# **Titre d’article**: Antibacterial activity of Thymus vulgaris essential oil alone and in combination with cefotaxime against blaESBL producing multidrug resistant Enterobacteriaceae isolates

**Abstract :**

The aim was to evaluate the susceptibility of blaESBL producing Enterobacteriaceae to Slovakian Thymus vulgaris essential oil (TVEO) alone and in combination with cefotaxime (CTX). TVEO composition was determined by gas chromatograph-mass spectrometer (GC/MS). Susceptibility to 21 antibiotics was determined by disc diffusion assay. Genes characterization for resistance to β-lactams was accomplished by polymerase chain reaction (PCR). The antibacterial activity was investigated by standard methods. The synergistic interaction was determined by checkerboard test. Thymol (34.5%), p-cymene (22.27%) and linalool (5.35%) were the major components present in the TVEO. The identified strains were multi-drug resistant (MDR). TVEO showed high activity against all MDR strains, including blaESBL producing isolates, with inhibition zones and MIC values in the range of 24– 40 mm/10μL and 2.87–11.5 μg/mL, respectively. TVEO in combination with CTX showed a synergistic action against blaSHV-12 producing Escherichia coli (FICI 0.28) and an additive effect vs ESBL producing Enterobacter cloacae (FICI 0.987).