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Effect of Pomegranate (Punica granatum) Seed Oil on Keratinocytes in Patients with Atopic Dermatitis

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Abstract : Introduction: Many skin disorders, such as atopic dermatitis (AD), is characterized by inflammation, infection, and hyperplasia. In this work, keratinocytes from AD patients are used to study the pomegranate seed oil properties for skin care. Material and methods: Isolated keratinocytes from patients with AD were cultured and stimulated by IL-9 (20 ng/ml) and TNF-α (50ng/ml) for 48h to induce vascular endothelial growth factor (VEGF) and Regulated upon activation, normal T cell expressed and secreted (RANTES) production, respectively, in the presence of different concentrations of pomegranate seed oil (20, 50, 100, and 200 µM). Finally, the concentrations of RANTES and VEGF in the cell culture supernatant were quantified according to the standard protocol of commercial ELISA kits. Results: The results indicated that pomegranate seed oil concentrations of 50, 100, and 200 µM could significantly inhibit the production of VEGF and RANTES by stimulating keratinocytes with IL-9 (20 ng/ml) and TNF-α (50ng/ml), respectively. The decrease in VEGF and RANTES concentration in the presence of the pomegranate seed oil concentrations of 20 and 50 uM was not significant. Conclusion: It was concluded that pomegranate seed oil (PSO) counteracts atopic dermatitis conditions dose-dependently: with the highest effect at the concentration of 200 µM. We suggest that the inexpensive and easily available pomegranate seed oil is a good candidate for cosmetics and clinical utilization for skin care.

Keywords : atopic dermatitis, pomegranate, Punica granatum, RANTES, VEGF
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