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JOURNAL OF EVOLUTIONARY MEDICINE

Immunomodulatory Potential of the Mediterranean Sage (*salvia fruticosa*) in Adjuvant-induced Arthritis in rats

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Abstract

Inflammatory arthritis, in particular rheumatoid arthritis (RA), is a chronic inflammatory disease which is an important health problem for millions of people worldwide. It has been the focus of intense investigation, but its etiology and pathogenesis remains controversial [1]. The current pharmacological treatment continues to be inadequate in preventing the progression of this disease to the stage of irreversible joint erosion and deformity [2]. Therefore, development of new anti-inflammatory and anti-rheumatic drugs continues to be essential. There is growing interest in the pharmacological potential of natural products [3]. Salvia are being used extensively in folk medicine in Jordan and many other Mediterranean countries and this study aimed to investigate the ability of S. fruticosa to inhibit pro-inflammatory cytokines production[4]. We first examined the inhibitory effects of Greek or Mediterranean sage S. fruticosa methanolic crude extract on TNF-α, IL-1β and IL-6 production in different murine cell types as in vitro cellular models and in LPS-challenged Balb/c mice as an in vivo animal model. The results obtained showed a potent inhibitory effect of S. fruticosa on the production level of pro-inflammatory cytokines in both cellular and animal models. Adjuvant-induced arthritis in rats was used as a recognized model represents a systemic inflammatory disease with bone and cartilage changes similar to those observed in humans rheumatoid arthritis[5],[6]. Rats treated with S. fruticosa showed no clinical manifestations, no significant increase in paw volume and no significant radiological observations related to development of arthritis. Moreover, there was no significant difference between treated group and normal control group. Whereas, the arthritic group showed all clinical manifestations, increased paw volume and typical radiological findings of subchondral sclerosis, decreased joint space and soft tissue swelling which are the hallmarks of RA, in addition to behavioural changes related to the painful nature of the disease. It seems likely that S. fruticosa may act at various therapeutic targets in RA and it may offer a promising anti-inflammatory and anti-rheumatic agent for drug discovery researches. More experimental and clinical trials are also needed to validate the usefulness of its use either alone or in combination with existing therapy.

Keywords: Cytokines, Rheumatoid arthritis, Salvia, Adjuvant arthritis.

Biography

Jameel Fayyad Al-Bzour is a Full-time Lecturer in Al-Balqa Applied University in the department of Medical Laboratory Sciences at Jordan. He is majorly specialized in Medical Laboratory Sciences- Immunology & Clinical chemistry. His research interest is to be investigating the potential of compounds extracted from natural products and sources that may modulate the immune system response in different immune –related diseases and fighting pathogens, searching for new markers that may help and enhance diagnosis of diseases, screening.

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3rd International Conference on Natural Products, Medicinal Plants and Traditional Medicine | Amsterdam | Netherlands | July 08 - 09, 2020

Citation: Jameel Fayyad Bzour, *Immunomodulatory Potential of the Mediterranean Sage (salvia fruticosa) in Adjuvant-induced Arthritis in rats*, 3rd International Conference on Natural Products, Medicinal Plants and Traditional Medicine, Amsterdam, The Netherlands, July 08 - 09, 2020