**The anti-inflammatory activity of L-menthol compared to mint oil in human monocytes in vitro: a novel perspective for its therapeutic use in inflammatory diseases.**

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**Abstract**

The anti-inflammatory efficacy of monoterpenes is still unknown. In order to evaluate the potential role of L-menthol and mint oil as an anti-inflammatory drug, preclinical in vitro-investigations were performed using LPS-stimulated monocytes from healthy volunteers. Arachidonic acid metabolism was assessed by measuring LTB subset4 and PGE subset2 as indicators for both the lipoxygenase and the cyclooxygenase pathways respectively. In addition, the anti-inflammatory effects of the two terpenes on IL-1beta production were analysed. - L-menthol significantly suppressed the production of each of the three inflammation mediators by monocytes in vitro. LTB subset4 decreased by -64.4 +/- 10%, PGE subset2 by -56.6 +/- 8%, and IL-1beta by -64.2 +/- 7% respectively at L-menthol concentrations within the presumed therapeutic range of about 10 superset-7 g/ml. In contrast, mint oil had a bimodal effect on PGE subset2 production: lower concentrations of 10 superset-10 to 10 superset-8 g/ml increased PGE subset2 up to 6-fold compared to baseline but concentrations of 10 superset-7 g/ml suppressed PGE subset2 production by approximately 50%. Mint oil had similar effects on LTB subset4 and IL-1beta as its main constituent, L-menthol, although the degree of suppression was by comparison smaller at lower concentrations. Paraffin oil, which served as a solvent, did not affect arachidonic acid metabolism and IL-1beta production. - These results obtained with human monocytes suggest preferable anti-inflammatory effects of L-menthol compared to mint oil at therapeutically relevant concentrations supplied in enteric coated capsules. Therefore, clinical trials investigating the potential therapeutic efficacy of L-menthol for treatment of chronic inflammatory disorders such as bronchial asthma, colitis and allergic rhinitis seem worthwhile.