

Investigation on Anti-Inflammatory and Antiulcer Activities of *Anchusa azurea* Extracts and their Major Constituent Rosmarinic Acid

Ayşe Kuruuzum-Uz^a, Halis Suleyman^b, Elif Cadirci^{c,*}, Zühal Guvenalp^d, and L. Omur Demirezer^a

^a Department of Pharmacognosy, Faculty of Pharmacy, Hacettepe University, 06100 Ankara, Turkey

^b Department of Pharmacology, Faculty of Medicine, Ataturk University, 25240 Erzurum, Turkey

^c Department of Pharmacology, Faculty of Pharmacy, Ataturk University, 25240 Erzurum, Turkey. Fax: +90 442 2360968. E-mail: ecadirci@atauni.edu.tr

^d Department of Pharmacognosy, Faculty of Pharmacy, Ataturk University, 25240 Erzurum, Turkey

* Author for correspondence and reprint requests

Z. Naturforsch. **67c**, 360–366 (2012); received March 13, 2011/April 11, 2012

This study investigated the anti-inflammatory and antiulcer activities of different extracts from the aerial parts and the roots of *Anchusa azurea* Miller var. *azurea* (Boraginaceae), as well as their major constituent, rosmarinic acid. The extracts were water (AWa, RWa) and methanol (AMe, RMe) extracts prepared from the aerial parts and the roots of *A. azurea*, respectively. The AMe extract was found to exert anti-inflammatory effects; so it was evaporated to dryness and the residue was dissolved in distilled water (AMeWa) and then further fractionated with *n*-hexane (AMeHe) and *n*-butanol (AMeBu). Anti-inflammatory activity was investigated in rats using carrageenan-induced acute inflammation, and antiulcer activity was investigated using indomethacin-induced gastric damage. The methanolic extract from the aerial parts, its *n*-butanol fraction, and rosmarinic acid, which was isolated from the *n*-butanol fraction of the AMe extract, showed significant dose-dependent anti-inflammatory activity. During the acute phase of inflammation, the anti-inflammatory activity of rosmarinic acid was comparable to that of ibuprofen. No antiulcer activity was observed. The experimental data demonstrate that *A. azurea* Miller var. *azurea* and rosmarinic acid display significant anti-inflammatory activity.

Key words: Anti-Inflammatory, *Anchusa azurea*, Rosmarinic Acid