

# ANTIBACTERIAL EFFECT OF EDIBLE COATINGS WITH ESSENTIAL OIL

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## ABSTRACT

Food preservation technologies are a continuously renewed area because of industrial and customer needs, social transformation and environmentally friendly processing and climate change. The shelf life of perishable food products must be extended with different technologies, for example using green methods like the edible coating (EC). EC is made from different biopolymers (chitosan, alginate, gelatin, agar), the effect can increase with using plant extracts. In this study, the effect of chitosan EC, chitosan EC+thyme essential oil (EO); effect of alginate EC, alginate EC+thyme EO was examined on fresh chicken breast having artificial contamination with *E. coli*; *E. faecalis*, that the EC can extend the shelf life. The organoleptic quality of baked treated chicken breast was established also. Based on the result both EC can decrease the cell number (with 1-3 log CFU/g) on treated chicken breast and this antimicrobial effect was enhanced with thyme essential oil (3.2 µl/ml concentration). There was significant differences ( $p < 0.05$ ) between the two edible coatings. Alginate had better preservation effect, than chitosan. However, the thyme EO could increase the antimicrobial activity of chitosan in higher values, than the effect of alginate EC. In this experiment, the *E. faecalis* was more sensitive to treatment than the *E. coli*. In conclusion, the edible coating can be used as an alternative preservation technique and these combined with essential oils can extend the shelf life of chicken breast fillet.

*Keywords: chicken breast, edible coating, preservation, thyme essential oil*