

**EFEKTIVITAS EKSTRAK ANTOSIANIN BERAS MERAH (*Oryza sativa* L.)
DAN KEDELAI HITAM (*Glycine max* (L) Merr.) DALAM
PENANGGULANGAN HIPERGLIKEMIA TIKUS INDUKSI STZ - NA**

INTISARI

Hiperglikemia merupakan penanda gangguan metabolisme glukosa yang dapat memicu stres oksidatif, diabetes mellitus tipe 2, dan kerusakan berbagai organ. Di sisi lain, beras merah dan kedelai hitam diketahui memiliki efek kesehatan, terutama dalam penanggulangan hiperglikemia. Penelitian ini bertujuan mempelajari efektivitas konsumsi ekstrak antosianin dari beras merah (*Oryza sativa* L. var. Mandel Handayani) dan kedelai hitam (*Glycine max* var. Mallika.) terhadap glukosa darah, kapasitas total antioksidan metode *Ferric Reducing Ability of Plasma* (FRAP), aktivitas enzim superoksida dismutase (SOD), glikogen liver, dan kondisi sel beta pankreas tikus *Sprague Dawley* induksi streptozototin-nikotinamida (STZ-NA). Pengujian dilakukan pada 30 ekor tikus jantan (n=6) yang dibagi menjadi kontrol sehat, kontrol hiperglikemia, dan tiga kelompok hiperglikemia yang disonde 100 mg/kg berat badan antosianin dari beras merah, kedelai hitam, dan campuran (rasio 1:1 b/b) selama 35 hari. Hasil penelitian menunjukkan bahwa konsumsi ekstrak antosianin efektif menurunkan glukosa darah pada kisaran 45,3%-50,9%, menormalkan berat badan dan *feed efficiency ratio* antara 36,42-51,52%, meningkatkan kapasitas total antioksidan plasma sebesar 15,84 – 25,30%, serta menghambat penurunan aktivitas enzim SOD dan glikogen liver masing-masing pada kisaran 16,3 – 54% dan 11,5 – 26,9% dari kondisi normal. Efek sinergis terlihat pada akhir intervensi, yaitu pada kadar glukosa darah dan SOD tertinggi pada kelompok yang diberi ekstrak campuran.

Kata kunci: antosianin, beras merah, hiperglikemia, kapasitas total antioksidan plasma, kedelai hitam

EFFECT OF RED RICE (*Oryza sativa* L.) AND BLACK SOYBEAN (*Glycine max* (L) Merr.) ANTHOCYANIN EXTRACT CONSUMPTION ON STZ-NA INDUCED HYPERGLYCEMIC RATS

ABSTRACT

Hyperglycemia is the symptom for impaired glucose metabolism which leads to oxidative stress, diabetes mellitus type 2, and organs failure. The present study aimed to investigate hypoglycemic effect of anthocyanin extract from aleuron of red rice (*Oryza sativa* L. var. Mandel Handayani) and seed coat of black soybean (*Glycine max* var. Mallika) on glucose level, using *Ferric Reducing Ability of Plasma* (FRAP), antioxidant enzyme superoxide dismutase (SOD) activity, liver glycogen content, and pancreatic beta cell of streptozotocin-nicotinamide induced hyperglycemic 2-months old male *Sprague Dawley* mice. Thirty rats were divided (n=6) into two groups of healthy and hyperglycemic control, and three hyperglycemic groups orally administered with daily dose of 100 mg/kg body weight of anthocyanin extract from red rice, black soybean, and combination at 1:1 (w/w) ratio for 35 days. Results showed that anthocyanin extract consumption significantly reduced blood glucose by 45.3%-50.9%, prevent body weight loss and increase *feed efficiency ratio* by 36,42-51,52%. Total antioxidant capacity was also 15,84 – 25,30% higher, while SOD activity was higher in treated groups, only reduced by 16,3 – 54%, compare to significantly lower results of hyperglycemic group. Synergetic effect was indicated in blood glucose level and SOD activity obtained by anthocyanin-combined treated group.

Keywords: anthocyanin, aleuron of red rice, black soybean, hyperglycemia, total antioxidant capacity