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### Evaluation of the wound healing potentials of three *Achillea* species on cultured NIH3T3 fibroblasts

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The genus *Achillea* L. (Asteraceae), is represented by more than 140 species worldwide which is widespread in the northern hemisphere. Most of the *Achillea* species are used in folk medicine as wound healing, appetizer, digestive, diuretic and anti-inflammatory. Pharmacological activity studies have been focused on for their antioxidant and anti-inflammatory activities, as well as wound healing activity. This study was conducted for the first time to evaluate the *in vitro* wound healing activity of aqueous extracts of *A. coarctata* Poir., *A. kotschy* Boiss. subsp. *kotschy* and *A. lycanica* Boiss. & Heldr. on NIH3T3 fibroblast cells. Fibroblasts have a major role in the wound healing process due to their ability to synthesize collagen. MTT assay was used to determine non-cytotoxic concentrations of *Achillea* extracts and titrated extract of *Centella asiatica* (TECA) as a positive control on NIH3T3 cells at 24 and 48 hours. The extracts were added to cell culture at the concentrations of 2.5, 5, 10, 20, 40 µg/ml and NIH3T3 cells were incubated for 24 hours for morphological examination. Staining of cultured NIH3T3 cells was conducted according to Masson's trichrome staining procedure. After staining, the controls and extracts treated fibroblasts were examined under a light microscope. The results were given by comparing with concentrations of TECA on cultured NIH3T3 cells. The most abundant activity was observed in *A. kotschy* subsp. *kotschy*. The activity showed a positive relationship with antioxidant activity and total phenolic contents. Stimulation of collagen synthesis and the fibroblast migration may be responsible for wound healing activity.

#### Biography

Tuncay Ađar has completed his MSc at the age of 26 years from Hacettepe University Faculty of Pharmacy Department of Pharmaceutical Botany. He continues his PhD studies at Anadolu University Faculty of Pharmacy Department of Pharmacognosy in Turkey. He has published a book section about medicinal plant monographs in a national book in Turkish. He has attended several symposiums, conferences and education programs. He is a member of two societies in his research area. His research interests are plant morphology, anatomy and systematics, biological activities and quantitative analysis.

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