

OP13. Cytotoxicity and the effect on the inflammation response of thyme oil and thymol: evaluation in human macrophage cells

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The essential oil of *Thymus vulgaris* L. (Lamiaceae), thyme oil, shows a great variability of its composition with six main chemotypes recognized up to now: geraniol, linalool, γ -terpineol, carvacrol, thymol, and *trans*-thujan-4-ol/terpinen-4-ol types. Due to this large chemical diversity, the subject of several investigations was to identify and determine their properties, including their potential effect on inflammation. In our previous microbiological study, this essential oil showed a significant antibacterial activity against bacteria of the respiratory tract [1].

The present research focuses on the evaluation of its cytotoxic and antiinflammatory effect in the case of the U937 human monocyte/macrophage cell line. Thyme oil composition was determined by GC/MS. Bürker chamber was used for cell counting and flow-cytometry to evaluate cellular toxicity (using 7-AAD). Then a qPCR method was used to determine the expression of TNF α mRNA.

The main component of the tested sample of thyme oil was thymol (38.7%) that showed a concentration-dependent cytotoxicity. Non-toxic dilutions showed preventive antiinflammatory potential.

References:

[1] Ács, K. et al., 2016. *Nat. Prod. Commun.* 11, 1709–1712.

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