

**Investigation of Immobilization and Kinetic Properties of Catalase Enzyme on  
Poly(HEMA-GMA) Cryogel**

<sup>a</sup>K. EROL, <sup>b</sup>B. CEBECİ, <sup>b</sup>K. KÖSE, <sup>c</sup>D.A. KÖSE

<sup>a</sup>*Hitit University, Osmancık Ömer Derindere Vocational School, Department of Property Protection and Safety, Çorum, TURKEY*

<sup>b</sup>*Hitit University, Alaca Avni Çelik Vocational School, Department of Food Processing, Çorum, TURKEY*

<sup>c</sup>*Hitit University, Faculty of Science and Literature, Department of Chemistry, Çorum, TURKEY*

Catalase is a metalloenzyme, which is found in almost all aerobic respiratory organisms. This enzyme acts as a detoxification agent for the hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) compound, protecting tissues and cells from oxidative damage [1].

Cryogels are synthetic materials commonly used in adsorption and immobilization studies in recent years. In this study, it is aimed to investigate immobilization conditions of catalase enzyme poly(HEMA-GMA) cryogel for 3, 6, 9, 12, 18 and 24 hours in stationary solution and to determine how the activity of immobilized catalase enzyme will be changed by pesticides. This is very important in determining the effect of antioxidant activity and catalase, which is an important enzyme in organisms, to environmental pollution. For the characterization of cryogels; swelling test, Fourier transform infrared spectroscopy (FT-IR) analysis, scanning electron microscopy (SEM) analysis and elemental analysis.

#### References

1. Aktaş Uygun, D.; Uygun, M.; Akgöl, S.; Denizli, A.; (2015) *Materials Science and Engineering C*, 50 379–385.