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Anti-arthritic activity of *Boswellia serrata* extract in complete Freund's adjuvant induced arthritis

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Objectives: Rheumatoid Arthritis (RA) is a chronic progressive inflammatory disease that affects the multiple joints in symmetric pattern. The worldwide prevalence of RA is about 1% while in India it is approximately 0.75%. The current therapy for RA includes non-steroidal anti-inflammatory drugs, corticosteroids, disease modifying anti-rheumatic drugs and some recently developed biologic agents, but all of these are associated with adverse effects. Some herbal drugs such as *Boswellia serrata* has been reported to possess anti-inflammatory activity. So, to develop a safer alternative therapy for RA, we planned the study to evaluate the anti-arthritic activity of *Boswellia serrata* Extract (BSE) in Complete Freund's Adjuvant (CFA) induced arthritis in rats.

Material & Method: 36 Wistar rats were divided into six equal groups. RA was induced by intradermal injection of 0.1 ml CFA in hind paw in five groups while one group was kept as non-arthritic control. Among five arthritic groups, indomethacin (3 mg/kg) in one group and BSE (45, 90 and 180 mg/kg) in three groups were given (dissolved in distilled water) by gavage. The remaining one group was given distilled water only and kept as arthritic control. Body weight, ankle diameter, paw thickness, paw volume, arthritic index, TNF- α and histopathological examination were assessed. The experimental data were statistically assessed by one-way ANOVA.

Result: BSE at dose 180 mg/kg showed significant improvement in body weight and decrease in ankle diameter, paw thickness and arthritic index ($p < 0.05$), however, there was insignificant change in paw volume ($p = 0.056$). This improvement was comparable with indomethacin. The level of TNF- α did not show any significant change ($p = 0.076$). Histopathological results also exhibited reduction in inflammatory parameters.

Conclusion: BSE might have be useful as an adjunct to conventional therapy of RA.

Biography

Anil Kumar Saksena is a Professor at King George's Medical University, Lucknow, India. His study mainly aims at pharmacology, therapeutics, natural products and phytochemistry. One of his research interests relates to the investigation of greener extraction techniques for bioactives from natural sources. His research is published in various books and peer-reviewed journals. He has given many presentations at national and international conferences.

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