

Antimicrobial effects of five Thyme-like species against four food-borne bacteria

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Background and Aims: The present study was designed to evaluate the antibacterial effects of Hydro-alcoholic extracts of *Thymus vulgaris* L., *Thymus caramanicus* Jasas., *Zataria multiflora* Boiss., *Ziziphora clinopodioides* Lam. and *Ziziphora tenuior* L. against four food-borne pathogens: *Staphylococcus aureus* (ATCC: 6538), *Shigella dysenteriae* (PTCC: 1188), *Salmonella typhimurium* (ATCC: 14028) and *Escherichia coli* (ATCC: 8739).

Methods: The extracting was performed by maceration method(ethanol:water [1:1] as Menstruum). Primarily evaluation of the antimicrobial effect was utilized by cup plate technique and then Minimum Inhibitory Concentration (MIC) was determined by Agar serial dilution method according to NCCL 2008.

Results: The results showed that *T. caramanicus* was the most effective extract with MIC values equal to 1.560, 3.125, 3.125 & 0.78mg/ml against *S. aureus*, *S. dysenteriae*, *S. typhimurium* and *E. coli* respectively. *Z. clinopodioides* and *Z. tenuior* had the minimum antimicrobial activity in comparison to other extract. There was no significant difference between the antimicrobial effect of these two plants against *S. aureus* and *E. coli*. But *Z. tenuior* was more effective against *S. dysenteriae* and *S. typhimurium* with MIC values equal to 6.250 and 25.000 respectively

Conclusions: The antibacterial effect of the extracts of *T. vulgaris*, *T. caramanicus* and *Z. multiflorais* is due to their phenolic compounds present in these three species. These compounds also present in *Z. clinopodioides* and *Z. tenuior*, but in low concentration.

Keywords: *Thymus*; *Ziziphora*; *Zataria*; Antimicrobial