops elengi*) FRUITS AS A RENEWABLE ENERGY SOURCE FOR THE FUTURE

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ABSTRACT

Mimusops elengi is a medium-sized evergreen tree found in India, UK, Australia, South Asia, and Southeast Asia. In Indonesia, it's usually planted on edges of roads as a shade plants or a green plants and the common name is tanjung. It produces many fruits which are during this time just a waste, aren't used by society because have no function and no economic value. Seeing the number of fruit waste, there arose desire to know content of tanjung's fruit and looking for its usefulness.

The result of glucose refractometer test shows that tanjung's fruit is rich in glucose. 1 gram of tanjung contains 16% of glucose; 75.5% of carbohydrate; 2.8% of protein; and 1.8% of fat. The methods of tanjung bioethanol production are: (1) Gelatinase, (2) Inoculation, (3) Fermentation, (4) Stratified distillation, and (5) Alcohol refractometer test. Gelatinase is process to make tanjung become smaller. Then, tanjung is inoculated by 1 gram, 3 grams, and 5 grams of *Saccharomyces cerevisiae* during 24 hours, and fermentation process during 2, 4, 6, and 8 days. Ethanol resulted is not pure, so there is stratified distillation to split ethanol and water.

Based on research, 160 grams of tanjung can produce 3.5 ml of ethanol 83% with optimum fermentation of 6 days by using 1 gram of *Saccharomyces cerevisiae*. The main advantage of tanjung bioethanol is that tanjung fermentation can reach 13% of ethanol purity levels while molasses fermentation only reach 10% levels. It indicates that tanjung bioethanol has very big potential to outperform molasses bioethanol which has now become E100 in Brazil. Besides that, tanjung bioethanol is made of fruit waste which is guaranteed in the continuity of its material and also tanjung can be found in many countries in the world, so it deserves to be international renewable energy source.

Keywords: utilization, tanjung, renewable energy