

## Uji penghambatan aktivitas enzim arginase dan penetapan kadar flavonoid total pada ekstrak teraktif kulit batang caesalpinia tortuosa roxb = Arginase enzyme activity inhibition and determination of total flavonoid content on most active caesalpinia tortuosa roxb stem bark extract

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### Abstrak

Penghambatan aktivitas enzim arginase memiliki peranan penting dalam mencegah beberapa penyakit yang berhubungan dengan pembuluh darah. Senyawa flavonoid pada genus *Caesalpinia* diketahui berpotensi dalam menghambat aktivitas enzim arginase. *Caesalpinia tortuosa* Roxb. merupakan salah satu tanaman genus *Caesalpinia* yang belum diketahui potensi penghambatannya terhadap enzim arginase. Penelitian ini bertujuan untuk menguji potensi penghambatan aktivitas enzim arginase secara *in vitro* terhadap ekstrak n-heksana, etil asetat, dan metanol kulit batang *Caesalpinia tortuosa* Roxb menggunakan microplate reader, penetapan kadar flavonoid total melalui metode kolorimetri  $AlCl_3$  serta penapisan fitokimia pada ekstrak teraktif.

Hasil uji potensi penghambatan aktivitas arginase kulit batang *Caesalpinia tortuosa* Roxb. menunjukkan bahwa ekstrak etil asetat dan metanol dapat aktif menghambat aktivitas enzim arginase dengan nilai  $IC_{50}$  berturut-turut 33,81 g/mL dan 11,58 g/mL. Ekstrak teraktif etil asetat dan metanol menunjukkan kadar flavonoid total masing-masing sebesar 7,41 mgQE/gram dan 5,052 mgQE/gram. Skrining fitokimia ekstrak etil asetat dan metanol menunjukkan positif terhadap flavonoid, tanin, dan saponin. Berdasarkan pengujian, dapat disimpulkan bahwa ekstrak etil asetat dan metanol kulit batang *Caesalpinia tortuosa* Roxb. memiliki potensi penghambatan aktivitas enzim arginase. Ekstrak etil asetat memiliki kadar flavonoid total terbesar. Kedua ekstrak teraktif etil asetat dan metanol mengandung senyawa flavonoid, tanin, dan saponin.

.....Inhibition of arginase enzyme activity has an important role in preventing some diseases associated with blood vessels. Flavonoid compounds in *Caesalpinia* family known to potentially inhibit arginase enzyme activity. *Caesalpinia tortuosa* Roxb. is one of caesalpinia plants that haven't been known the potential inhibition to arginase enzyme activity. This study aimed to examine the potential inhibition of arginase enzyme activity by *in vitro* method of n hexane, ethyl acetate and methanol *Caesalpinia tortuosa* Roxb bark extracts by microplate reader, determination of total flavonoid content through  $AlCl_3$  colorimetric method and phytochemical screening on the most active extracts.

The test result from potential inhibition of arginase enzyme on *Caesalpinia tortuosa* Roxb. stem bark showed that ethyl acetate and methanol extracts could actively inhibit the activity of arginase enzyme with  $IC_{50}$  value respectively 33.81 g mL and 11.58 g mL. The most active extracts of ethyl acetate and methanol showed total flavonoid levels 7.41 mgQE gram and 5.052 mgQE gram, respectively. Phytochemical screening from ethyl acetate and methanol extracts showed positive for flavonoids, tannins, and saponins. Based on the test, it can be concluded that ethyl acetate and methanol extracts from *Caesalpinia tortuosa* Roxb. has potential inhibition of arginase enzyme activity. Ethyl acetate extract has the greatest total flavonoid content. The two most active extracts of ethyl acetate and methanol contain flavonoid compounds, tannins, and saponins.