

ABSTRAK

Evi Triputri Saragih, NIM 4212520004 (2025). PENGARUH EKSTRAK ETANOL DAUN BOSIBOSI (*Timonius flavescens* (Jacq.) Baker) TERHADAP DISTRIBUSI *Synaptonemal Complex Protein-3* (SCP3) PADA OVARIUM TIKUS PUTIH (*Rattus norvegicus*) YANG DIINDUKSI BPA

BPA merupakan material polikarbonat yang tergolong senyawa berbahaya yang bahkan dalam tingkat rendah dapat menyebabkan kelainan reproduksi, gangguan sistem kekebalan dan kognitif, serta gangguan metabolik pada manusia. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak etanol daun bosibosi (*Timonius flavescens*) terhadap berat badan tikus, berat ovarium, jumlah folikel ovarium (meliputi folikel primordial, folikel sekunder, folikel antral, folikel de Graaf, corpus luteum, dan folikel atresia), serta ekspresi gen SCP3 pada tikus putih (*Rattus norvegicus*) yang diinduksi BPA. Penelitian menggunakan rancangan acak kelompok (RAL) dengan 5 perlakuan masing-masing 5 ulangan pada tikus betina berumur 2 bulan. Hewan didistribusikan secara random ke dalam kelompok kontrol negatif (KN), kontrol positif (KP), Perlakuan 1 (P1), Perlakuan 2 (P2), dan Perlakuan 3 (P3). KN berperan sebagai kontrol normal, sementara kelompok lain diinduksi BPA selama 36 hari pertama dengan dosis 500 µg/kgBB/hari, disusul dengan pemberian EEB 36 hari berikutnya dengan dosis bertingkat yaitu P1 (EEB 125 mg/KgBB), P2 (EEB 250 mg/KgBB) dan P3 (EEB 500 mg/KgBB). Selama penelitian berat badan tikus ditimbang setiap 2 hari, kemudian setelah selesai seluruh perlakuan, tikus dibedah dan berat ovarium ditimbang, kemudian dilakukan pengamatan histologi folikel ovarium melalui pengamatan H&E dan analisis ekspresi gen SCP3 dengan RT-qPCR. Data kemudian dianalisis dengan ANOVA dengan uji lanjut DMRT kecuali berat badan yang dianalisis dengan Repeated Measures ANOVA dengan uji lanjut Tukey HSD serta analisis fold change untuk hasil RT-qPCR. Hasil penelitian menunjukkan bahwa pemberian EEB mempertahankan perkembangan folikel ovarium, serta menghambat aktivitas abnormal SCP3 pada ovarium tikus putih yang diinduksi BPA. Temuan ini mengindikasikan bahwa EEB berpotensi sebagai agen protektif terhadap kerusakan dan fungsi abnormal pada ovarium tikus putih yang diinduksi BPA.

Kata kunci: BPA, daun bosibosi (*Timonius flavescens*), histologi folikel ovarium, ekspresi gen SCP3

ABSTRACT

Evi Triputri Saragih, NIM 4212520004 (2025). The Effect of Bosibosi (*Timonius flavescens*(Jacq.) Baker) Leaf Ethanol Extract on Synaptonemal Complex Protein-3 (SCP3) Distribution in White Rats Ovary (*Rattus norvegicus*) Induced with BPA

Bisphenol A (BPA) is a polycarbonate compound classified as hazardous, which, even at low doses, can cause reproductive disorders, impair the immune and cognitive systems, and disrupt metabolic processes in humans. This study aimed to examine the effects of bosibosi (*Timonius flavescens*) leaf ethanol extract (EEB) on ovarian follicle counts (including primordial, secondary, antral, De Graaf follicles, corpus luteum, and atretic follicles), and SCP3 gene expression in BPA-induced white rats (*Rattus norvegicus*). The experiment employed a Completely Randomized Design (CRD) consisting of five treatment groups with five replications each, using female rats aged two months. Rats were randomly assigned into a negative control (KN), positive control (KP), Treatment 1 (P1), Treatment 2 (P2), and Treatment 3 (P3). KN served as the normal control, while the remaining groups were induced with BPA at a dose of 500 µg/kg body weight/day for the first 36 days, followed by treatment with EEB for the next 36 days at graded doses: P1 (125 mg/kg BW), P2 (250 mg/kg BW), and P3 (500 mg/kg BW). Body weight was recorded every two days throughout the experiment. At the end of the treatment period, the rats were sacrificed, ovarian weights were recorded, ovarian follicle histology was examined using hematoxylin–eosin (H&E) staining, and SCP3 gene expression was analyzed using RT-qPCR. The data were analyzed using ANOVA followed by *Duncan's Multiple Range Test*, except for body weight, which was analyzed using Repeated Measures ANOVA with Tukey HSD as a post-hoc test, and fold-change analysis was performed for RT-qPCR results. The results showed that EEB administration preserved ovarian follicle development and inhibited abnormal SCP3 activity in BPA-induced white rats. These results suggest that EEB has potential as a protective agent against structural damage and functional abnormalities in the ovaries of BPA-exposed rats.

Keywords: BPA, bosibosi (*Timonius flavescens*) leaf, ovarian follicle histology, SCP3 gene expression