

ABSTRAK

EFEK ANTI-DERMATITIS KRIM EKSTRAK DAUN NANGKA (*Artocarpus heterophyllus*) TERHADAP SKOR KLINIS, KETEBALAN EPIDERMIS, DAN INFILTRASI SEL MAST PADA MENCIT MODEL DERMATITIS ATOPIK

Muhammad Adnan Fauzi
NIM. 22/496469/KH/11260

Dermatitis atopik (DA) merupakan penyakit kulit inflamasi kronis yang ditandai dengan disfungsi sawar kulit dan disregulasi imun Th2. Penelitian ini bertujuan mengevaluasi efektivitas krim ekstrak etanol daun nangka (*Artocarpus heterophyllus*) pada mencit model dermatitis atopik terinduksi 2,4-dinitrochlorobenzene (DNCB). Sebanyak 30 ekor mencit jantan galur Balb/c dibagi secara acak menjadi lima kelompok: kontrol normal, kontrol negatif, kontrol positif, serta kelompok yang diberi krim ekstrak daun nangka konsentrasi 3% dan 5%. Induksi DA dilakukan secara topikal menggunakan DNCB 1% pada fase sensitisasi (hari ke-1, 4, 7) dan DNCB 0,5% pada fase tantangan (hari ke-14, 17, 19, 22, 24, 27, 29). Perlakuan pemberian krim ekstrak daun nangka dilakukan selama 15 hari di dalam fase tantangan. Manifestasi klinis menjadi parameter pertama yang diamati melalui indeks penilaian SCORAD. Setelah evaluasi skor SCORAD selesai, proses terminasi hewan coba dijalankan secara serentak di hari ke-30 untuk isolasi jaringan kulit. Sampel kulit tersebut selanjutnya dipreparasi untuk analisis histopatologi, meliputi pemeriksaan ketebalan epidermis dengan pewarnaan H&E dan densitas infiltrasi sel mast dengan pewarnaan *Toluidine Blue*. Kuantifikasi data ketebalan epidermis beserta infiltrasi sel mast dianalisis menggunakan *software* ImageJ. Secara keseluruhan, parameter evaluasi penelitian mencakup skor SCORAD, tingkat ketebalan epidermis, serta infiltrasi sel mast. Hasil penelitian menunjukkan bahwa krim ekstrak daun nangka secara signifikan mampu memperbaiki kondisi klinis yang ditandai dengan penurunan skor SCORAD serta memperbaiki ketebalan epidermis dan infiltrasi sel mast dibandingkan kontrol negatif ($p < 0,05$). Aplikasi topikal krim ekstrak daun nangka pada konsentrasi 3% dan 5% terbukti menunjukkan kapabilitas yang setara dalam memperbaiki manifestasi klinis, merestorasi ketebalan epidermis, serta menekan infiltrasi sel mast pada mencit model DA terinduksi DNCB.

Kata Kunci: *Artocarpus heterophyllus*, Dermatitis Atopik, DNCB, Hiperplasia Epidermis, Sel Mast.

ABSTRACT

ANTI-DERMATITIS EFFECT OF JACKFRUIT (*Artocarpus heterophyllus*) LEAF EXTRACT CREAM ON CLINICAL SCORES, EPIDERMAL THICKNESS, AND MAST CELL INFILTRATION IN ATOPIC DERMATITIS MOUSE MODELS

Muhammad Adnan Fauzi
NIM. 22/496469/KH/11260

Atopic dermatitis (AD) is a chronic inflammatory cutaneous disorder characterized by skin barrier dysfunction and Th2 immune dysregulation. This study aimed to evaluate the efficacy of jackfruit leaf (*Artocarpus heterophyllus*) ethanolic extract cream in a 2,4-dinitrochlorobenzene (DNCB)-induced BALB/c mouse model of atopic dermatitis. A total of 30 male BALB/c mice were randomly allocated into five groups: normal control, negative control, positive control, and treatment groups receiving jackfruit leaf extract cream at concentrations of 3% and 5%. AD induction was performed topically using 1% DNCB during the sensitization phase (days 1, 4, and 7) and 0.5% DNCB during the challenge phase (days 14, 17, 19, 22, 24, 27, and 29). The jackfruit leaf extract cream treatment was administered for 15 days during the challenge phase. Clinical manifestations were the first parameter evaluated using the SCORAD assessment index. Following the SCORAD score evaluation, simultaneous animal termination was carried out on day 30 for skin tissue isolation. The skin samples were subsequently prepared for histopathological analysis, including the measurement of epidermal thickness via H&E staining and mast cell infiltration density via Toluidine Blue staining. Quantitative data of epidermal thickness and mast cell infiltration were analyzed using ImageJ software. Overall, the research evaluation parameters encompassed the SCORAD score, epidermal thickness, and mast cell infiltration. The results demonstrated that the jackfruit leaf extract cream significantly improved clinical conditions, as characterized by a decrease in SCORAD scores, and ameliorated epidermal thickness and mast cell infiltration compared to the negative control group ($p < 0.05$). Topical application of the jackfruit leaf extract cream at both 3% and 5% concentrations demonstrated comparable capability in improving clinical manifestations, restoring epidermal thickness, and suppressing mast cell infiltration in this DNCB-induced mouse model of AD.

Keywords: *Artocarpus heterophyllus*, *Atopic Dermatitis*, *DNCB*, *Epidermal Hyperplasia*, *Mast Cell*.