



10th ICCC – Euchis' 06

10th International Conference on Chitin & Chitosan
7th International Conference of the European Chitin Society

Le Corum – Montpellier – France
September 6-9 (2006)

Organized by:

The European Chitin Society
Ecole des Mines d'Alès
Université Claude Bernard, Lyon I

Chairmen

Alain Domard (France)
Eric Guibal (France)
Kjell Morten Vårum (Norway)

Scientific Committee

Maria-Jose Alonso (Spain)
Rong Huei Chen (Taiwan)
Laurent David (France)
Francisco Goycoolea (Mexico)
Malgorzata Jaworska (Poland)
Daizo Koga (Japan)
Keisuke Kurita (Japan)
Bruno Moerschbacher (Germany)
Gregory F. Payne (USA)
Martin G. Peter (Germany)
Arthur Retnakaran (Canada)
George Roberts (Great Britain)
Kensuke Sakurai (Japan)
Hitoshi Sashiwa (Japan)
Sevda Senel (Turkey)
Olav Smidsrød (Norway)

Program of the Conference

6 of September 2006

16h30-18h30: **Registration (Le Corum)**

18h30: **Welcome Reception (offered by *The City Hall of Montpellier*)**

7 of September 2006

8h30-8h45	Opening Ceremony (Auditorium Pasteur)	
8h45-9h30	Plenary 1: Olav Smidsrød: Highlights from 30 Years of Pure and Applied Research in Chitosan Chairman: Alain Domard (Auditorium Pasteur)	
	Session: Biological & Ecological Aspects (Auditorium Pasteur) Chair persons: <i>B. Moerschbacher & K.M. Vårum</i>	Session: Sources & Production (Room Joffre 1) Chair persons: <i>G.A.F. Roberts & M.M. Jaworska</i>
9h35-10h05	KB1: B. Moerschbacher Bioactivity Matrices for Partially Acetylated Chitosan Oligomers	KS1: W.F. Stevens Chitin & Chitosan Products Modification Controlled by Chemical & Enzymatic Treatment
10h05-10h25	OB1: G.B. Ouellette	OS:1: M.J. Taherzadeh
10h25-10h50	Coffee Break + Poster Session (Rooms Joffre 2 & 3)	
10h50-11h10	OB2: S. Bratskaya	OS2: N. Nwe
11h10-11h30	OB3: T. Sayo	OS3: M. Yanagisawa
11h30-11h50	OB4: S. Jaoua	OS4: C. Scholz
11h50	KB2: D. Koga Biological Roles and Application of Chitinase	^{11h50} OS5: S.P. Campana-Filho
		^{12h10} OS6: B. Miralles
12h30-14h	Lunch (Central room)	
14h-14h45	Plenary 2: Marie-Thérèse Corvol: Tissue Engineering and Cartilage Repair: Limits and Perspectives Chairman: Alain Domard (Auditorium Pasteur)	
	Session: Enzymatic Aspects (Auditorium Pasteur) Chair persons: <i>D. Koga & V. Eijsink</i>	Session: Chemical Aspects I (Room Joffre 1) Chair persons: <i>K. Kurita & F. Goycoolea</i>
14h50-15h20	KE1: S. Kobayashi In Vitro Synthesis of Chitin & Chitosan Derivatives via Enzymatic Polymerization	KC1: K. Kurita Linear Polysaccharides as Precursors for Glucan-Chitin Hybrid Materials
15h20-15h40	OE1: D.M.F. Van Alten	OC1: A. Einbu
15h40-16h	OE2: T. Fukamizo	OC2: M.R. Kasaai
16h-16h30	Coffee Break + Poster Session (Rooms Joffre 2 & 3)	
16h30-16h50	OE3: G. Vaaje-Kolstad	OC3: S. Trombotto
16h50-17h10	OE4: S. Takahashi	OC4: C.-H. Chen
17h10-17h30	OE5: M.M. Jaworska	OC5: A. Gandini
17h30-17h50	OE6: M. Shimosaka	OC6: R. Auzely-Velty
17h50-18h10	OE7: V. Eijsink	OC7: R. Jayakumar
18h30	Cocktail (Offered by <i>La Région Languedoc-Roussillon</i>)	

