

ABSTRAK

PERBAIKAN KERUSAKAN JUMLAH SEL SPERMATOSIT PRIMER, SEL SPERMATID, SEL LEYDIG DAN DIAMETER TUBULUS SEMINIFERUS MENCIT (*Mus musculus* (Linnaeus, 1758)) DENGAN PEMBERIAN EKSTRAK ETANOL DAUN KEMANGI (*Ocimum basilicum* Linn.) AKIBAT INDUKSI DIAZINON

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Diazinon merupakan pestisida golongan *organofosfat* yang umum digunakan dalam bidang pertanian karena efektif membunuh serangga. Namun, paparan diazinon akan menyebabkan efek toksik yang dapat menimbulkan stres oksidatif. Stres oksidatif yang diakibatkan diazinon akan menimbulkan efek neurotoksin pada sistem hipotalamus-hipofisis-gonad yang dapat menyebabkan kerusakan dan penurunan jumlah sel spermatogenik serta penurunan kerja hormon reproduksi sehingga mengganggu proses spermatogenesis. Tanaman kemangi (*Ocimum basilicum* Linn.) berpotensi sebagai tanaman obat yang dapat melindungi sel terhadap kerusakan akibat radikal bebas dan sebagai agen fertilitas karena memiliki senyawa aktif berupa flavonoid, *zinc*, dan arginin. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak daun kemangi terhadap jumlah sel spermatosit primer, sel spermatid, sel Leydig dan diameter tubulus seminiferus mencit (*Mus musculus* (Linnaeus, 1758)) akibat induksi diazinon. Penelitian ini merupakan penelitian eksperimental menggunakan teknik Rancangan Acak Lengkap (RAL) yang terdiri dari 5 kelompok yaitu K₀: (diinduksi *aquabidest*), K₋: (diinduksi diazinon 1,2mg/grBB), P1: (diinduksi diazinon + ekstrak kemangi 3mg/grBB), P2: (diinduksi diazinon + ekstrak kemangi 6mg/grBB), dan P3: (diinduksi diazinon + ekstrak kemangi 9mg/grBB) selama 35 hari. Parameter yang diamati pada penelitian ini adalah peningkatan jumlah sel spermatosit primer, sel spermatid, sel Leydig dan diameter tubulus seminiferus mencit. Data dianalisis menggunakan uji statistik *Oneway* ANOVA dan dilanjutkan dengan uji *posthoc* (Duncan). Hasil analisis menunjukkan bahwa pemberian diazinon dapat menurunkan jumlah sel spermatosit, sel spermatid, sel Leydig dan diameter tubulus seminiferus mencit, pada pemberian ekstrak etanol daun kemangi dapat meningkatkan jumlah sel spermatosit dengan konsentrasi paling efektif 6mg/grBB, sel spermatid dengan konsentrasi paling efektif 9mg/grBB, sel Leydig dengan konsentrasi paling efektif 6mg/grBB, dan diameter tubulus seminiferus dengan konsentrasi paling efektif 3mg/grBB secara signifikan.

Kata Kunci: Daun Kemangi, Diazinon, Stres Oksidatif, Tubulus Seminiferus.

ABSTRACT

REPAIR OF DAMAGE TO PRIMARY SPERMATOCYTES COUNT, SPERMATID CELLS, LEYDIG CELLS AND DIAMETER OF SEMINIFERUS TUBULES IN MICE (*Mus musculus* (Linnaeus, 1758)) BY GIVING ETHANOL EXTRACT OF BASIL LEAVES (*Ocimum basilicum* Linn.) DUE TO DIAZINONE INDUCTION

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Diazinon is an organophosphate class of pesticide commonly used in agriculture which is effective in killing insects. Free radicals and oxidative stress caused by diazinon will cause neurotoxic effects on the hypothalamus-pituitary-gonad system which can cause damage and decrease the number of spermatogenic cells and decrease the work of reproductive hormones, thus disrupting the spermatogenesis process. The basil plant (*Ocimum basilicum* Linn.) has potential as a medicinal plant that can protect cells from damage caused by free radicals and as a fertility agent because it has active compounds in the form of flavonoids, zinc and arginine. This study aims to determine the effect of basil leaf extract on the number of primary spermatocyte cells, spermatid cells, Leydig cells and seminiferous tubule diameter in mice due to diazinon induction. This study is an experimental study using a Completely Randomized Design technique consisting of 5 groups, K0: (induced by aquabidest), K-: (induced by diazinon 1.2mg/grBW), P1: (induced by diazinon+basil extract 3mg/grBW), P2: (induced by diazinon+basil extract 6mg/grBW), and P3: (induced by diazinon+basil extract 9mg/grBW) for 35 days. The parameters observed in this study were the increase in primary spermatocytes count, spermatid cells, Leydig cells and tubules seminiferous diameter of mice. Data were analyzed using *Oneway* ANOVA and Duncan. The results of the analysis showed that diazinon can reduce the number of spermatocyte cells, spermatid cells, Leydig cells and the diameter of the seminiferous tubules of mice, while the adduction of basil leaf ethanol extract can significantly increase the number of spermatocyte cells with the most effective concentration of 6 mg/grBW, spermatid cells with the most effective concentration of 9 mg/grBW, Leydig cells with the most effective concentration of 6 mg/grBW, and the diameter of the seminiferous tubules with the most effective concentration of 3 mg/grBW.

Key words: Basil Leaves, Diazinon, Oxidative Stress, Seminiferous Tubules.