

Anti-inflammatory activity of combination of ethanol extracts of ginger (*Zingiber officinale*) and bangle (*Zingiber cassumunar*) in carrageenan-induced rats

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Abstract	<p>Background: Inflammation is an essential innate immune response aimed at antigen elimination and preventing their spread. Ginger (<i>Zingiber officinale</i>) and bangle (<i>Zingiber cassumunar</i>) rhizomes have been empirically utilized as medicinal components due to their anti-inflammatory potential. However, the combined efficacy of these rhizomes has not been previously explored. Objective: This study aimed to assess the anti-inflammatory activity of a combination of ginger and bangle rhizome extracts. Method: Ginger and bangle rhizomes were individually subjected to extraction through maceration with 96% ethanol, followed by purification with n-hexane. The anti-inflammatory activity was evaluated via motility tests on subjects administered orally with 1% CMC-Na (control), diclofenac sodium (4.5 mg/kg body weight), ginger ethanol extract (200 mg/kg body weight), bangle ethanol extract (400 mg/kg body weight), and a combination of both extracts (100:200 mg/kg body weight). Observations were made over 6 hours, with motility scores subsequently analyzed using ANOVA and the LSD test for statistical significance. Results: Treatments involving ginger extract, bangle extract, and their combination significantly improved motility scores compared to the negative control. Furthermore, these treatments displayed no significant difference in effectiveness compared to the diclofenac sodium group ($p > 0.05$). Conclusion: The combined ethanol extracts of ginger and bangle rhizomes demonstrate anti-inflammatory activity comparable to diclofenac sodium, as evidenced by motility score evaluations. This suggests their potential as alternative anti-inflammatory agents.</p>
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