

**DETERMINATION OF ANTIMICROBIAL ACTIVITY AND
CHARACTERIZATION OF METHYL CELLULOSE
FILMS INCORPORATED THYME OIL**

S. Kalkan^{1*}, Z. Erginkaya²

¹⁾ Osmaniye Korkut Ata University, Bahçe Vocational School of Higher Education, Dept of Food Technology, Osmaniye, Turkey

²⁾ Cukurova University, Faculty of Agriculture, Dept of Food Engineering, Adana, Turkey

The antimicrobial effect against *Escherichia coli*, *Staphylococcus aureus*, *Listeria monocytogenes*, *Salmonella* Enteritidis and *Bacillus cereus* of edible methyl cellulose film containing thyme oil was investigated. For this purpose, 1 cm diameter discs were cut from methyl cellulose films containing thyme oil (1, 2, 3 and 4%w/w) and inhibition zone diameters were measured by the agar diffusion method. As results of these analyses, all prepared active edible methyl cellulose films were antimicrobial effects on these bacteria. The most powerful antimicrobial effect achieved with methyl cellulose film including thyme oil on *L. monocytogenes* and also the weakest antimicrobial effect achieved on *B. cereus*. In order to evaluate the potential use of as packaging material of these films film thicknesses, film moisture content and density, tensile strength (TS), elongation at break (E), Young modulus (YM), water vapor permeability (WVP), Hunter *L*, *a*, and *b* color values were determined. As results of characterization analyzes, methyl cellulose films incorporated thyme oil 4%w/w values have weak characterization properties although have great antimicrobial activities against important food pathogens. Tensile strength and elongation at break significantly decreased with incorporation of thyme oil concomitantly with increased in water vapor permeability. Thyme oil incorporated in methyl cellulose films provided the films with a rougher surface than pure edible methyl cellulose films. All results were significant by statistically ($P<0.01$) and all analyses were replicated in three times.*This study is supported by Department of Cukurova University Scientific Research Projects (ZF2013BAP18).

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* Corresponding author: selinkalkan@osmaniye.edu.tr