



# ANTIINFLAMMATORY EFFECT OF BETA-BETA (*Lunasia amara*) in WISTAR RATS

Hasnaeni<sup>1,4\*</sup>, Sudarsono<sup>1</sup>, Nurrochmad A<sup>2</sup>, Widyarini S<sup>3</sup>, Selpida<sup>4</sup>

<sup>1</sup> Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Gadjah Mada, Sekip Utara Yogyakarta, Indonesia-55281

<sup>2</sup> Department of Pharmacology and Clinical Pharmacy, Faculty of Pharmacy, Universitas Gadjah Mada, Sekip Utara Yogyakarta, Indonesia-55281

<sup>3</sup> Department of Pathology Anatomy, Faculty of Veterinary Medicine, Universitas Gadjah Mada, Karangmalang Yogyakarta, Indonesia-55281

<sup>4</sup> Faculty of Pharmacy, Universitas Muslim Indonesia, Urip Sumoharjo Makassar, 90231

\* E-mail of corresponding authors : hasnaeniyahya@yahoo.co.id

## ABSTRACT

**Introduction.** The Beta-beta (*Lunasia amara*) extract is being used orally and topically in traditional Indonesia for the treatment of leg swelling, skin diseases and inflammation or irritation of the eyes. The anti-inflammatory effect of beta-beta wood were tested in rats induced Complete Freund's Adjuvant (CFA) 0,1%.

**Aim.** Test the effect anti-inflammatory of beta-beta wood (*Lunasia amara*) in Wistar rats.

**Methods.** Anti-inflammatory effects of beta-beta was observed at the foot of Wistar rats induced Complete Freund's Adjuvant (CFA). Animals were divided into 6 groups with each group consisting of 6 animals: the group given extract beta-beta at a dose of 5 mg/kg body weight (BW) and 10 mg/kg BW, group given a fraction of beta-beta and a control group that controls positive, normal controls and negative controls. Antiinflammatory effect was observed through a decrease in volume of edema in rats induced foot CFA. Edema volume measurements using a pletismometer.

**Results.** Beta-beta wood has anti-inflamantory effect in Wistar rats induced CFA. The measurement results between the group given the extract and the fraction of the beta-beta wood compared with diclofenac sodium control group showed no significant difference ( $p < 0,05$ ).

**Conclusion.** Beta-beta wood (*Lunasia amara*) has anti-inflammatory effects in Wistar rats.

**Keyword :** Anti-inflammatory, beta-beta (*Lunasia amara*), Wistar rats, Complete Freund's adjuvant (CFA), pletismometer

## INTRODUCTION

Inflammation is a condition characterized by swelling, heat, redness, pain and dysfunction. In general, the inflammatory reaction is common in patients with rheumatoid arthritis and osteoarthritis. There has been no systematic research on the prevalence, spectrum and patterns of chronic joint disease, but are common causes the onset of disability in adults in developing countries (1). One attempt to cure this disease is to reduce inflammation by using anti-inflammatory (2; 3).

Beta-beta wood is one of those plants that have potential as an anti-inflammatory drug. In South Sulawesi beta-beta wood or sanrego especially in Bone regency, Sanrego or beta-beta wood (*Lunasia amara*) known as a tonic in men (aprodisia) (4). Study of pharmacological activity of beta-beta wood plants are lacking, but the pharmacological activity in particular as anti-inflammatory variety of plant species has been widely studied family Rutaceae.

**METHODS :** Anti-inflammatory effects of beta-beta was observed at the foot of Wistar rats induced Complete Freund's Adjuvant (CFA). Animals were divided into 6 groups with each group consisting of 6 animals: the group given extract beta-beta at a dose of 5 mg/kg body weight (BW) and 10 mg/kg BW, group given a fraction of beta-beta and a control group that controls positive, normal controls and negative controls. Antiinflammatory effect was observed through a decrease in volume of edema in rats induced foot CFA. Edema volume measurements using a pletismometer.

