

Azadirachta Indica (Neem) Seed Oil Effect in Experimental Arthritis - Biochemical Parameters Assessment

Authors : Sasan Khademnematoalahi, Kevine Kamga Silihe, Katarína Pružinská, Martina Chrastina, Elisabeth Louise Ndjengue Mindang, František Dráfi, Katarína Bauerová

Abstract : Background: In ethnomedicine, plant parts and compounds are traditionally utilized to treat many disorders. Azadirachta indica, known as Neem, has been traditionally used in medicinal practices. Neem has various pharmaceutical activities, such as antioxidant and anti-inflammatory, due to the content of bioactive compounds like nimbolide, azadirachtin, and gedunin. Through its effect on pathological inflammatory processes, supplementation with it could alleviate the symptoms of rheumatoid arthritis (RA). Methods: This research aimed to assess Neem seed oil's impact on rats with adjuvant arthritis. Three doses in monotherapy and two in combination with methotrexate (MTX) have been studied and their effect was compared. Neem p.o. doses of 100, 200, and 300 mg/kg and MTX p.o. doses of 0.3 mg/kg were examined. After clinical parameters assessment, biochemical analysis was performed in plasma. Results: During the acute phase of the experimental arthritis (Day21), levels of MMP-9, MCP-1 and cytokines IL-1beta and IL-17A were measured. The positive results of inflammatory mediators evaluation in plasma encourage additional analysis also in related tissues to prove if Neem seed oil can be used as an adjuvant therapy for RA. Conclusion: In this study, the combination therapy of Neem with MTX was most effective from all therapies investigated.

Keywords : adjuvant, neem, methotrexate, arthritis

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