

# Efek pemberian ekstrak etanol 70% daun babandotan (*ageratum conyzoides* L.) terhadap TNF- dan parameter hematologi darah pada tikus artritis reumatoid yang diinduksi complete freund's adjuvant = The effect of 70% ethanolic extract of babandotan (*ageratum conyzoides* L.) leaves on TNF- and haematological parameters in rheumatoid arthritis rats induced by complete freund's adjuvant

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## Abstrak

Artritis reumatoid merupakan penyakit autoimun yang ditandai dengan inflamasi kronik pada daerah persendian. Daun babandotan terbukti memiliki khasiat dalam terapi inflamasi. Tetapi belum ada data terkait efeknya terhadap artritis reumatoid sehingga dapat dijadikan alternatif terapi artritis. Penelitian ini bertujuan untuk mengetahui efek antiartritis ekstrak etanol 70% daun babandotan diamati dari volume edema kaki tikus yang diinduksi complete freund's adjuvant, serta pengaruh ekstrak terhadap kadar TNF- dan parameter hematologi darah diamati dari jumlah leukosit, limfosit, granulosit, hemoglobin, eritrosit, dan mean cells volume of RBCs (MCV). Penelitian ini menggunakan 30 tikus putih jantan Sprague-Dawley, dibagi menjadi 6 kelompok. Kelompok kontrol normal dan negatif diberikan CMC 0,5%, kelompok kontrol positif diberikan suspensi metotreksat 0,05 mg/200 g bb, kelompok variasi dosis ekstrak diberikan 6,48 mg; 12,96 mg; dan 25,92 mg/200 g bb. Semua kelompok diinduksi 0,1 ml CFA pada hari ke-1 kecuali kelompok kontrol normal. Bahan uji diberikan satu kali sehari secara oral pada hari ke-29 sampai hari ke-49. Pengukuran volume telapak kaki dilakukan pada hari ke- 1, 29, dan 50. Perhitungan parameter hematologi dilakukan pada hari ke-29 dan 50, serta uji kadar TNF- dilakukan pada hari ke-50. Hasil yang diperoleh menunjukkan bahwa pemberian ekstrak etanol 70% daun babandotan, mampu menurunkan volume edema, kadar TNF-, jumlah leukosit, limfosit, dan granulosit pada kelompok dosis 25,92 mg/200 g BB melalui mekanisme penghambatan sitokin inflamasi seperti TNF-. Namun pemberian bahan uji tidak signifikan dalam mempengaruhi jumlah hemoglobin, eritrosit, dan MCV.

.....Rheumatoid arthritis is an autoimmune disease characterized by chronic inflammation in joints. Babandotan leaves is proven to be used in inflammation therapy, but there is yet any data regarding the effects of the leaves on rheumatoid arthritis. At the same time, the extract can be an alternative arthritis therapy. The aim of this research is to determine the anti-arthritic effect of 70% ethanolic extract of babandotan leaves in terms of reduction in edema volume on rat paw induced by complete freund's adjuvant (CFA), and the effect of extract to TNF- and haematological parameters observed the number of leukocytes, lymphocytes, granulocytes, haemoglobin, erythrocytes, and mean cells volume of RBCs (MCV). This research used white male Sprague-Dawley rats which were divided into 6 groups; normal control and negative control groups, both given 0.5% CMC; positive control group, given methotrexate suspension 0.05 mg/200 g bw; the dose variation extract are 6.48 mg; 12.96 mg; 25.92 mg/200 g bw. All the groups were induced with 0.1 ml CFA on day-1, except normal control group. Test material were administered orally once daily on days-29 to 49. Foot-pad volume measurements were performed on days-1, 29, and 50. The number of leukocytes, lymphocytes, granulocytes, haemoglobin, erythrocytes, and mean cells volume of RBCs (MCV) were counted on days-29 and 50, and TNF- assay were counted on days-50. The results

showed that the 70% extract ethanolic of babandotan leaves with a given dose variation have been able decrease edema volume, TNF-, the number of leukocytes, lymphocytes, granulocytes at 25.92 mg/200 g bw dose groups by inhibit cytokins inflammation. However, administration of the test materials did not significantly influence the number of haemoglobin, erythrocytes, mean cells volume of RBCs (MCV).