

INTISARI

Gagal ginjal kronis (GGK) merupakan penyakit progresif yang ditandai oleh penurunan fungsi ginjal secara bertahap dan sering disertai fibrosis interstisial sebagai mekanisme utama perburukan penyakit. Hingga saat ini, pilihan terapi yang tersedia masih terbatas pada upaya memperlambat progresivitas penyakit, sehingga diperlukan alternatif terapi yang efektif dan terjangkau. *Portulaca oleracea* L. (krokot sayur) diketahui mengandung senyawa fenolik dan flavonoid dengan aktivitas antioksidan yang berpotensi memberikan efek renoprotektan. Penelitian ini bertujuan untuk mengkaji pengaruh pemberian ekstrak *Portulaca oleracea* terhadap progresivitas fibrosis ginjal pada model GGK tikus 5% subtotal nefrektomi. Penelitian ini menggunakan rancangan eksperimen post test only control group design. Ekstrak *Portulaca oleracea* diperoleh melalui metode Ultrasonic Assisted Extraction menggunakan pelarut etanol 70%, kemudian dikarakterisasi berdasarkan aktivitas antioksidan (nilai IC_{50} metode DPPH), kadar fenolik total, dan flavonoid total. Hewan uji berupa tikus jantan Sprague-Dawley dibagi menjadi kelompok kontrol sham (S), kelompok subtotal nefrektomi (SN), serta kelompok perlakuan ekstrak *Portulaca oleracea* dosis 200 mg/kgBB (EP-200) dan 300 mg/kgBB (EP-300). Parameter fibrosis ginjal dievaluasi melalui ekspresi α -smooth muscle actin (α -SMA) menggunakan imunohistokimia dan fraksi area fibrosis interstisial menggunakan pewarnaan Sirius Red.

Hasil penelitian menunjukkan bahwa ekstrak *Portulaca oleracea* memiliki aktivitas antioksidan kuat dengan nilai IC_{50} sebesar 92,2 μ g/mL, serta kandungan fenolik total sebesar 47,25% b/b dan flavonoid total sebesar 28,11% b/b. Pemberian ekstrak *Portulaca oleracea* pada tikus model GGK menurunkan ekspresi α -SMA dan fraksi area fibrosis ginjal secara signifikan dibandingkan kelompok SN ($p < 0,0001$), dengan efek paling optimal pada dosis 300 mg/kgBB.

Berdasarkan hasil tersebut, dapat disimpulkan bahwa ekstrak *Portulaca oleracea* berpotensi menghambat progresivitas fibrosis ginjal melalui penghambatan aktivasi miofibroblas dan penurunan deposisi kolagen, sehingga berpotensi dikembangkan sebagai agen renoprotektan pada gagal ginjal kronis.

Kata kunci: ***Portulaca oleracea*, gagal ginjal kronis, fibrosis ginjal, 5% subtotal nefrektomi, α -SMA.**

ABSTRACT

*Chronic kidney disease (CKD) is a progressive disorder characterized by a gradual decline in renal function and is frequently accompanied by interstitial fibrosis as a key mechanism underlying disease progression. To date, available therapeutic options are largely limited to slowing disease progression, highlighting the need for effective and affordable alternative therapies. *Portulaca oleracea* L. (purslane) is known to contain phenolic and flavonoid compounds with antioxidant activity that may exert renoprotective effects. This study aimed to evaluate the effect of *Portulaca oleracea* extract on the progression of renal fibrosis in a rat model of CKD induced by 5/6 subtotal nephrectomy.*

*This study employed an experimental post-test only control group design. *Portulaca oleracea* extract was obtained using Ultrasonic-Assisted Extraction with 70% ethanol as the solvent and subsequently characterized based on antioxidant activity (IC_{50} value using the DPPH method), total phenolic content, and total flavonoid content. Male Sprague–Dawley rats were divided into a sham-operated control group (S), a subtotal nephrectomy group (SN), and treatment groups receiving *Portulaca oleracea* extract at doses of 200 mg/kg body weight (EP-200) and 300 mg/kg body weight (EP-300). Renal fibrosis was assessed by evaluating α -smooth muscle actin (α -SMA) expression using immunohistochemistry and the interstitial fibrosis area fraction using Sirius Red staining.*

*The results demonstrated that *Portulaca oleracea* extract exhibited strong antioxidant activity with an IC_{50} value of 92.2 μ g/mL, a total phenolic content of 47.25% w/w, and a total flavonoid content of 28.11% w/w. Administration of *Portulaca oleracea* extract significantly reduced α -SMA expression and renal interstitial fibrosis area fraction compared with the SN group ($p < 0.0001$), with the most pronounced effect observed at a dose of 300 mg/kg body weight.*

*Based on these findings, it can be concluded that *Portulaca oleracea* extract has the potential to inhibit the progression of renal fibrosis by suppressing myofibroblast activation and reducing collagen deposition, indicating its potential development as a renoprotective agent for chronic kidney disease.*

Keywords: ***Portulaca oleracea, chronic kidney disease, renal fibrosis, 5/6 subtotal nephrectomy, α -SMA***