

Full Length Research Paper

Pharmacological Activities of *Plectranthus scutellarioides* (L.) R.Br. Leaves Extract on Cyclooxygenase and Xanthine Oxidase Enzymes

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Plectranthus scutellarioides (L.) R.Br. (family Lamiaceae) has been widely used in West Java, Indonesia, to cure various diseases. People boiled the leaves of the plant in water and consumed the tea daily until the symptoms reduced. This work was conducted to study the pharmacological activity of *P. scutellarioides* (L.) R.Br. extract on cyclooxygenases (COXs) and xanthine oxidase (XO) enzymes. The plant was purchased from Manoko plantation in Lembang, West Java, Indonesia. The leaves were sundried, crushed, and soaked in ethanol for 3 × 24 h, prior to be used. The extraction was continued further using ethyl acetate and water. Inhibitory activity of the extract on COXs was performed by measuring the absorbance of reduced-tetramethyl-*p*-phenyldiamine (TMPD) at 590 nm, which correlates to the level of PGH₂ production, while its inhibitory on XO was measured at 290 nm. *P. scutellarioides* (L.) R.Br. leaves extracts (ethanolic, ethyl acetate, and water) showed inhibition on COX-1 and COX-2 enzymes (40.43% for COX-1 and 97.04% for COX-2), while on XO, the water extract showed the highest inhibition (IC₅₀ water extract = 6 µg/ml; IC₅₀ allopurinol = 0.15 µg/ml). This plant could be further proposed as XO and nonselective COX inhibitors.

Key words: Anti-inflammatory, cyclooxygenase (COX), gout, non-steroidal anti-inflammatory drugs (NSAIDs), prostaglandin, prostaglandin H₂ (PGH₂), xanthine oxidase (XO).

INTRODUCTION

The inflammatory response protects the body against infection and injury but it could become disregulated with deleterious consequences to the host. It is now evident

that endogenous biochemical pathways activated during defense reactions can counter-regulate inflammation and promote resolution. Hence, resolution is an active rather

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