The Effects of Amphimallon solstitiale Larva on Gene Expression Level in vitro Atopic Dermatitis Model

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Atopic Dermatitis (AD) is a chronic skin disease which occurs due to many genetic and environmental factors.AD is a disease that can seriously affect the comfort of patients. The barrier properties of the skin are impaired in AD patients. Patients with AD usually have dry skin and dryness can cause itching.The severity of itching may increase by sweating, heat, irritants and allergens. Currently, there is no definitive and permanent treatment has yet been found for AD. There are treatments available only to suppress symptoms.It is learned that Amphimallon solstitiale larva is used very effectively in treating AD among the public in the Central Anatolia. The order Coleoptera, which includes Amphimallon solstitiale Europen June Beetle, is the most widely distributed order of insects.A. solstitiale is an important soil pest for many crops in Europe and Turkiye. Our study investigated the effect of A. solstitiale total larval extract in vitro AD model. The study included 4 experimental groups; Cells only (HaCaT), larval extract only(at IC50 and IC70 doses), IL-4 and 13 at 10ng/ml with the cell line and the final group is IL-4 and IL-13 at 10ng/ml with the cell line (HaCaT) and the larval extract only(at IC50 and IC70 doses).All the groups were set as duplicates. The IC50 and IC70 values and time were found with MTT assay as 48 hrs,100µl(IC50), and 50µl(IC70) respectively. The gene expression changes for Flaggrin-1,Loricrin,Involucrin,Keratin-1, DSC-1, DSG-1, CAII were investigated by qPCR in triplicate.The expression levels decreased in the AD model for all genes, except for the CAII decreased as expected according to the literature.The gene expressions increased in the treatment groups ($p<0.0001$) except CAII. The level of CAII decreased ($p<0.0001$).

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