Design and optimization of a self-assembling complex based on microencapsulated calcium alginate and glutathione (Cag) using response surface methodology

Castro R.I.
Morales-Quintana L.
Alvarado N.
Guzman L.
Forero-Doria O.
Valenzuela-Riffo F.
Laurie V.F.

Abstract
The aim of this work was to characterize and optimize the formation of molecular complexes produced by the association of calcium alginate and reduced glutathione (GSH). The influence of varying concentrations of calcium and GSH on the production of microcapsules was analyzed using response surface methodology (RSM). The microcapsules were characterized by thermogravi-metric analysis (TGA-DTG) and infrared spectroscopy (FTIR) in order to assess the hydration of the complexes, their thermal stability, and the presence of GSH within the complexes. The optimum conditions proposed by RSM to reach the maximum concentration of GSH within complexes were a 15% w/v of GSH and 1.25% w/v of $CaCl_2$, with which a theorical concentration of 0.043 mg GSH per mg of CAG complex was reached.

Author keywords
Alginate; Glutathione; Microencapsulated