

## INTISARI

**Latar Belakang:** Penyakit ginjal kronis menyebabkan fibrosis ginjal yang memiliki karakteristik adanya fibrosis interstitial, cedera tubulus, dan inflamasi. *Centella asiatica* dilaporkan mempunyai efek hepatoprotektif, tetapi efeknya pada ginjal yang mengalami fibrosis belum diketahui secara mendalam.

**Tujuan penelitian:** Mengkaji efek pemberian ekstrak etanol *Centella asiatica* terhadap ekspresi Snail, Vimentin dan Epithelial Cadherin (E-cadherin) pada mencit dengan model fibrosis.

**Metode Penelitian:** Penelitian ini merupakan penelitian quasi ekperimental dengan *post test only control group design*. Fibrosis ginjal diinduksi dengan menggunakan *Unilateral Ureteral Obstruction* (UUO) pada mencit jantan galur *Swiss Webster* (12-16 minggu, 30-40 gram, n=20). Mencit diterminasi pada hari ke-14. Sebanyak tiga grup mencit dengan UUO diberikan suplemen *Centella asiatica* secara oral dengan dosis 210 mg/kgBB (grup UUO+C1) dan 840 mg/kgBB (grup UUO+C2) sedangkan sham operation (grup SO) digunakan sebagai kontrol. Ekspresi E-cadherin, Snail, dan Vimentin sebagai marker epitel dilihat dengan *Reverse Transcriptase Polymerase Chain* (RT PCR).

**Hasil:** Perlakuan UUO menyebabkan ekspresi gen Snail dan Vimentin lebih tinggi (Snail =  $p < 0,01$  vs SO ; Vimentin =  $p > 0,05$  vs SO) serta ekspresi gen E-cadherin lebih rendah (E-cadherin =  $p > 0,05$  vs SO). Pemberian ekstrak etanol CeA menyebabkan ekspresi gen Snail dan Vimentin lebih rendah (Snail =  $p < 0,01$  vs UUO+C1 ;  $p < 0,05$  vs UUO+C2 ; Vimentin =  $p > 0,05$  vs UUO+C1 ;  $p > 0,05$  vs UUO+C2) serta ekspresi gen E-cadherin lebih tinggi (E-cadherin =  $p > 0,05$  vs UUO+C1 ;  $p > 0,05$  vs UUO+C2).

**Kesimpulan:** Pemberian ekstrak etanol daun pegagan mempengaruhi ekspresi gen Snail namun tidak mempengaruhi ekspresi gen Vimentin dan E-cadherin pada jaringan ginjal.

**Kata Kunci:** Ekstrak etanol pegagan (*Centella asiatica*), Snail, Vimentin, E-cadherin, *Unilateral Ureteral Obstruction* (UUO).

## ABSTRACT

**Background:** Chronic kidney diseases (CKD) cause renal fibrosis that is characterized by interstitial fibrosis, tubular injury, and inflammation. *Centella asiatica* has protective effects on liver tissue, however the effect on renal fibrotic are not well understood.

**Objectives:** To explore the effect of ethanol extract of *Centella asiatica* on Snail, Vimentin, and E-cadherin gene expression in fibrotic model mice.

**Methods:** This research was a quasi experimental research with post test only group design. Renal fibrosis was induced with Unilateral Ureteral Obstruction (UUO) in male Swiss Webster mice (12-16 week, 30-40 gram, n=20). Mice were sacrificed at day 14. Two group of mice were supplemented with 210 (UUO+C1) and 840 (UUO+C2) mg/kgBW of *Centella asiatica* orally, Sham Operation procedure (SO group) are used for control. Mice were sacrificed, kidney were harvested, RNA extracted and CDNA making were performed. Reverse Transcriptase Polymerase Chain Reaction (RT PCR) analysis was used for quantification of Snail, Vimentin, and E-cadherin mRNA gene expression.

**Result:** UUO induced higher expression of Snail and Vimentin gene (Snail =  $p < 0,01$  vs SO; Vimentin =  $p > 0,05$  vs SO) and lower expression of E-cadherin gene (E-cadherin =  $p > 0,05$  vs SO). The ethanol extract administration of *Centella asiatica* showed lower expression of Snail and Vimentin gene (Snail =  $p < 0,01$  vs UUO+C1;  $p < 0,05$  vs UUO+C2; Vimentin =  $p > 0,05$  vs UUO+C1;  $p > 0,05$  vs UUO+C2), and higher expression of E-cadherin gene (E-cadherin =  $p > 0,05$  vs UUO+C1;  $p > 0,05$  vs UUO+C2).

**Conclusion:** *Centella asiatica* extract supplement, attenuated Snail gene expression but not in Vimentin and E-cadherin gene expression.

**Key Word:** Ethanol extract of *Centella asiatica*, Snail, Vimentin, E-cadherin, Unilateral Ureteral Obstruction (UUO).