

Pengaruh pemberian ekstrak biji jengkol (archidendron pauciflorum) pada aktivitas spesifik katalase jaringan hati tikus yang diintoksikasi karbon tetraklorida (CCL4) = The effect of jengkol seed extract (archidendron pauciflorum) on catalase specific activity of (CCL4) induced liver injury in rats

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Abstrak

[ABSTRAK

Berbagai penyakit yang disebabkan radikal bebas semakin meningkat khususnya di Indonesia mengingat paparan sinar ultraviolet yang cukup banyak di daerah tropis, pembangunan yang pesat, serta adanya perubahan gaya hidup. Oleh karena itu peran antioksidan eksogen diperlukan untuk membantu antioksidan endogen, seperti enzim katalase, agar terhindar dari stres oksidatif yang ditimbulkan radikal bebas. Jengkol (Archidendron pauciflorum), salah satu tanaman tropis Indonesia, memiliki potensi antioksidan kuat karena memiliki asam jengkolat, yang tersusun dari dua molekul sistein yang dikenal sebagai antioksidan. Selain itu jengkol juga memiliki kandungan antioksidan lain seperti vitamin C dan flavonoid, terutama pada bijinya. Penelitian ini dilakukan untuk mengetahui pengaruh pemberian ekstrak biji jengkol pada aktivitas spesifik katalase jaringan hati tikus. Sebanyak 32 ekor tikus Sprague Dawley dibagi dalam empat kelompok secara acak, yaitu kelompok perlakuan standar, kelompok dengan pemberian ekstrak biji jengkol, kelompok dengan pemberian CCl4 sebagai indikator kerusakan hati, serta kelompok dengan pemberian ekstrak biji jengkol disertai CCl4. Homogenat hati tikus masing-masing kelompok diukur aktivitas spesifik katalase dengan metode Mates. Analisis statistik menunjukkan bahwa ekstrak biji jengkol dapat menurunkan aktivitas spesifik katalase, baik pada hati tikus normal ($p=0.000$) maupun pada hati yang dirusak CCl4, walaupun tidak bermakna ($p=0.832$). Hal tersebut diperkirakan karena gugus sulfhidril (SH) dari sistein yang dibebaskan dari asam jengkolat, yang dapat menginaktivasi kerja enzim katalase.

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ABSTRACT

Free radical-related disease are more increasing especially in Indonesia because of tropical situation there such as ultraviolet and life style changes. Exogen antioxidants are increasingly needed to help endogen antioxidants activity, such as catalase, to avoid oxidative stress induced by free radical exposure. One of Indonesian tropical plant, Jengkol (Archidendron pauciflorum) is believed have strong potential antioxidant source, jengkollic

acid, a compound consisting of two cysteine molecules which has been known as antioxidants, besides, their other known sources of antioxidant: vitamin C, and flavonoid. Research is conducted to find the effect of Jengkol seeds extract towards specific catalase activity of rat's liver. Thirty two Spraguedawley strain rats are divided into four groups: control group, a group given jengkol seeds extract, a negative control group given CCl₄ to show hepatocytes toxicity, and a group given both CCl₄ and jengkol seeds extract. Homogenate of rat liver from each groups are measured for their spesific catalase activity using Mates methods. The result shows jengkol seeds extract reduced specific catalase activity in normal rat liver significantly ($p=0,000$), also in injured liver by CCl₄, although no significant correlation found ($p=0,832$). This finding shows a possible inactivation of catalase enzyme due to sulfhydril (SH) groups from cysteine after being released by jengkolic acid., Free radical-related disease are more increasing especially in Indonesia because of tropical situation there such as ultraviolet and life style changes. Exogen antioxidants are increasingly needed to help endogen antioxidants activity, such as catalase, to avoid oxidative stress induced by free radical exposure. One of indonesian tropical plant, Jengkol (*Archidendron pauciflorum*) is believed have strong potential antioxidant source, jengkolic acid, a compound consisting of two cysteine molecules which has been known as antioxidants, besides, their other known sources of antioxidant: vitamin C, and flavonoid. Research is conducted to find the effect of Jengkol seeds extract towards specific catalase activity of rat's liver. Thirty two Spraguedawley strain rats are divided into four groups: control group, a group given jengkol seeds extract, a negative control group given CCl₄ to show hepatocytes toxicity, and a group given both CCl₄ and jengkol seeds extract. Homogenate of rat liver from each groups are measured for their spesific catalase activity using Mates methods. The result shows jengkol seeds extract reduced specific catalase activity in normal rat liver significantly ($p=0,000$), also in injured liver by CCl₄, although no significant correlation found ($p=0,832$). This finding shows a possible inactivation of catalase enzyme due to sulfhydril (SH) groups from cysteine after being released by jengkolic acid.]