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PROF. DR. HÜLYA ÇİÇEK

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**ENCAPSULATION OF STARTER CULTURE ENTRAPPED IN ESSENTIAL OIL
EMULSIONS WITH HYDROCHAR AND INVESTIGATION OF ITS
ANTIBACTERIAL POTENTIAL**

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ABSTRACT

Encapsulation is a technology that has been widely used in the food industry in recent years. By encapsulation, various food components can be protected from adverse environmental conditions and maintain their viability/activity for longer periods. In this study, it was aimed to encapsulate yoghurt starter cultures for better stabilization, slow release and protection. Starter culture (SC), *Lactobacillus delbrueckii* subsp. *bulgaricus* and *Streptococcus thermophilus* strains, was encapsulated in the essential oil (EO) emulsion of *Origanum munzurenze* (*O. munzurenze*), and the resulting emulsion was encapsulated with apricot seed shell hydrochar. Bacteria were added to EO emulsions of *O. munzurenze* and the resulting mixture was immobilized into hydrochar layers using a lyophilizer. The viability of SC bacteria was analyzed using the colony counting method, and it was observed that the encapsulated SC was embedded in the pores of the hydrochar surface. This study is of great importance as it shows efficiency both in converting food waste into a product with high added value and as an encapsulation agent of the resulting product. Besides, it has been shown that the starter culture can survive both on *O. munzurenze* emulsion and on hydrochar.

Keywords: Starter culture, Apricot shell, hydrochar, *origanum munzurenze*

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