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Original Article

Immunosuppressive principles from *Achillea talagonica*, an endemic species of Iran

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Abstract:

ABSTRACT

Background and the purpose of study: *Achillea talagonica* Boiss. (Asteraceae) grows in the western and central parts of Iran. This plant has long been used in traditional medicine as an anti-inflammatory agent for treatment of rheumatic pain. Previously, the immunosuppressive activity of the aqueous extract of this endemic plant in experimental animals was reported. In this research, isolation of the main immunologically active components of *A. talagonica*, which were effective on humoral immune responses in BALB/c mice is elucidated.

Methods: In order to find the main immunosuppressive components of *A. talagonica*, methanol and methanol-water (80% and 50% v:v) extracts were injected to BALB/c mice and the hemagglutinating antibody titer was assayed after immunization with SRBC (sheep red blood cells). Guided by this assay, active principles were separated by chromatographic methods.

Results: Isolated compounds were identified as caffeic acid 9-O-glucoside (1), quercetin (2), luteolin (3), 3'-methoxy luteolin (4), proline (5) and choline (6) by comparison of their spectral data with those of reported in literatures. Immunosuppressive property of choline (5 mgkg⁻¹) was comparable to those of prednisolone (10 mgkg⁻¹); although, quercetin (20 mgkg⁻¹) and caffeoyl glucoside (20 mgkg⁻¹) decreased anti-SRBC titer in comparison with control groups.

Major conclusion: Immunosuppressive effects of *A. talagonica* are due to some components belonging to betaine, flavonol and phenoilc esters.

Keywords:

Achillea talagonica, Asteraceae, immunosuppressive, choline, caffeoyl glycoside, quercetin

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