THE CHARACTERISTICS OF THE ARROWROOT STARCH AND ITS USE AS THE SOURCE OF RAW MATERIAL FOR GLUCOSE SYRUPS

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Abstract

The creation on productive activities to over come the monetary crisis prevailing in Indonesia and also to increase the social income is a must. For that purpose, the government has launched efforts related to the use of the carbohydrates in the arrowroot plant (Maranta arudinacea L). This type of plant has long been known by rural societies in Central Java and East Java. The people use its starch for traditional food. The Aim of this research is to investigate the characteristics of the Arrowroot starch and the factors affecting enzymatic hydrolysis of the starch, i.e.: the effect of substrate concentration and enzyme concentration on its liquefaction, the effect of saccharification. The experimental design used was a completely randomized factorial design. The result showed that the optimal condition of enzymatic hydrolysis was on the concentration substrate of 30%, α-amylase 53,913.42 U/kg substrate at 72 hours of saccharification by amyloglucosidase 60,319.28 U/kg substrate. The rendement of glucose syrup was 85.31% and DE 86.09.

Keywords: *Arrowroot, Starch, Glucose syrups*

Introduction

The monetary crisis prevailing in Indonesia at this time requires the creation of productive activities to increase social income. For the purpose, the government has launched efforts related to the use of carbohydrates in Indonesia. One of the alternative sources of carbohydrate developed is the arrowroot plant (Maranta arudinacea L). This type of plant has long been known by the rural societies in Central Java and East Java, whose people use its starch for traditional food. The advantage of the arrowroot as one of the sources of carbohydrates is among others as follows: it is easy to rear, the seedling grows on the root cut, and it can live under bare sunlight or even under sun light protection. The program to develop this plant until the year 2000 is to plant the arrowroot covering over 300,000 hectares area (which is equal to 900,000 tons of arrowroot starch). As soon as this arrowroot plant is fully developed, it is hoped to be useful as raw material as well as industrial commodity based on carbohydrate. One of the potential industries using arrowroot starch is glucose syrups industry.

The Department of Trade and Industry's data shows that utilization of national capacity industry of glucose has just reached 60%. Glucose import in 1996 was 112,396 kg or $ 98,419 worth. Most of the raw material used was tapioca and corn flour. The industries

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