

Maprotiline exhibits potent anti-inflammatory activity in carrageenan-induced paw edema in rats

H. Sadeghi^{1,*}, V. Hajhashemi², M. Minaiyan², A. Movahedian³, A. Talebi⁴,

¹*Herbal Medicine Research Center, School of Medicine, Yasouj University of Medical Sciences, Yasouj, Iran*

²*Department of Pharmacology and Toxicology, Isfahan Pharmaceutical Sciences Research Center, School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Sciences, Isfahan, Iran*

³*Department of Biochemistry, School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Sciences, Isfahan, Iran*

⁴*Department of Pathology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran*

Background and Aims: Antidepressants have been used in the management of different medical disorders. Accumulated evidence has shown that antidepressant drugs produce inflammatory activity *in vivo* and *in vitro* conditions, but the mechanisms of this effect are not clear. Therefore, this work undertaken to investigate some mechanisms that may be involved in the anti-inflammatory activity of maprotiline.

Methods: Male Wistar rats were used in this study and the inflammation induced by subplantar injection of carrageenan (an acute inflammation model). Maprotiline was injected intraperitoneally (i.p) and intracerebroventricularly (i.c.v.) 30 min before subplantar injection of carrageenan.

Results: Our findings confirmed that i.p. (25 and 50 mg/kg) and i.c.v. (50 and 100 µg/rat) application of maprotiline significantly inhibited carrageenan-induced inflammation at the course of times (1- 4 h after carrageenan injection). We also found that both i.p. and i.c.v. maprotiline considerably decreased infiltration of polymorphonuclear (PMN) leucocytes into the site of inflammation, in accordance with pathological assessment and the activity of myeloperoxidase (MPO).

Conclusions: The results demonstrated the anti-inflammatory effects of i.p. and i.c.v. injection of maprotiline, and showed that these effects mediated mostly by the inhibition of PMN cells migration into the site of inflammation.

Keywords: Carrageenan; Maprotiline; Myeloperoxidase (MPO); Rats