8 of September 2006

	Session: Chemical Aspects II <i>(Room Joffre 5)</i> Chair persons: <i>M. Peter & A. Gandini</i>	Session: Physical & Physico-Chem. Aspects I <i>(Room Joffre 1)</i> Chair persons: <i>L. David & K. Sakurai</i>	Session: Applications in Life Sciences I <i>(Auditorium Pasteur)</i> Chair persons: <i>S. Senel & I. Nagaoka</i>
8h30-9h	KC2: M.G. Peter Protein-Ligand Interactions of Chitooligosaccharides	KP1: S. Tokura Molecular Aspects of Hydrated Chitin	KL1: H.-W. Sung Novel Nanoparticles Shelled with Chitosan for Oral Delivery of Protein Drugs
9h-9h20	OC8: H. Saimoto	OP1: F. Quignard	OL1: X. Shi
9h20-9h40	OC9: S. Chirachanchai	OP2: K. Sakurai	OL2: S. Senel
9h40-10h	OC10: F.M. Goycoolea	OP3: R. Terreux	OL3: A. Tourrette
10h-10h20	OC11: W.A. Neugebauer	OP4: T. Delair	OL4: E. Fernandez-Megia
10h20-10h45	Coffee Break + Poster Session (Rooms Joffre 2 & 3)		
10h45	^{10h45} OC12: A. Synytsya	^{10h45} OP5: J. Desbrières	KL2: S. Strand Chitosans as Gene Delivery Vehicles
	^{11h05} OC13: M.-C. Heuzey	^{11h05} OP6: R.H. Chen	
11h25-12h	Euchis General Assembly (Room Joffre 1)		
12h-13h30	Lunch (Central room)		
13h30-13h45	Official Photograph		
13h45	Departure for the Tour and Banquet		
	Visits of: “La Grande Motte”, “Port Camargue” and “Aigues-Mortes” (Boat trip between La Grande Motte and Port Camargue)		
	Banquet Dinner at “le Domaine du Grand Malherbes”		

	Session: Applications in Life Sciences II (Auditorium Pasteur) Chair persons: <i>H.-W. Sung & A.R. Podile</i>	Session: Applications in Other Fields (Room Joffre 1) Chair persons: <i>G.F. Payne & R.-H. Chen</i>
8h45-9h15	KL 3: S. Minami Biomedical Effects of Chitin and its derivatives with special reference to Skin, Cartilage, & Tendon Repair	KA1: R. Ghodssi Chitosan: an Interface between Biology and Microsystems
9h15-9h35	OL5: S. Ladet	OA1: K. Inoue
9h35-9h55	OL6: Y. Okamoto	OA2: I. Dez
9h55-10h15	OL7: T. Ganno	OA3: G.F. Payne
10h15-10h35	OL8: C. Tan	OA4: F. Peirano-Blondet
10h35-11h	Coffee Break + Poster Session (Rooms Joffre 2 & 3)	
11h-11h20	OL9: Y. Hayashi	OA5: R.S. Vieira
11h20-11h40	OL10: E. DesRosiers	OA6: T. Hakonsen
11h40-12h00	OL11: G.J. Tsai	OA7: S. Vilchez
12h00-12h20	OL17: M. Buschmann	OA8: G. Karthikeyan
12h30-14h	Lunch (Central room)	
	Session: Applications in Life Sciences III (Auditorium Pasteur) Chair persons: <i>S. Strand & S. Minami</i>	Session: Physical & Physico-Chem. Aspects II (Room Joffre 1) Chair persons: <i>S. Tokura & W. Argüelles Monal</i>
14h00-14h30	KL4: I. Nagaoka Anti-Inflammatory and Anti-Platelet Actions of Glucosamine	KP2: L. David The Concept of Chemical and Physical Decoy of Biological Media: Applications for Tissue Engineering
14h30-14h50	OL12: A.R. Podile	OP7: G.A.F. Roberts
14h50-15h10	OL13: A. Bornet	OP8: W. Argüelles-Monal
15h15-15h45	Coffee Break + Poster Session (Rooms Joffre 2 & 3)	
15h45-16h05	OL14: T.T. Franco	OP9: E. Belamie
16h05-16h25	OL15: T. Helgason	OP10: S. Popa-Nitta
16h25-16h45	OL16: S. Méthot	OP11: H.K. Holme
17h	Concluding Remarks – Closure (Auditorium Pasteur)	

1st Prefix: K – Keynote Lecture O – Oral Presentation P – Poster Presentation
2nd Prefix: Session:

B: Biological & Ecological Aspects
S: Sources & Production
E: Enzymatic Aspects
C: Chemical Aspects
P: Physical & Physico-chemical Aspects
L: Applications in Life Sciences
A: Applications in Other Fields

PLENARY LECTURES (*Auditorium Pasteur*)

- Plenary Lecture 1:** Highlights from 30 Years of Pure and Applied Research on Chitosans
O. Smidsrød, K.M. Vårum
- Plenary Lecture 2:** Tissue Engineering and Cartilage Repair: Limits and Perspectives
M.-T. Corvol

