

INTISARI

AKTIVITAS GEN *HSP32* PADA MAKROFAG, HEPAR, DAN REN TIKUS (*Rattus norvegicus* Berkenhout 1769) GALUR WISTAR AKIBAT PEMBERIAN EKSTRAK ETANOLIK KULIT BUAH METE (*Anacardium occidentale* L.)

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Pengolahan kacang mete di Yogyakarta terus meningkat menghasilkan limbah berupa kulit buah. Ekstrak kulit buah mete telah banyak diteliti dan salah satunya berpotensi sebagai agen penurun kapasitas reproduksi betina. Substansi herbal atau sintetis yang masuk ke dalam tubuh berpotensi menyebabkan stres oksidatif pada tubuh. *Heat shock protein 32* (HSP32) atau dikenal sebagai *Heme Oxygenase-1* (HO-1) umum digunakan sebagai marker antioksidan. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak etanolik kulit buah mete terhadap kadar NO plasma dan ekspresi gen HO-1 pada makrofag, hepar, dan ren tikus putih. Tikus galur Wistar betina dibagi menjadi 2 kelompok. Kelompok kontrol (K) diberi CMCNa 0,5% dan kelompok perlakuan (P) diberi ekstrak etanolik kulit buah mete 500 mg/kgbb secara oral dengan jarum kanul setiap hari selama 7 kali siklus estrus lalu diberhentikan 7 siklus berikutnya. Kadar NO plasma diukur menggunakan metode *Griess Assay*. Makrofag, hepar dan ren dikoleksi dalam etanolik 70% sebelum RNA diisolasi. Ekspresi gen HO-1 dianalisis menggunakan metode *Reverse Transcriptase-Polymerase Chain Reaction* (RT-PCR). Hasil analisis data menggunakan SPSS menunjukkan pemberian ekstrak kulit buah mete meningkatkan kadar NO plasma secara signifikan ($P < 0,05$) pada siklus estrus ke 5 dan 7. Pemberian ekstrak etanolik kulit buah mete meningkatkan ekspresi gen HO-1 makrofag dan ren sedangkan pada hepar ekspresi gen HO-1 menurun.

Kata kunci: *Anacardium occidentale*, tikus, stres oksidatif, NO, HO-1

ABSTRACT

GENE EXPRESSION OF HSP32 IN WISTAR STRAIN RAT (*Rattus norvegicus* Berkenhout 1769) MACROPHAGES, LIVER, AND KIDNEYS FOLLOWING ADMINISTRATION OF ETHANOLIC EXTRACT OF CASHEW (*Anacardium occidentale* L.) SHELL

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Cashew processing in Yogyakarta increase continuously and produce shell waste. Potency of cashew shell extract had been researching either it is potential as female antifertility agent. Incoming herbal or synthetic substance into the body can induce oxidative stress. Heat Shock Protein 32 (HSP32) or Heme Oxygenase-1 (HO-1) is general used as antioxidant marker. The aim of this research is to know effect of ethanolic extract of cashew shell on plasma NO and gene expression of HO-1 in albino rat macrophages, liver, and kidneys. Female Wistar albino rats were devide into two groups. Control group (K) was administrated orally with CMCNa 0,5% and treatment group (P) was administrated orally with ethanolic extract of cashew shell 500 mg/kg body weight everyday during 7th estrous cycles. Those treatments were stopped and data retrieval was continued for the next 7th estrous cycles. Plasma NO level is measured by Griess assay method. Macrophages, liver and kidneys are collected into ethanol 70% before RNA were isolated. Gene expression of HO-1 was analyzed by Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR). Data analyzed by SPSS showed that ethanolic extract of cashew shell treatment increased plasma NO level significantly ($P < 0,05$) at 5th and 7th estrous cycles. Administration of ethanolic extract of cashew shell also increased HO-1 gene expression in macrophages and kidneys while it decreased in the liver.

Key words: *Anacardium occidentale*, albino rat, oxidative stress, NO, HO-1