

# Pengaruh Ekstrak Kuda Laut (*Hippocampus comes* L.) terhadap Populasi dan Apoptosis Sel Spermatogenik dan Leydig pada Tikus Jantan yang Diinduksi Depo-Medroksiprogesteron Asetat = Effect of Seahorse (*Hippocampus comes* L.) Extract on Population and Apoptotic of Spermatogenic Cells and Leydig Cell in Rats After Depot Medroxyprogesterone Acetate Induction

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## Abstrak

Kuda laut (*Hippocampus comes* L.) telah digunakan sebagai Jamu di Indonesia yang diduga memiliki efek afrodisiak. Hal ini dilaporkan dalam studi ekstrak kuda laut (EKL) dapat meningkatkan sel spermatogonia, spermatosit, spermatid dan sel Leydig pada mencit. Penggunaan Depo-medroksiprogesteron asetat (DMPA) dapat menginhibisi poros hipotalamus-hipofisis-testis dalam menurunkan testosteron selama 12 minggu. Hal ini menyebabkan spermatogenesis terganggu dan apoptosis sel spermatogenik meningkat. Kemampuan EKL saat ini belum banyak diteliti terkait pengaruhnya pada kajian histologi testikuler terutama populasi sel-sel spermatogenik dan sel Leydig serta apoptosis sel setelah induksi DMPA. Tiga puluh tikus jantan SD diinduksi DMPA 1,25 mg/kgBB pada minggu ke-0 dan 12, kemudian dikelompokkan akuades (K1), CMC 1% (K2), dosis ekstrak 150 mg/kgBB (K3), 225 mg/kgBB (K4) dan 300 mg/kgBB (K5) yang di cekok minggu ke-7 sampai ke-18. Selanjutnya testis diisolasi dan dilakukan pembuatan preparat *hematoxylin and eosin* (H&E) dan immunohistokimia (IHK) ekspresi Fas L. Sel-sel dihitung manual pada mikroskop dan menentukan IHK-skor. Analisis data dengan uji ANOVA dan Kruskal-Wallis. Dosis EKL 150 dan 225 mg/kgBB secara bermakna ( $p < 0,05$ ) meningkatkan populasi sel-sel spermatogenik dan sel Leydig serta menurunkan apoptosis sel dalam ekspresi Fas L selama 18 minggu sehingga dosis tersebut berpotensi dalam meningkatkan fungsi testikuler reproduksi tikus jantan setelah induksi DMPA.

.....The seahorse (*Hippocampus comes* L.) had been used as 'Jammu' which probably have powerful aphrodisiac pharmacological activities. Depot-medroxyprogesterone acetate (DMPA) is a contraceptive drug that can inhibit the hypothalamic-pituitary-testis axis to reduce testosterone levels and could increase cell apoptosis for 12 weeks. In addition to improving testosterone levels, studies in mice reported that seahorse extract (SE) could increase spermatogonia, spermatocytes, spermatids, and Leydig cells, but limited studies are reporting the effects of SE in that population and apoptosis of cells in DMPA induced rats. Thirty male SD rats were induced with DMPA 1,25 mg/kgBW at weeks 0 and 12. Animals were randomly grouped by: aquadest (G1), CMC 1% (G2), SE dose 150 mg/kg BW (G3), SE dose 225 mg/kg bb (G4), SE 300 mg/kg BW (G5), gavage every day at 7-18 weeks. After that, the testis was obtained, and the tissue slide was processed with hematoxylin and eosin (H&E) and observed by immunohistochemistry. Data was collected by manually counting cells and determining H-score and analysed using one-way ANOVA and Kruskal-Wallis test. The reported dose of SE 150 and 225 mg/kg BW significantly increase spermatogenic cells and Leydig cells population also decrease cell apoptosis of Fas L expression, by means potentially increased testicular function in rats after DMPA induction.