

Formulation of Herbal Anti-Inflammatory Cream Combining *Barringtonia racemosa*, *Curcuma longa* and *Phyllanthus amarus* Extracts

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Phyllanthus amarus, *Barringtonia racemosa* and *Curcuma longa* are well-known herbal plants with anti-inflammatory activity that are used in traditional medicine. An attempt was made first to determine the *in-vitro* anti-inflammatory activity of the combination of methanolic extracts of dried leaves *P. amarus* and *B. racemosa* and fresh juice of *C. longa* rhizome first and then to formulate a cream incorporating the best combination. Anti-inflammatory activity was measured by observing heat-induced egg albumin denaturation while keeping diclofenac sodium as a positive control. The methanolic extracts of leaves *P. amarus* and *B. racemosa* and fresh juice of rhizomes of *C. longa* have been shown 53.86 %, 57.21% and 57.53% inhibition of protein denaturation at the concentration of 1 mg/mL individually, but the combination of extracts in the ratio of 1:1:8 showed inhibition of 66.73%. The selected combination was then incorporated into the formulated cream and the anti-inflammatory activity, physicochemical characteristics and stability were measured. 5.0% (w/w) herbal cream exhibited an inflammatory activity of about 41.31% upon testing and showed stability for about one month. A combination of plant extract has augmented their anti-inflammatory effects than using them alone and the developed herbal cream may be a cost-effective alternative for locally applied anti-inflammatory formulations available.

Keywords: anti-inflammatory activity, *Barringtonia racemosa*, *Curcuma longa*, *Phyllanthus amarus*, herbal cream