

INTISARI

POTENSI ANTIDIABETIK DAN ANTIOKSIDAN HIDROLISAT PROTEIN KORO PEDANG PUTIH (*Canavalia ensiformis* (L.) DC) DENGAN ENZIM *PANCREATIN*

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Koro pedang putih (*Canavalia ensiformis* (L.) DC) merupakan salah satu jenis kacang-kacangan yang diketahui memiliki sumber protein nabati yang tinggi yakni sebesar 26,96%. Besarnya kandungan protein tersebut melatarbelakangi pengevaluasian sifat fungsional seperti antidiabetik dan antioksidan dari adanya peptida bioaktif akibat proses hidrolisis secara enzimatis pada koro pedang putih. Tahapan penelitian terbagi beberapa tahapan yaitu perendaman biji koro pedang putih selama 24 jam; penepungan koro pedang putih; penghilangan lipid tepung koro pedang putih; hidrolisis konsentrat koro pedang putih oleh enzim *pancreatin* dengan rasio 1:100 (b/b) dengan waktu hidrolisis 0, 15, 30, 45, 60, 120, dan 240 menit; dan pengujian (protein terlarut, derajat hidrolisis, antidiabetik dan antioksidan).

Hidrolisat protein koro pedang putih yang dihasilkan memiliki nilai derajat hidrolisis yang semakin meningkat seiring peningkatan waktu hidrolisis, persentase derajat hidrolisis tertinggi yaitu sebesar 84,23% pada waktu hidrolisis 240 menit diduga belum mencapai titik optimum. Hidrolisat protein koro pedang putih memiliki aktivitas antioksidan dengan metode DPPH dan FRAP tertinggi yaitu sebesar 46,18% dan 6,00 mg/ml pada waktu hidrolisis 240 menit.

Aktivitas penghambatan enzim α -amilase tertinggi pada waktu hidrolisis 45 menit yakni sebesar 72,68%, sedangkan untuk aktivitas penghambatan α -glukosidase menggunakan IC_{50} , didapat nilai IC_{50} terendah yaitu pada waktu hidrolisis 45 menit yakni sebesar 52,46 μ L/ml. Hidrolisat protein koro pedang putih yang digunakan uji penghambatan α -glukosidase yakni sampel dengan waktu hidrolisis yang memiliki nilai penghambatan α -amilase yang tertinggi yakni 15, 45, dan 60 menit.

Kata kunci: Koro Pedang Putih, Enzim *Pancreatin*, Derajat Hidrolisis, Antioksidan DPPH dan FRAP, Inhibitor Enzim α -amilase dan α -glukosidase

ABSTRACT

ANTIDIABETIC AND ANTIOXIDANT POTENTIAL OF HYDROLYSIS OF JACK BEAN (*CANAVALIA ENSIFORMIS* (L.) DC) PROTEIN HYDROLYZATE WITH *PANCREATIN* ENZYME

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Jack bean (*Canavalia ensiformis* (L.) DC) is one type of beans which is know as high vegetable-based protein source. The amount of protein content implement the evaluation of functional properties such as antidiabteik and antioxidants from the jack bean. Steps of research are divided into several steps, soaking of jack bean seeds in water for 24-hour; the siege of jack bean; fat removal of jack bean flour; jack bean concentrate was hydrolysis by *pancreatin* enzyme with a ratio enzyme to protein 1: 100 (b/b) at time course 0, 15, 30, 45, 60, 120, and 240 minutes; and testing (dissolved protein, degree of hydrolysis, antioxidants and antidiabetic).

Hydrolysis of jack bean protein concentrate had a value of hydrolysis degree which increases with increasing hydrolysis time, The highest percentage of hydrolysis level is 84.23% at the time of 240 minutes hydrolysis is thought to have reached the optimum point. Hidrolysis of jack bean protein hydrolyzate had the highest DPPH and FRAP method antioxidant value of 46.18% and 6.00 mg/ml at 240 minutes hydrolysis.

The highest inhibition value of the α -amylase enzyme at the hydrolysis time of 45 minutes is equal to that for the α -glucosidase inhibition value using IC_{50} , the lowest IC_{50} value is obtained at the time of hydrolysis of 45 minutes which is 52.46 μ L/ml. Hidrolysis of jack bean protein concentrate used by the α -glucosidase inhibition test was the sample with hydrolysis time which had the highest inhibition value of α -amylase which was 15, 45 and 60 minutes.

Keywords: Jack Bean, Pancreatin, Degree of Hydrolysis, DPPH and FRAP Antioxidants, α -amylase and α -glucosidase enzyme inhibitors