

**Kajian Aktivitas Penghambatan α -Amilase Peptida Bioaktif
Antihiperglikemik Dari Kulit Sapi Berdasarkan Variasi Waktu Hidrolisis
dan Konsentrasi Enzim Kimotripsin**

*Study of α -Amylase Inhibitory Activity of Antihyperglycemic Bioactive Peptides
from Cowhide Based on Variations in Hydrolysis Time and Chymotrypsin Enzyme
Concentration*

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ABSTRACT

Food consumption influences degenerative diseases resulting from ultra-processed foods, foods high in sugar, salt and fat. Hyperglycemia is one of the typical signs of diabetes mellitus. One of the animal materials that can be developed and has potential as a source of antihyperglycemic bioactive peptides is cowhide. This study aims to determine the optimum formulation of bioactive peptide preparation. This study used Response Surface Methodology (RSM) type Central Composite Design (CCD) to optimize antihyperglycemic activity through α -amylase inhibition, using two factors, namely hydrolysis time (X_1 : 1-3 hours) and chymotrypsin enzyme concentration (X_2 : 2-6%). The model result for α -amylase inhibition activity response was a linear model. The R-square (R^2) value of α -amylase inhibitory activity response was 0.6755. The optimum result of making bioactive peptide is using hydrolysis time of 2.931 hours with chymotrypsin enzyme concentration of 5.456% which is predicted to produce antihyperglycemic activity through α -amylase inhibition of 76.73%. Antioxidant activity test results amounted to $68.20 \pm 0.73\%$, protein content amounted to $8.19 \pm 0.11\%$, and L^ , a^* , b^* values were 69.967, -1.183, 17.941.*

Keywords: Bioactive Peptides, Antihyperglycemic, Cowhide