

## INTISARI

### **PENGARUH PEMBERIAN EKSTRAK ETANOL DAUN YAKON (*Smallanthus sonchifolius*) TERHADAP RASIO FIBROSIS PERIVASKULER DAN ANGKA ERITROSIT PADA MENCIT DENGAN 5/6 NEFREKTOMI SUBTOTAL**

**LATAR BELAKANG :** Penyakit ginjal kronis (PGK) umumnya diikuti dengan terjadinya fibrosis ginjal. Fibrosis menyebabkan defisiensi Epo sehingga terjadi anemia. Proses fibrogenesis disebabkan oleh peningkatan produksi Reactive Oxygen Species (ROS) atau mengalami stress oksidatif. Yakon (*Smallanthus sonchifolius*) dilaporkan memiliki efek antioksidan, namun efeknya pada fibrosis ginjal dan anemia belum diketahui secara mendalam.

**TUJUAN :** Mengkaji pengaruh pemberian ekstrak etanol daun Yakon (*Smallanthus sonchifolius*) terhadap rasio fibrosis perivaskuler dan angka eritrosit pada mencit dengan 5/6 nefrektomi subtotal.

**METODE :** Penelitian ini merupakan penelitian quasi eksperimental dengan *post test only control group design*. Terdapat lima kelompok masing-masing 5 ekor. Kelompok 1 (SO=*sham operation*), kelompok 2 (SN=5/6 nefrektomi subtotal), kelompok 3 (YK 1, mendapat ekstrak etanol daun yakon dengan dosis 98 mg/kgBB), kelompok 4 (YK 2, mendapatkan ekstrak etanol daun yakon dengan dosis 49 mg/kgBB), kelompok 5 (YK 3 ekstrak etanol daun yakon dengan dosis 24,5 mg/kgBB). Pemberian ekstrak yakon dilakukan selama 14 hari. Rasio fibrosis perivaskuler dihitung menggunakan perbandingan luas fibrosis pada area perivaskuler dengan luas vasa, sementara angka eritrosit dihitung dari darah perifer. **HASIL :** Rasio fibrosis perivaskuler kelompok YK 1, YK 2, dan YK 3 lebih rendah dibandingkan dengan kelompok SN ( $p < 0,05$ ). Angka eritrosit kelompok YK 1 dan YK 2 lebih tinggi bermakna dibandingkan dengan kelompok SN ( $p < 0,05$ ).

**KESIMPULAN :** Pemberian ekstrak etanol daun yakon dengan dosis 98, 49 dan 24,5 mg/kgBB menurunkan rasio fibrosis perivaskuler, sedangkan pemberian ekstrak etanol daun yakon dengan dosis 98 dan 49 mg/kgBB meningkatkan angka eritrosit pada mencit yang diberi tindakan 5/6 nefrektomi subtotal

**KATA KUNCI :** CKD, rasio fibrosis perivaskuler, angka eritrosit, ROS, stres oksidatif, ekstrak etanol daun yakon (*Smallanthus sonchifolius*)

## ABSTRACT

### THE EFFECT OF YACON (*Smallanthus sonchifolius*) ETHANOL EXTRACT SUPPLEMENTATION TO PERIVASCULAR FIBROSIS RATIO AND ERYTHROCYTE NUMBER IN MICE WITH 5/6 SUBTOTAL NEPHRECTOMY

**Background :** CKD leads to various changes in renal morphology, mostly fibrosis of the kidney. Fibrosis leads to renal anemia caused by deficiency of Epo. production. Fibrogenesis process involves production of ROS and the presence of oxidative stress. Yacon (*Smallanthus sonchifolius*) had been reported a plant which extract showed antioxidant effect, however there hasn't been considerable amount of informations about yacon's effect towards fibrosis and anemia.

**Objectives:** To explore the effect of ethanol extract of yacon (*Smallanthus sonchifolius*) on the area of perivascular fibrosis and erythrocyte number in 5/6 subtotal nephrectomy mice model.

**Methods:** This research was a quasi experimental research with post test only group design. There were five groups of mice with five mice in each group. Group 1 (SO=sham operation), group 2 (SN=5/6 subtotal nephrectomy), group 3 (YK 1, supplemented with 98 mg/kgBB of yacon extract), group 4 (YK 2, supplemented with 49 mg/kgBB of yacon extract) and group 3 (YK 3, supplemented with 24,5 mg/kgBW of yacon extract). Mice were sacrificed at day 14. The ratio of perivascular fibrosis was counted by comparing the area of fibrosis around the perivascular area with the area of vessel, while erythrocyte number was counted from the sample of peripheral blood.

**Result:** 5/6 SN induced higher ratio of perivascular fibrosis (SN =  $p < 0,05$  compare to SO) and higher erythrocyte number (SN =  $p < 0,05$  compare to SO). The group with ethanol extract administration of yacon (*Smallanthus sonchifolius*) had lower area of perivascular fibrosis (SN =  $p < 0,05$  compare to YK 1 ;  $p < 0,05$  compare to YK 2 ;  $p < 0,05$  compare to YK 3) and higher erythrocyte number (SN =  $p < 0,05$  compare to YK 1 ;  $p > 0,05$  compare to YK 2).

**Conclusion:** Ethanol extract of yacon leaves with 98 mg/kgBB, 49 mg/kgBB and 24,5 mg/kgBB of dose decreased ratio of perivascular fibrosis and ethanol extract of yacon leaves with 98 mg/kgBB, 49 mg/kgBB of dose increased erythrocyte number in renal tissue.

**Key Word:** Ethanol extract of yacon leaves (*Smallanthus sonchifolius*), ROS, oxidative stress, ratio of perivascular fibrosis, erythrocyte number, 5/6 subtotal nephrectomy.