

**ANTI-INFLAMMATORY EFFECT OF ECO-
ENZYMES FROM BANANA AND ORANGE FRUIT
PEELS ON CARRAGEENAN-INDUCED MICE**

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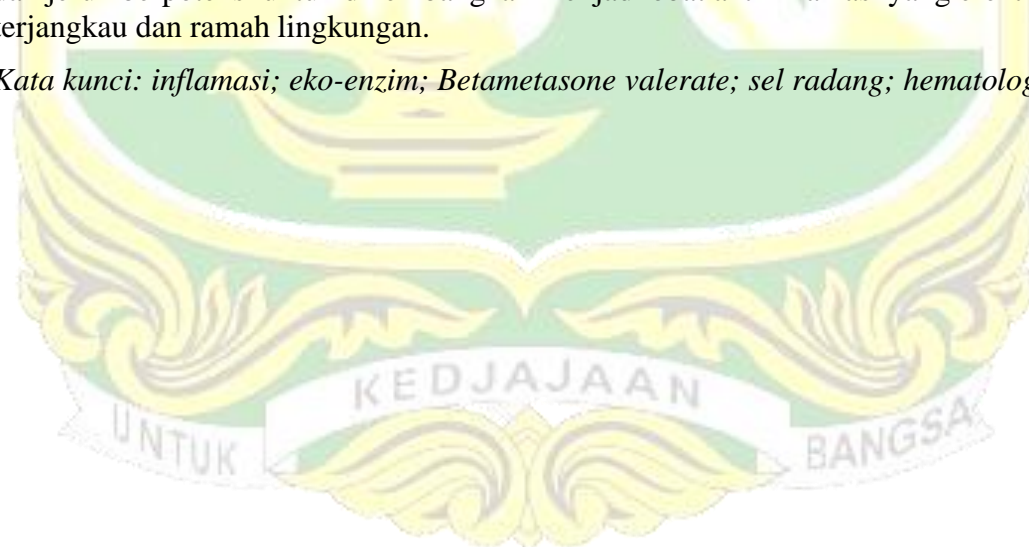
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ABSTRAK

Inflamasi merupakan respon proteksi tubuh terhadap suatu kerusakan jaringan maupun infeksi pathogen. Penggunaan obat antiinflamasi komersil dari golongan steroid dan nonsteroid dalam jangka panjang dapat menimbulkan banyak efek samping. Untuk itu, perlu dikembangkan obat antiinflamasi berbasis bahan alami yang efektif, aman, dan terjangkau. Eko-enzim telah banyak dimanfaatkan dalam berbagai aspek kehidupan. Namun, informasi ilmiah berkenaan dengan potensinya sebagai material obat masih sangat terbatas. Penelitian ini bertujuan untuk mengungkap efektifitas ekoenzim dari kulit buah pisang dan jeruk sebagai antiinflamasi melalui analisis uji eksperimental daya hambatnya terhadap inflamasi, respon hematologi, jumlah sel inflamasi, skor kolagen pada hewan model mencit putih jantan galur BALB/c. Mencit dibagi menjadi lima kelompok perlakuan berbeda yaitu G1 (mencit tanpa induksi inflamasi), G2 (diinduksi zat inflamasi karagenan 1%), G3 (diinduksi karagenan + *Betametasona valetare* 0,1%), G4 (diinduksi karagenan + eko-enzim kulit pisang 200 μ l), dan G5 (diinduksi karagenan + eko-enzim kulit jeruk 200 μ l). Hasil penelitian menunjukkan bahwa eko-enzim dari kulit buah pisang dan jeruk efektifitas dalam menurunkan ketebalan lipatan kulit punggung mencit dan memiliki daya antiinflamasi 24,28 % pada eko-enzim kulit pisang dan mencapai 29,04 % pada eko-enzim kulit jeruk. Pemberian eko-enzim mampu menekan kuantitas leukosit, ketebalan lapisan dermis, jumlah sel radang dan mempertahankan skor kolagen pada kisaran normal. Dengan demikian, temuan ini mengindikasikan bahwa eko-enzim berbasis kulit buah pisang dan jeruk berpotensi untuk dikembangkan menjadi obat antiinflamasi yang efektif, terjangkau dan ramah lingkungan.

Kata kunci: inflamasi; eko-enzim; Betametasona valerate; sel radang; hematologi



ABSTRACT

Inflammation is a positive response of the body against tissue damage or pathogen infection. The use of commercial anti-inflammatory drugs from steroid and non-steroid groups in the long term can cause many side effects. For this reason, it is necessary to develop anti-inflammatory drugs based on natural ingredients that are effective, safe, and affordable. Eco-enzymes have been widely used in various aspects of life. However, scientific information regarding its potential as a medicinal material is still very limited. This study aims to reveal the effect of eco-enzymes from banana and orange peels as anti-inflammatories through experimental analysis of their inhibition of inflammation, hematological response, inflammatory cell count, and collagen score in an animal model of male white mice Balb/c strain. Mice were divided into five different treatment groups namely G1 (mice without induction of inflammation), G2 (induced by carrageenan inflammatory substance 1%), G3 (induced by carrageenan + Betamethasone valerate 0.1%), G4 (induced by carrageenan + banana peel eco-enzyme 200 μ l), and G5 (induced carrageenan + orange peel eco-enzyme 200 μ l). The results showed that eco-enzymes from banana and orange peels were effective in reducing the thickness of mice's dorsal skin folds and had anti-inflammatory power of 24.28% in banana peel eco-enzymes and reached 29.04% in orange peel eco-enzymes. The administration of eco-enzymes was able to suppress the quantity of leucocytes, the thickness of the dermis layer, the number of inflammatory cells and maintain the collagen score in the normal range. Thus, these findings indicate that eco-enzymes from banana and orange peels have the potential to be developed into effective, affordable and environmentally friendly anti-inflammatory drugs.

Keywords: inflammation; eco-enzymes; Betamethasone valerate; inflammatory cells; hematology