## RESULT

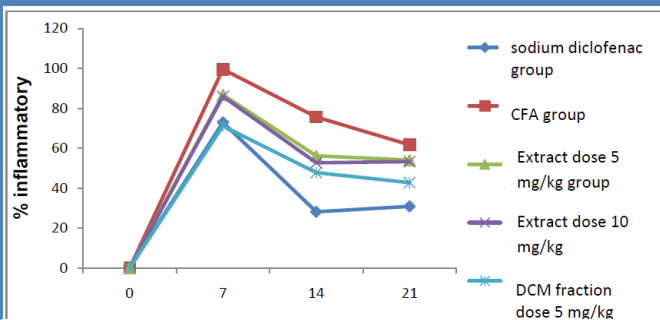


Figure 1. Curve percentage inflammation of ethanol extract and fractions dichloromethane beta-beta wood / sanrego (*Lunasia amara*) induced CFA 0.1% for 21 days (n = 6)

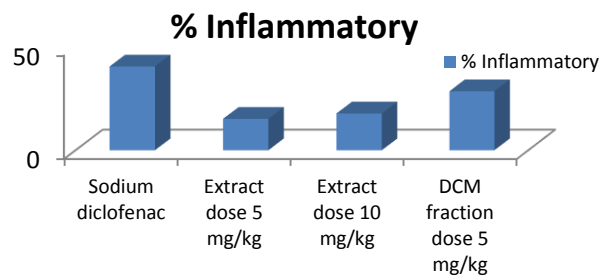


Figure 2. Charts the percentage antiinflammatory of extracts and fractions beta-beta wood/ sanrego (*Lunasia amara*) in Wistar rats induced by CFA 0.1% for 21 days (n = 6)  $p > 0,05$

**CONCLUSION:** Beta-beta wood (*Lunasia amara*) has anti-inflammatory effects in Wistar rats. Percentage antiinflammatory effect of beta-beta wood / sanrego (*Lunasia amara*) increased with increasing concentrations.

## REFERENCES :

1. Wambugu, S. N., Mathiu, P. M., Gakuya, D. W., Kanui, T. I., Kabasa, J. D., dan Kiama, S. G., 2011. Medicinal plants used in the management of chronic joint pains in Machakos and Makueni counties, Kenya. *J. Ethnopharmacol.*, **137**(2), 945–955.
2. Basirun., 2010. Efek antiinflamasi Ekstrak Daun dan Bunga Kitold (*Isotoma longiflora* Presl.) Terhadap Inflamasi buatan pada tikus putih jantan galur Wistar. *Tesis*, Universitas Gadjah Mada.
3. Cai, X., Zhou, H., Wong, Y. F., Xie, Y., Liu, Z. Q., Jiang, Z. H., 2005. Suppressive effects of QFGJS, a preparation from an anti-arthritis herbal formula, on rat experimental adjuvant-induced arthritis. *Biochem. Biophys. Res. Commun.*, **337**(2), 586–594.
4. Hegnauer, R., 1969. *Chemotaxonomi der Pflanzen*, edisi V. Birkhauser Verlag. Basel and Stuttgart
5. Arnida, Imono AD, Subagus W., (2003), Isolasi fraksi aktif afrodisiaka dari kayu Sanrego (*Lunasia amara* Blanco), *MFI*, **14**(4): 195-200.
6. Ratheesh, M., Sindhu, G., dan Helen, A., 2013. Anti-inflammatory effect of quinoline alkaloid skimmianine isolated from *Ruta graveolens* L. *Inflamm. Res.*, **62**(4), 367–376.
7. Hu, J., Shi, X., Mao, X., Chen, J., Zhu, L., dan Zhao, Q., 2013. Antinociceptive activity of Rhoifoline A from the ethanol extract of *Zanthoxylum nitidum* in mice. *J. Ethnopharmacol.*, **150**(3)
8. Kumar, K., Ganesh, M., Baskar, S., Srinivasan, K., Kanagasabai, R., Sambathkumar, R., dkk., 2006. Evaluation of Anti-inflammatory activity and toxicity studies of Chloroxyton sweetenia in Rats. *Anc. Sci. Life*, **25**(3-4), 33–43

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