

In Vitro Anti-Inflammatory Activity of Guduchyadi Taila and Its Individual Ingredients

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Guduchyadi Taila is a traditional formulation used in treating Vatarakta (gouty arthritis). This formulation is prepared by incorporating of *Tinospora cordifolia* (Rasakinda), cow milk, sesame oil, and water. This study aimed to evaluate the in vitro anti-inflammatory activities of Guduchyadi Taila and its ingredients using egg albumin denaturation assay and heat-induced red blood cell (HRBC) stabilisation assay. *T. cordifolia*, along with cow milk and sesame oil, was used in the preparation of Guduchyadi taila, according to the standard methods mentioned in Ayurvedic Pharmacopoeia of Sri Lanka. The in vitro anti-inflammatory activity of the Guduchyadi taila and its ingredients (decoction of *T. cordifolia* stem, cow milk, sesame oil) was evaluated using the egg albumin denaturation assay and the HRBC membrane stabilization assay, with diclofenac sodium as the reference drug. Statistical analysis was performed using one-way ANOVA followed by Tukey's Honestly Significant Difference post hoc test. In egg albumin denaturation assay, *T. cordifolia* decoction, cow milk, sesame oil, Guduchyadi taila, and diclofenac sodium showed IC₅₀ values of 685.6, 3664, 1694, 565.3 and 780.4 µg/ml, respectively. In the HRBC membrane stabilisation assay, *T. cordifolia* and Guduchyadi Taila had IC₅₀ values of 683.1 and 658.5 µg/ml, respectively, while sesame oil and cow milk (1414 and 3788 µg/ml, respectively) displayed much weaker activity. The anti-inflammatory activity of *T. cordifolia* and Guduchyadi Taila was comparable with the standard drug ($P > 0.05$), while cow milk and sesame oil had significantly weaker activity compared to Guduchyadi Taila and diclofenac sodium ($P < 0.05$). The present study demonstrated the in vitro anti-inflammatory activity of the traditional formulation Guduchyadi Taila. Decoction of *T. cordifolia* stem showed in vitro anti-inflammatory activity indicating its potential as a promising source for novel anti-inflammatory agents. A novel topical formulation will be prepared using the ingredients of Guduchyadi Taila.

Keywords: Guduchyadi taila, *Tinospora cordifolia*, egg albumin denaturation assay, heat-induced red blood cell membrane stabilization assay