

# Chemical Engineering Seminars – MT 2011

*Week 4, Tuesday November 1<sup>st</sup> 2011, 4:00PM-5:00PM  
Lecture Room 3, Thom Building, Engineering Science*

## **Uses and Applications of Sericin Protein From Silk Cocoon**

Marcelino Luiz Gimenes  
State University of Maringá (UEM),  
Brazil

### **Abstract**

Sericin is a globular protein which contains serine, aspartic acid, glycine and threonine. The high content of serine and presence of hydroxyl, carboxyl and amino groups make this protein very hydrophilic, which is an interesting property to be explored to produce several materials, such as: perm-selective membranes to separate alcohol and water mixture, hydrogels, biofilms, moisturizing creams, etc.. The molecular mass of sericin can vary from very small to large molecular mass protein (from 10 – 250 kDa). The applications and use of this protein is somehow related to its molecular mass. A brief review about the *Bombyx mori* silk proteins and some application will be presented, focussing initially attention in the extraction and separation to and obtain high molecular mass. Preparation of sericin based membranes for pervaporation separation is described and illustrated for ethanol-water separation aiming at concentrating ethanol. It is also shown the possibility of using the sericin protein to prepare transparent and homogeneous biofilms.

### **Bio**

Marcelino is a lecturer of chemical engineering at state university of maringá (uem), brazil. Post-Doctoral research at the Chemical Engineering Department, University of Waterloo, On, Canada (2005). PhD in chemical engineering at the University of Leeds, UK (1992). He has taught Unit Operations and Separation Processes for Chemical Engineering and Food Engineering programs. Current research interests include: separation processes, membrane processes, treatment for water and wastewater, solids residues treatment and atmospheric pollution. He is taking a sabbatical year at Oxford University in 2011 working in collaboration with Dr. Nick Hankins.