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Original Article

Ethanolic Extract of *Equisetum arvense*: A Potential Agent against Rheumatoid Arthritis in Wistar Rats with Freund's Complete Adjuvant-Induced Arthritis

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ABSTRACT

Background: Rheumatoid arthritis, a global autoimmune affliction affecting 0.3-1% of the population, is characterized by chronic inflammation and systemic symptoms. Dissatisfaction with conventional treatments leads individuals with chronic pain in rheumatoid arthritis to explore alternative medicine. Herbal remedies, including *Equisetum arvense* extract, are studied for their anti-inflammatory potential. **Aim:** This research focuses on evaluating the impact of *E. arvense* extract on experimentally induced rheumatoid arthritis in rats, presenting a promising alternative for complementary approaches. **Materials and Methods:** In the study, rats received oral doses of *Equisetum arvense* ethanolic extract at 50 mg/kg and 100 mg/kg, followed by induction with Complete Freund's Adjuvant in the hind paw on day 0. Physical parameters like body weight and paw volume were assessed on days 0, 8, 16 and 22. Hematological parameters, including RBC count, Hb levels, ESR, total WBC count, and platelet count, were measured. Histopathological studies were conducted for a comprehensive assessment. **Results:** They showed both doses of *Equisetum arvense* extract significantly reduced paw volume compared to the CFA-induced group. Extract administration elevated RBC and Hb levels, approaching normalcy. Increases in WBC count and ESR were notably mitigated. Rats treated with the extract demonstrated protection against bone deterioration and reduced soft tissue swelling. Hispathology of tibiotarsal joints *E. arvense* treated rats exhibited joint protection, reducing cartilage destruction and decreased vascularity. **Conclusion:** The *Equisetum arvense* showed diminished cartilage destruction and decreased vascularity compared to arthritic rats. The *Equisetum arvense* exhibits potent anti-rheumatoid activity, emphasizing its potential as an alternative therapeutic approach for rheumatoid arthritis.

Keywords: *Equisetum arvense*, Complete Freund's adjuvant, Hemoglobin, Inflammation, Joints.

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INTRODUCTION

Rheumatoid Arthritis (RA) is characterized by enduring, symmetrical, inflammatory, and systemic manifestations, representing an autoimmune disorder. It affects around 0.3 to 1% of the worldwide population and commonly manifests between the ages of 50 and 60. Notably, rheumatoid arthritis tends to have a higher prevalence in women compared to men.[1] People with RA frequently encounter joint deformities, coupled with a progressive decline in functionality and harm to cartilage and bone. In terms of its features, rheumatoid arthritis unfolds through identifiable pathological phases. Early indications involve warmth, swelling, pain, and diminished joint function, while advanced stages exhibit different degrees of joint rigidity and deformities, frequently accompanied by bone deterioration and an elevated likelihood of disability.[2] As rheumatoid arthritis advances, it prominently affects the small joints in the feet and hands, resulting in a slow and painful swelling. This is accompanied by an anomalous and heightened growth of the synovium, the development of pannus, and changes in the morphology of the joint.[3]

Rheumatoid arthritis can appear in individuals of various age groups, impacting children, adolescents, and the elderly. When the condition manifests in individuals below 16 years of age, it resembles, though not precisely, the adult form and is labeled as juvenile idiopathic arthritis, formerly recognized as rheumatoid arthritis.

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