

# Uji aktivitas ekstrak biji kacang merah (*Vigna angularis*) sebagai Inhibitor Enzim -Amilase dan Pengaruhnya terhadap kadar glukosa darah postprandial Tikus (*Rattus norvegicus*) Jantan Galur Sprague-Dawley = The Activity of Adzuki Bean (*Vigna angularis*) Extract as an Inhibitor of -Amylase and its Effect on postprandial blood glucose levels of Male Rat (*Rattus norvegicus*) Sprague-Dawley Strain

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## Abstrak

Telah dilakukan penelitian untuk mengetahui aktivitas ekstrak biji kacang merah (*Vigna angularis*) sebagai inhibitor enzim -amilase secara *in vitro* dan *in vivo*. Biji kacang merah (*Vigna angularis*) diekstrak dengan PBS (Phosphate Buffer Saline) kemudian difraksinasi dengan amonium sulfat. Metode *in vitro* dilakukan dengan mengamati persentase inhibisi pada masing-masing fraksi ekstrak. Tahap selanjutnya dilakukan uji *in vivo* dengan metode tes toleransi glukosa oral (TTGO). Hasil persentase inhibisi tertinggi pada uji *in vitro* yaitu terdapat pada fraksi endapan amonium sulfat 0--60% yaitu sebesar 72,39%. Persentase inhibisi pada ekstrak kasar sebesar 52,64%. Uji *in vivo* dilakukan pada ekstrak kasar dengan pertimbangan tidak ada perbedaan persentase inhibisi secara bermakna dibandingkan dengan fraksi endapan ammonium sulfat 0?60%. Tikus dikelompokkan menjadi 5 kelompok, yaitu kelompok kontrol normal, kontrol positif, kontrol negatif, kelompok dosis 1 (600 mg/300 g bb), dan dosis 2 (800 mg/300 g bb). Pengukuran kadar glukosa darah postprandial dilakukan pada menit ke-30, 60, dan 120 setelah pemberian ekstrak. Analisis protein ekstrak kacang merah (*Vigna angularis*) dengan metode SDS-PAGE elektroforesis menunjukkan ukuran protein dari phaseolamin sebesar  $\pm 55,9$  kDa pada setiap fraksi ekstrak. Hasil penelitian uji *in vivo* menunjukkan bahwa ekstrak kasar biji kacang merah (*Vigna angularis*) tidak menunjukkan efek penurunan kadar glukosa darah.

*The research was done in order to determine the activity of a mixture extract adzuki bean (*Vigna angularis*) for -amylase inhibitor by *in vitro* and *in vivo* method. Adzuki bean (*Vigna angularis*) seeds was extracted with PBS (Phosphate buffer saline) and fractionated with ammonium sulphate, then percentage of inhibition of each fraction was observed. *In vivo* study was done with oral glucose tolerance test method. The *in vitro* result showed that highest activity in fractination with ammonium sulphate was founded in saturation level of 0--60%, -amylase were inhibited 72,39 %. Percentage of inhibition of crude extract is 52,64 %. *In vivo* method was done with crude extract because there is no significant difference in the percentage of inhibition with ammonium sulphate fraction. Male rats were divided into five group. They were normal control group, negative control group, positive control group, and the other 2 group given the extract (600 mg/300 g body weight and 800 mg/300 g body weight). Glucose level was measured in 30, 60 and 120 minutes post glucose administration. Electrophoresis analysis of extract by SDS PAGE showed that the size of phaseolamin was  $\pm 55,9$  kDa. The result of this study showed that crude extract of adzuki bean (*Vigna angularis*) has no effect on lowering blood glucose level.*