

## **THE REVIEW OF BIOCHEMISTRY ASPECTS OF MOCAL (MODIFIED CASSAVA FLOUR) PROCESS WITH SPONTANEOUS FERMENTATION**

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### **Abstract**

Cassava, also known as Manioc, and the Latin name is *Manihot esculenta*, is a annual tropical and sub – tropical plant derive from the family of *Euphorbiaceae*. The tuber is known as a staple food – producing carbohydrate, and its leaves can be made as a vegetable. In food industry, Cassava can be used to make cassava flour or tapioca for food. MOCAL is cassava flour that in production process through spontaneous fermentation. Biochemical changing takes place during the fermentation. This produces a better characteristic of modified MOCAL, so it can be used in a larger food industry. The application of MOCAL in the food industry has been applied, but a scientific study about the fermentation process of MOCAL has not been conducted. A scientific study about the biochemical changing during the fermentation process of MOCAL is needed. This research is an observation toward the biochemical changing of MOCAL. The basic ingredient is cassava varieties Paroka. It is obtained directly from the farmers in Lumajang. The cassava is about 7 – 9 months old. The research is conducted at Laboratory of Chemistry and Biochemical food product, department of agriculture product technology, Faculty of Agricultural technology, University of Jember. It began Mei 2007 until Mei 2008. In its design, MOCAL is produced in various time of fermentation process (0, 6, 24, 30 and 48 hours), then continues to analyze the biochemistry of MOCAL immersion water. Analyzing of the data uses descriptive methods. The result is shown in table, and graph or histogram is made to ease the data interpretation. The result of the research shows biochemical changing because of microbe activity and carbohydrate breaker enzymes during the fermentation process. The pH of the MOCAL water immersion decreases during the fermentation because of organic acids which is produced by the microbe during the fermentation process. The turbidity of MOCAL water immersion increases. It indicates the increasing amount of microbe during the fermentation process. During the fermentation process, the microbes produce enzymes that increase the amount of soluble protein. The activity of the carbohydrate – breaker enzymes such as cellulose and amylase in breaking cellulose increases during the fermentation process. These activities affect the texture of cassava chip which shows softening during the fermentation process.

Keywords : *MOCAL, fermentation, cassava*

### **Introduction**

Population growth increasing every year makes the requirement for basic food, especially for energy source such as carbohydrate, also increasing. This can cause a danger of food insecurity if the production of cereals, especially rice as a staple food, can not balance the rapid growth of population. One alternative to overcome this situation is the

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