

## Poster Presentations

### Biodegradable Poly (dl-lactide-co-glycolide) Microcapsules as a Drug Delivery System

**Younis Abu Ain**<sup>1</sup>, Mohammed Suleiman<sup>1</sup>, Hassan Sawalha<sup>2</sup>

<sup>1</sup> *Department of Chemistry, Science College. An-Najah National University, Nablus, Palestine.*

<sup>2</sup> *Chemical Engineering, Engineering College. An-Najah National University, Nablus, Palestine.*

[younesabowaen@yahoo.com](mailto:younesabowaen@yahoo.com)

#### Abstract

Poly dl-lactide co-glycolide (PLG) is a biodegradable polymer that has a slow degradation rate and high permeability to small drug molecules.

PLG microcapsules were prepared by emulsifying a polymer solution that consists of PLG/solvent (dichloromethane) into a continuous phase that consists of a nonsolvent solution (water and SDS as a surfactant). After emulsification, the solvent diffuses out of polymer droplets (liquid microcapsules) to the nonsolvent solution and then evaporates at the surface of the nonsolvent to the air. The encapsulation of the limonene within the polymer microcapsules was prepared, and limonene release was determined with time from polymer microcapsules prepared.

The PLG microcapsules were prepared using different concentrations of SDS solution, methanol, and ethanol and study of its impact on the size of the PLG microcapsules.

Our results show that as the concentration of nonsolvent increases in the process of preparing of PLG microcapsules the size of prepared microcapsules decreases and the limonene release increases from polymer microcapsules with decreasing the size of microcapsules.

These results can be explained as follows: with increasing the concentration of methanol, ethanol or SDS, the viscosity of the nonsolvent increases and the interfacial tension decreases. This lead to a decrease in size of obtained PLG microcapsules and smaller microcapsules are obtained.