

Bioactive properties of *Thymbra spicata* var. *spicata* essential oil

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Abstract

In this study, the bioactive properties of *Thymbra spicata* var. *spicata* essential oil (**TSSEO**) were investigated. Plant material was collected from Sarıcakaya/Eskişehir, essential oil was obtained by steam distillation method. Gas Chromatography method was used to identify **TSSEO** components. The SwissTargetPrediction database was used to predict the most likely macromolecular targets of a presumed bioactive small molecule. Major components of the essential oil of the plant Carvacrol (56.06%), trans caryophyllene (10.43%), p-cymene (9.67%) and γ -terpinene (6.84%). In addition, the essential oil is Carvone (2.03%), Caryophyllene oxide (1.97%), α -Cadinen (1.78%), α -Copaene (1.72%), α -Pinene (1.04%), α -Terpinene (1.31%), Thymol (0.96%), β -Myrcene (0.81%), Spathulenol (0.74%), Cis-dihydrocarvone (0.64%), Borneol (0.75%) and Ledene (0.71%), α -Amorphene (0.58%). In literature studies on the effects of **TSSEO**, it has been reported that the species has antioxidant, antimicrobial, antifungal, antibacterial and anticancer effects. Carvacrol and Thymol target prediction in the determination of bioactive properties of **TSSEO** phenolic compounds; It indicates the interaction of Cyclooxygenase-1 (PTGS1) with Transient receptor potential cation channel subfamily A member 1 (TRPA1) and Serotonin 2b (5-HT2b) receptor (HTR2B). Possible bioactive target prediction of Caryophyllene oxide, α -Pinene, β -Myrcene, Cadinene and α -Copaene; Shows the interaction of Peroxisome proliferator-activated receptor alpha (PPARA) with Cannabinoid receptor 2 (CNR2). Borneol target prediction, on the other hand, indicates that there may be interaction between Nuclear receptor subfamily 1 group I member 3 (NR1I3) and Androgen Receptor (AR) and Estrogen receptor beta (ESR2). Studies show that **TSSEO** components can have positive effects on human health. However, more studies are needed to determine this effect exactly.

Keywords: *Thymbra spicata*, bioactive effect, antiproliferative activity