ABSTRACT

Analgesic Antiinflammatory Activity Test of (*E*)-3-(4-methoxyphenyl)-*N*-(phenylcarbamothioyl)acrylamide and (*E*)-3-(4-methoxyphenyl)-*N*-(*p*-tolylcarbamothioyl)acrylamide (Structure Modification Result of Ethyl p-methoxycinnamate from Kaempferia galangan Rhizoma)

Inflammatory pain was healed by Nonsteroid anti-inflammatory drugs (NSAIDs). The mechanism activity of NSAIDs undergo cyclooxigenase enzyme (COX) inhibitory which have role on prostalgalandin biosyntesis. Cyclooxigenase enzymes have two isoforms called COX-1 and COX-2. COX-2 selective inhibitor has been developing to heal inflammatory pain which is least at adverse effect on GIT and bleeding. On the same way, structure modification of EPMS as a COX-2 inhibitor had done and produce this two compound which are (*E*)-3-(4-methoxyphenyl)-*N*-(phenylcarbamothioyl)acrylamide and (*E*)-3-(4-methoxyphenyl)-*N*-(*p*-tolylcarbamothioyl)acrylamide. Both of these compounds were estimated to have a COX-2 inhibitory activity based on their pharmacophore.

The present study was design to prove analgesic antiinflammatory activity of (*E*)-3-(4-methoxyphenyl)-*N*-(phenylcarbamothioyl)acrilamide and (*E*)-3-(4-methoxyphenyl)-*N*-(*p*-tolylcarbamothioyl)acrilamide and compare the activity of these compound. A model of inflammatory pain-like state were induced by intraplantar injection of Complete Freund's Adjuvant (CFA). Then, either (*E*)-3-(4-methoxyphenyl)-*N*-(phenylcarbamothioyl)acrylamide or (*E*)-3-(4-methoxyphenyl)-*N*-(*p*-tolylcarbamothioyl)acrylamide was administered orally once daily for 7 consecutive daya at 50, 100, 200 mg/kg bw. Administrasion starting on day 7^{th} to day 13^{th} after injection CFA. Hyperalgesia was measured on day 0, 1^{st}, 3^{rd}, 5^{th}, 7^{th}, 8^{th}, 10^{th}, 12^{th}, 14^{th}, and 21^{st} after CFA injection. The end-point of hyperalgesia measuring whether it is paw-licking or jumping. Besides hyperalgesia, parameter used in inflammatory pain-like state was ipsilateral sites of paw thickness.

(*E*)-3-(4-methoxyphenyl)-*N*-(phenylcarbamothioyl)acrylamide and (*E*)-3-(4-methoxyphenyl)-*N*-(*p*-tolylcarbamothioyl)acrylamide at dose 50, 100, 200 mg/kg bw. could increase mice's latency on thermal stimulation and reduce paw thickness compared with placebo significantly ($p \leq 0.001$ for dose 50, 100, 200 mg/kg bw). Whereas, both activity of (*E*)-3-(4-methoxyphenyl)-*N*-(phenylcarbamothioyl)acrylamide and (*E*)-3-(4-methoxyphenyl)-*N*-(*p*-tolylcarbamothioyl)acrylamide have no significantly increase mice's latency on thermal stimulation as well as reduce paw thickness ($p > 0.05$).

These results prove that both (*E*)-3-(4-methoxyphenyl)-*N*-(phenylcarbamothioyl)acrylamide and (*E*)-3-(4-methoxyphenyl)-*N*-(*p*-tolylcarbamothioyl)acrylamide have analgesic antiinflammatory activity in the inflammatory pain-like state.

Keyword : **Analgesic antiinflammatory activity, (*E*)-3-(4-methoxyphenyl)-*N*-(phenylcarbamothioyl)acrylamide, (*E*)-3-(4-methoxyphenyl)-*N*-(*p*-tolylcarbamothioyl)acrylamide, EPMS, CFA**