

ABSTRACT

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The need for enzymes in various industrial sectors is increasing from year to year. Commercial enzyme production has used many sources from microorganisms. One of them is the production of amylase enzymes by the mold *Aspergillus awamori* KT-11. Enzyme production can be influenced by the use of production media and drying methods. The use of starch-rich production media, such as rice bran and corn bran, has the potential to be carried out in order to find alternative production media that are more natural. In addition, drying methods that are widely applied in industry, such as ovens and freeze drying, are also interesting to study their effects. This study aims to analyze the effect of production media and drying methods on the production of amylase enzyme of *A. awamori* KT-11 mold. The methods used in the study were proximate analysis of rice bran and corn bran media, fermentation of media by *A. awamori* KT-11 mold for 5 days at a temperature of 22°C, treatment of drying methods with ovens and freeze dryers, testing of amylase enzyme activity with the 3,5-dinitrosalicylic acid (DNS) method, and determination of selected reducing sugar types (maltotriose, maltose, and glucose) using High Performance Liquid Chromatography (HPLC). The study also measured the growth curve with the Total Plate Count (TPC) method, the number of spores with a hemocytometer, observations of mold and birefringent, and calculation of yield. The study was conducted with a Completely Randomized Design (CRD) then tested with two-way ANOVA and further tested with the Least Significant Difference (LSD) test with a confidence level of 1%. The results of proximate analysis showed that corn bran media contained 79.27% carbohydrates and birefringent observations were quite high compared to rice bran. Based on ANOVA, the production media, drying method, and interaction of the two factors had a significant effect on the activity of the *A. awamori* KT-11 amylase enzyme. The treatment of corn bran production media and freeze dry drying method gave the highest enzyme activity of 217.03±0.30 U / mL.

Keyword : Aspergillus awamori KT-11, Freeze Dry, Maize Bran