

Chemical composition and anti-inflammatory activity of algerian *thymus vulgaris* essential oil

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Abstract:

This work aims to elucidate the chemical composition of two essential oil (EO) samples obtained from the leaves of *Thymus vulgaris* L. (Lamiaceae) collected in two regions of Northwestern Algeria (Tlemcen and Mostaganem) and to assess their in vivo acute toxicity and anti-inflammatory activity. Sixty-six compounds could be identified by means of simultaneous GC-FID and GC-MS, accounting for 99.3% of total thyme oil of Mostaganem (EO.TM) and 99.0% of Tlemcen (EO.TT). In both samples, thymol was the major component, amounting to 59.5% (EO.TM) and 67.3% (EO.TT) of the total oil. EO.TT proved to be acutely toxic to mice at a dose of 4500 mg/kg p.o., whereas EO.TM did not show signs of acute toxicity, even at the highest dose tested (5000 mg/kg p.o.). Both EO samples were proven to possess anti-inflammatory activities, significantly reducing carrageenan-induced paw edema in mice (after 6 hours at a dose -of 400 mg/kg p.o) at 58.4% for EO.TT and 50.4% for EO.TM, respectively. In conclusion, it could be demonstrated that EOs of *T. vulgaris* exhibit a considerable in vivo anti-inflammatory activity at non-toxic doses.

Keywords: anti-inflammatory activity, essential oil, *Thymus vulgaris*,