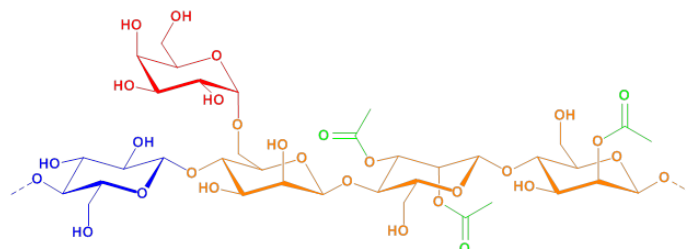


# Research-based education at Åbo Akademi Process Chemistry Centre

## Non-Cellulosic Plant Polysaccharides

6 ECTS, October 15-18, 2013

Course code: 423803.0



### Course topic:

Structure and analysis, occurrence and applications of mannans, xylans, xyloglucans, starch and pectins

### Course leaders:

Prof. Stefan Willför, Docent Anna Sundberg, & Docent Chunlin Xu

Laboratory of Wood and Paper Chemistry (<https://www.abo.fi/institution/en/traochpapperskemi>)

### Other confirmed lecturers:

Academy Prof. Tapio Salmi, & Docent Andrey Pranovich

Prof. Maija Tenkanen, & Docent Kirsi Mikkonen, University of Helsinki

DI Aki Laine, Chemigate

Dr. Francisco Vilaplana, KTH, Sweden

...

Registration to the course no later than **October 4th 2013** by e-mail to [cxu@abo.fi](mailto:cxu@abo.fi). PhD-students from Finnish universities, register to the course by sending the signed JOO-application ([www.joopas.fi](http://www.joopas.fi)) to course coordinator:

Chunlin Xu

Åbo Akademi University

Laboratory of Wood and Paper Chemistry

Porthansgatan 3

FIN-20500 Åbo/Turku

Course price for representatives from the industry and research institutes 800€ and for foreign students 300€. Course price includes: Lectures, Course material, Coffee & Tea, Get-together light dinner, Examination, Certificate of participation and/or Certificate of a passed examination.

Graduate school students, please mention the name of your graduate school upon registration! PhD students enrolled in the BIOREGS (<http://blogs.helsinki.fi/bioregs-gs>) or members of the PolyRefNorth-network (<http://www.helsinki.fi/polyrefnorth>) are given a priority and are free of registration fees. Chunlin Xu will try to answer all your questions, do not hesitate to ask!

**See you in October in Turku!**



**BIOREGS**



**norden**

NordForsk



## **Tuesday 15.10, Definitions, mannans, xyloglucans**

9.30 Registration and coffee

10.00 Welcome and introduction

Non-cellulosic polysaccharides, important terms and definition  
*Stefan Willför*

Mannans, structure and occurrence  
*Stefan Willför*

12.00 Lunch

13.15 Isolation of mannans  
*Stefan Willför*

Purification of isolated polysaccharides  
*Risto Korpinen*

Functionalisation of hemicelluloses  
*Stefan Willför*

Xyloglucans, structure, occurrence and applications  
*Chunlin Xu*

Initialising group work

## **Wednesday 16.10, xylans, pectins biotechnology**

8.30 Xylans: structure, occurrence and isolation  
Enzymes for polysaccharides  
*Maija Tenkanen, University of Helsinki*

Chemoenzymatic approaches to design polysaccharides materials  
*Chunlin Xu*

12.00 Lunch

13.15 Pectins, Methoxy  
*Andrey Pranovich*

Group work

19.30 Get-together

## **Thursday 17.10, starch, analysis**

8.45 Industrial modified starches

*Aki Laine, Chemigate*

Analysis of polysaccharides – Can we identify functionalized polysaccharides on surface?

*Hanna Lindqvist*

Characterization of polysaccharides by chromatography and mass spectrometry

*Chunlin Xu*

12.00 Lunch

13.15 Analysis of polysaccharides – depolymerisation & identification and quantification of sugar units, natural functional groups

*Anna Sundberg*

Analysis of polysaccharides – molar mass determination (basics)

*Francisco Vilaplana, KTH/WWSC*

Solution properties of polysaccharides

*Francisco Vilaplana, KTH/ WWSC*

Group work

## **Friday 18.10, Applications**

8.30 Edible and biodegradable future packaging materials from polysaccharides

*Kirsi Mikkonen, University of Helsinki*

Hydrolysis kinetics of polysaccharides

*Tapio Salmi*

Flash presentations of future research aspects by students

12.00 Lunch

13.00 Flash presentations of future research aspects by students (cont.)

Closing of the course