

Azadirachta indica (Neem) Seed Oil Effect in Experimental Arthritis: Biochemical Parameters Assessment

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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. Due to the presence of bioactive substances such as nimbolide, azadirachtin, and gedunin, Neem offers a variety of medicinal properties, including anti-inflammatory and antioxidant properties. 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 the most effective of all therapies investigated. Acknowledgement: SAIA PROJECT of Kevine Kamga Silihe, Slovakia-Cameroon 2023: "The effect of Crocus sativus L (Saffron), Azadirachta indica (Neem) and their main bioactives compounds in combinatory treatment with methotrexate on experimental arthritis", VEGA 2/0079/24, VEGA 2/0136/20, VEGA 2/0126/23 and VEGA 2/0091/23.

Keywords : adjuvant, Neem, methotrexate, arthritis

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