

Chemistry Department

## Production of CGC by *Pichia pastoris*

Biochemical and Process Engineering Group



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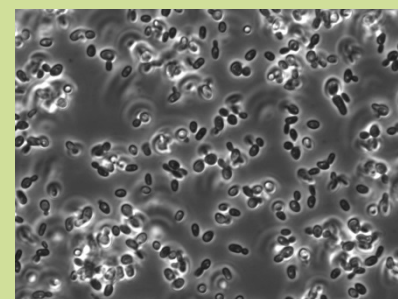
- 2007 - Degree in Applied Chemistry
- 2009 - Msc in Biotecnology
- 1 published paper
- 1 international provisional patent application

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## Objectives

The main objectives of this work are:

- Process development for production of Chitin-Glucan Complex (CGC) by using the yeast *Pichia pastoris* and glycerol as carbon source, considering the scale-up of the process
- Increasing of chitin content in CGC by changing of bioreactor operation conditions (pH, temperature, for example)
- Optimization of CGC extraction process using environment friendly solvents
- Study of physico-chemical and biological properties of CGC



## Methodology

- CGC production will be performed by fed-batch/continuous bioreactor with BSM medium supplemented with glycerol.
- CGC extraction will be optimized by testing different treatment conditions (such as temperature and process time) and by using different solvents.
- Physico-chemical properties of CGC will be evaluated, including the composition of chitin and  $\beta$ -glucan, molecular weight and thermal properties. It will be also study the biological activity of CGC in order to find potential applications in medical or pharmaceutical area.



## Expected Results

The expected results of this work are:

- Fermentation process optimization and pilot-scale reimplementation
- Production of CGC with high chitin content
- Environmentally friendly and cost-effective downstream process
- Evaluation of specific applications for the biopolymer, specially in medical and pharmaceutical areas.



Acknowledgments:

This project is financially supported by Pharma73 S.A.