

## EFEK EKSTRAK BUAH KOPI ARABIKA (*Coffea arabica* L.) TERHADAP FERTILITAS TIKUS (*Rattus norvegicus* Berkenhout, 1769) WISTAR JANTAN TERINDUKSI SIKLOFOSFAMID

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### INTISARI

Siklofosfamid merupakan salah satu agen kemoterapi yang sering digunakan. Namun siklofosfamid memiliki efek samping terhadap sel normal termasuk pada sistem reproduksi. Buah kopi Arabika diketahui memiliki antioksidan yang tinggi. Penelitian bertujuan mengetahui pengaruh ekstrak buah kopi Arabika (EBKA) terhadap fertilitas tikus Wistar jantan yang diberi siklofosfamid. Penelitian ini menggunakan tikus Wistar jantan umur 3 bulan ( $\pm$  250 gr), dosis EBKA 250, 1000 dan 1750 mg/kgBB, siklofosfamid dosis 150 mg/kgBB, dan parameter yaitu malondialdehid (MDA), testosteron, kualitas sperma, profil darah, dan tubulus seminiferus. Penelitian menggunakan 20 ekor tikus dibagi dalam 5 kelompok perlakuan yaitu Kontrol (-) (air biasa), Kontrol (+) (siklofosfamid), Perlakuan 1 (siklofosfamid kemudian dosis 250 mg/kgBB), Perlakuan 2 (siklofosfamid kemudian dosis 1000 mg/kgBB), dan Perlakuan 3 (siklofosfamid kemudian dosis 1750 mg/kgBB). Siklofosfamid diberikan pada hari ke-0, sedangkan EBKA diberikan selama 16 hari. Hari ke-0, 8 dan 16 dilakukan pengambilan darah untuk pemeriksaan MDA, testosteron dan profil darah, dieuthanasia dan diambil organ testis, vas deferens dan epididimis. Hasil dianalisis dengan *one way* ANOVA dilanjutkan dengan uji Duncan. Pemberian EBKA dosis 1000 mg/kgBB dengan optimal mampu menurunkan konsentrasi MDA ( $P < 0,05$ ), menaikkan konsentrasi testosteron, jumlah, motilitas, viabilitas sperma, morfologi sperma normal, serta penyempitan lumen dan penebalan epitelium terhadap Kontrol (+) ( $P < 0,05$ ). Selain itu EBKA dosis 250 mg/kgBB meningkatkan jumlah *red blood cell* serta hemoglobin secara optimal terhadap Kontrol (+) ( $P < 0,05$ ). Penelitian ini menunjukkan adanya pengaruh positif pemberian EBKA terhadap konsentrasi MDA dan testosteron, profil darah, kualitas sperma, dan struktur histologi tubulus seminiferus

Kata kunci: Kopi Arabika, siklofosfamid, ROS, fertilitas, profil darah

**EFFECT OF ARABICA COFFEE (*Coffea arabica* L.) FRUIT EXTRACT ON  
THE MALE WISTAR RATS (*Rattus norvegicus* Berkenhout, 1769)  
FERTILITY AFTER CYCLOPHOSPHAMIDE INDUCTION**

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**ABSTRACT**

Chemotherapy is considered the most effective and often used in treating various types of cancer using chemical drugs such as cyclophosphamide. However, cyclophosphamide has side effects that affect normal cells including the reproductive system and blood profile by producing free radical compounds. An antioxidants is known to neutralize the free radicals. Arabica coffee fruit known to have high potent of antioxidants. This study aims to determine effect of whole Arabica coffee fruit extract on the fertility and blood profile of male wistar rats treated with cyclophosphamide. The animal were used have a 3 month old male wistar rat with a weight of  $\pm 250$  gr. The dose of coffee fruit extract is 250, 1000 and 1750 mg/kgBW, cyclophosphamide dose is 150 mg/kgBW, and parameters include malondialdehyde (MDA), testosterone, sperm quality (number, motility, viability, and morphology), histopathology of the seminiferous tubules and blood profile were used. Research design is a completely randomized design. A total of 20 rat were used and divided into 5 treatment groups, namely control (-) given plain water; Control (+) given cyclophosphamide; P1 given cyclophosphamide then extract dose 250 mg/kgBW; P2 given cyclophosphamide then extract dose 1000 mg/kgBW; and P3 given cyclophosphamide then extract dose 1750 mg/kgBW. Cyclophosphamide only given on day 0 in control (+), P1, P2, and P3. Meanwhile, whole coffee fruit extract given once a day for 16 days. Body weight measured on day 0, 8 and 16. On the 8th and 16th day, blood serum taken for testosterone and MDA examination, then euthanized and the testes and epididymis taken for histopathological and sperm examination. The results analyzed by one way ANOVA followed by the Least Significant Difference (LSD) test.

**Keywords:** Coffee Arabica, cyclophosphamide, ROS, fertility, blood profile