POTENSI RENOPROTEKTIF ESTRAK DAUN BINAHONG *(Anredera cordifolia* (Ten.) Steenis) PADA *ACUTE KIDNEY INJURY*: PENDEKATAN MOLEKULER (*NFKB1, IL6, CD68*) DAN HISTOLOGI PAS

Zahira Shofa

21/474866/BI/10719

Dosen Pembimbing: Prof. Dr. Bambang Retnoaji, S.Si., M.Sc.

INTISARI

Acute kidney injury (AKI) akibat iskemia-reperfusi ginjal (IRI) masih menjadi masalah klinis dengan keterbatasan terapi efektif. Binahong (*Anredera cordifolia*) mengandung fitol, flavonoid, dan saponin yang diketahui memiliki efek antioksidan dan antiinflamasi. Penelitian ini bertujuan mengevaluasi efek renoprotektif ekstrak daun binahong pada model AKI yang diinduksi IRI, dengan analisis parameter kreatinin serum, ekspresi mRNA *Nfkb1*, *Il6*, *Cd68*, gambaran histologi ginjal, serta profil senyawa aktif. Penelitian eksperimental ini menggunakan tikus Wistar jantan yang dibagi dalam lima kelompok: kontrol sham, IRI, dan tiga kelompok perlakuan ekstrak binahong (75, 150, dan 300 mg/kgBB). Induksi AKI dilakukan dengan penjepitan arteri ginjal selama 45 menit diikuti reperfusi. Pemeriksaan kreatinin serum, ekspresi mRNA *Nfkb1*, *Il6*, *Cd68* (RT-PCR), dan histologi ginjal dengan pewarnaan PAS dilakukan. Analisis GC-MS digunakan untuk mengidentifikasi senyawa aktif. Ekstrak daun binahong menurunkan kadar kreatinin serum dan ekspresi mRNA *Nfkb1* serta *Il6* secara signifikan dibanding kelompok IRI. Ekspresi *Cd68* tidak berbeda bermakna antar kelompok. Gambaran histologi ginjal pada kelompok perlakuan menunjukkan perbaikan struktur tubulus dan skor cedera tubulus. Analisis GC-MS menunjukkan fitol sebagai senyawa utama, disertai flavonoid dan saponin. Ekstrak daun binahong (*Anredera cordifolia*) berpotensi sebagai agen renoprotektif pada model AKI akibat IRI melalui mekanisme antiinflamasi dan antioksidan. Fitol, flavonoid, dan saponin diduga berperan penting dalam efek perlindungan ini. Binahong, *Anredera cordifolia*, acute kidney injury, ischemia-reperfusion, NF-κB, IL-6, renoprotektif.

KATA KUNCI : *Acute Kidney Injury, Anredera cordifolia, ischemia-reperfusion*, IL-6, NF-κB, *renoprotektif*

RENOPROTECTIVE POTENTIAL OF BINAHONG LEAF (*Anredera cordifolia* (Ten.) Steenis) IN ACUTE KIDNEY INJURY: MOLECULAR (*NFKB1, IL6, CD68*) AND HISTOLOGY APPROACH

Zahira Shofa

21/474866/BI/10719

Supervisor : Prof. Dr. Bambang Retnoaji, S.Si., M.Sc.

ABSTRACT

Acute kidney injury (AKI) due to renal ischemia-reperfusion injury (IRI) remains a significant clinical problem with limited effective therapies. Binahong (*Anredera cordifolia*) contains phytol, flavonoids, and saponins, which are known to possess antioxidant and anti-inflammatory properties. This study aimed to evaluate the renoprotective effects of binahong leaf extract in an AKI model induced by IRI, through the analysis of serum creatinine levels, mRNA expression of *Nfkb1*, *Il6*, and *Cd68*, renal histological changes, and the profile of active compounds. This experimental study used male Wistar rats divided into five groups: sham control, IRI, and three groups treated with binahong extract (75, 150, and 300 mg/kg BW). AKI was induced by clamping the renal artery for 45 minutes followed by reperfusion. Serum creatinine, mRNA expression of *Nfkb1*, *Il6*, and *Cd68* (RT-qPCR), and kidney histology with PAS staining were evaluated. GC-MS analysis was conducted to identify active compounds. Binahong leaf extract significantly reduced serum creatinine levels and the expression of *Nfkb1* and *Il6* mRNA compared to the IRI group. *Cd68* expression did not differ significantly among the groups. Histological examination of the treatment groups showed improved tubular structure and lower tubular injury scores. GC-MS analysis revealed phytol as the main compound, along with flavonoids and saponins. Binahong leaf extract (*Anredera cordifolia*) has potential as a renoprotective agent in AKI induced by IRI through anti-inflammatory and antioxidant mechanisms. Phytol, flavonoids, and saponins are suggested to play key roles in this protective effect.

KEYWORDS : Acute Kidney Injury, *Anredera cordifolia*, ischemia-reperfusion, IL-6, NF-κB, renoprot