

POTENSI *Ulva lactuca* L. HASIL DEKONTAMINASI LOGAM BERAT SEBAGAI NEFROPROTEKTOR PADA TIKUS PUTIH (*Rattus norvegicus* Berkenhout, 1769) BETINA GALUR WISTAR

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INTISARI

Ulva lactuca L. merupakan makroalga laut yang dikembangkan sebagai bahan pangan fungsional salah satunya karena banyak mengandung antioksidan. Penelitian ini merupakan penelitian lanjutan yang bertujuan untuk mempelajari potensi *Ulva lactuca* L. hasil dekontaminasi logam berat sebagai nefroprotektor pada ginjal tikus putih (*Rattus norvegicus* Berkenhout, 1769) betina galur Wistar. Parameter penelitian ini berupa kadar *Blood Urea Nitrogen* (BUN) dan kreatinin dalam serum darah tikus, serta skoring histopatologis ginjal tikus. Penelitian dilakukan menggunakan metode eksperimental yang terdiri kelompok Kontrol (tikus dicekok akuades), kelompok UA (tikus dicekok *Ulva lactuca* L. alami dosis 1000 mg/Kg BB), dan kelompok UD (tikus dicekok *Ulva lactuca* L. hasil dekontaminasi dosis 1000 mg/Kg BB). Perlakuan diberikan selama 30 hari secara oral. Pada hari ke 33 dilakukan pengambilan darah dan tikus dieutanasia untuk diambil organ ginjal, serta dibuat sediaan histopatologisnya. Data BUN dan kreatinin dianalisis menggunakan uji statistik *One-Way ANOVA* dan *post hoc* Duncan 5%. Histologis ginjal tikus putih dianalisis secara deskriptif komparatif dan metode skoring biner. Kadar BUN kelompok Kontrol, UA, dan UD sebelum dan setelah perlakuan menunjukkan hasil tidak berbeda nyata antar perlakuan ($p > 0,05$). Kadar kreatinin kelompok Kontrol, UA, dan UD sebelum perlakuan menunjukkan hasil tidak berbeda nyata ($p > 0,05$). Adapun setelah perlakuan menunjukkan hasil yang berbeda nyata kelompok UD terhadap Kontrol ($p < 0,05$). Skoring histopatologis menunjukkan adanya kerusakan berupa pelebaran lumen tubulus, akumulasi sel-sel debris dalam lumen, degenerasi sel, vakuolisasi lumen tubulus, dan hilangnya *brush* border. Hasil penelitian menunjukkan bahwa perlakuan *Ulva lactuca* L. alami maupun dekontaminasi logam berat tidak mengganggu fungsi ginjal yang ditunjukkan oleh kadar BUN dan kreatinin pada kisaran normal. Perlakuan *Ulva lactuca* L. hasil dekontaminasi logam berat dengan dosis 1000 mg/Kg BB memberikan gambaran histopatologis ginjal yang cukup baik mendekati kelompok Kontrol.

Kata kunci: BUN, kreatinin, nefroprotektor, *Ulva lactuca* L., tikus putih betina

**POTENTIAL OF HEAVY METAL DECONTAMINATED *Ulva lactuca* L.
AS A NEPHROPROTECTOR IN FEMALE ALBINO WISTAR RATS
(*Rattus norvegicus* Berkenhout, 1769)**

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ABSTRACT

Ulva lactuca L. is one of the marine macroalgae which is developed as a functional food ingredient because it contains lots of antioxidants. This research is a follow-up study aimed at observing the potential of *Ulva lactuca* L. from heavy metal decontamination as a nephroprotector in the kidneys of female Wistar rats (*Rattus norvegicus* Berkenhout, 1769). The research parameters were Blood Urea Nitrogen (BUN) and creatinine levels in rat blood serum, as well as rat kidney histopathology scoring. The research was conducted using an experimental method consisting of the Control Group (rats given aquadest), UA Group (rats given *Ulva lactuca* L. naturally at a dose of 1000 mg/Kg BW), and UD Group (rats fed *Ulva lactuca* L. decontaminated at a dose of 1000 mg/Kg BW). The treatment was given orally for 30 days. On the 33rd day, blood was taken, and the rats were euthanized to collect their kidney organs, and histopathological preparations were made. BUN and creatinine data were analyzed using One-Way ANOVA and Duncan's 5% post hoc statistical test. Kidney histology of albino rats was analyzed by comparative descriptive method and binary scoring. BUN levels in the Control, UA, and UD groups before and after treatment showed no significant differences between treatments ($p > 0.05$). The creatinine levels of the Control, UA, and UD groups before treatment showed no significant difference. Meanwhile, after the treatment, the results showed significantly different results between the UD and Control groups. Histopathological scoring showed damage in the form of widening of the tubular lumen, accumulation of cell debris, cell degeneration, vacuolization of the tubular lumen, and loss of the brush border. The results showed that natural *Ulva lactuca* L. administration and heavy metal decontamination did not interfere with kidney function as indicated by BUN and creatinine levels within the normal range. *Ulva lactuca* L. as a result of heavy metal decontamination at a dose of 1000 mg/Kg BW gave a fairly good histopathological picture of the kidney close to the Control.

Keywords: BUN, creatinine, nephroprotector, *Ulva lactuca*, female Wistar rat