ORAL & KEYNOTE PRESENTATIONS

Session: "Biological & Ecological Aspects" (*Auditorium Pasteur*)

KB1: Bioactivity Matrices for Partially Acetylated Chitosan Oligomers

B. M. Moerschbacher, N.E. El Gueddari, E.N. de Oliveira jr, A.L. Wendt dos Santos, S. Trombotto, A. Domard

OB1: Means Some Fungal Pathogens have to Overcome Aberrations to their Chitin-Containing Wall Layers in Host Plants, as Indicated by Cytochemical Ultrastructural Studies

G.B. Ouellette, H. Chamberland, L. Bernier, P.M. Charest

OB2: Preparation and Characterization of Chitosan-Based Coatings for Prevention of Bacterial Adhesion

S. Bratskaya, H.J. Busscher, D. Marinin, S. Schwarz, F. Simon, H.C. van der Mei, S. Zschoche

OB3: Effect of N-Acetylglucosamine on Hyaluronan Production in the Skin Cells

T. Sayo, S. Sakai, Y. Sugiyama, Y. Matahira, K. Sakai, S. Inoue

OB4: Molecular Characterization of a Novel Chitinase from *Bacillus thuringiensis* subsp. *kurstaki*

S. Jaoua, F. Driss, A. Baanannou, A. M. Kallassy-Awad, N. Zouari

KB2: Biological Roles and Application of Chitinase

D. Koga

Session: "Sources & Production" (*Room Joffre 1*)

KS1: Chitin and Chitosan Product Modification Controlled by Chemical and Enzymatic Treatment

W. F. Stevens

OS1: Production of Chitosan with Filamentous Fungi *Rhizopus oryzae*

A. Zamani, K. Karimi, *M. J. Taherzadeh*

OS2: Effect of NaOH Treatment Conditions on the Nature of Fungal Chitosan-glucan Complex and Chitosan Production

N. Nwe, W. F. Stevens, D. Montet, S. Tokura, H. Tamura

OS3: Molecular Characterization of Chitin and Chitosan by SEC-MALS

M. Yanagisawa, Y. Kato, Y. Yoshida, A. Isogai

OS4: Qualification of Different Chitosan Preparations for Medical Applications

C. Scholz, J. Brandner, I. Moll

OS5: New Routes for the Deacetylation of Chitin

S. P. Campana-Filho, R. Thouvignon, A. Domard

OS6: Effect of Dry Heat on Some Physical and Chemical Properties of Chitosan

B. Miralles, G. Galed, M. Mengibar, A. Heras

KE1: In Vitro Synthesis of Chitin and Chitin Derivatives via Enzymatic Polymerization

S. Kobayashi, A. Makino

OE1: Structure and Mechanism of Chitin Deacetylase

D. Blair, A. Schuettelkopf, *D.M.F. van Aalten*

OE2: Exo- β -D-glucosaminidase from *Amycolatopsis orientalis*: Catalytic Residues, Sugar Recognition Specificity, Kinetics, and Synergism

T. Fukamizo, A. Fleury, N. Cote, M. Mitsutomi, R. Brzezinski

OE3: Structure-function Studies of CBP21, a Non-catalytic Chitin-binding Protein Promoting Chitin Degradation

G. Vaaje-Kolstad, S.J. Horn, D.R. Houston, B. Synstad, D.M.F. Van Aalten

OE4: Stabilization of GlcNAc 2-epimerase (Renin-Binding Protein) by Nucleotides

S. Takahashi, K. Hori, K. Hiwatashi, H. Ogasawara, T. Sugiyama

OE5: Reactor with a Product Separation for Enzymatic Deacetylation of Chitosan

M. M. Jaworska, E. Konieczna

OE6: Functional Analysis of a Novel C-Terminal Domain Found in a Chitinase from the Koji Mold *Aspergillus oryzae*

M. Shimosaka, A. Sugii, A. Sugita, X.-Y. Zhang, K. Sato

OE7: Processivity and Endo- Versus Exo-mechanism in Family 18 Chitinases Produced by *Serratia marcescens*

S.J. Horn, A. Sørbotten, B. Synstad, P. Sikorski, M. Sørli, K.M. Vårum, *V.G.H. Eijsink*

Session: "Chemical Aspects I" (Room Joffre 1)

KC1: Linear Polysaccharides as Precursors For Glucan-Chitin Hybrid Materials

K. Kurita, H. Takahara, M. Kouma, J. Yang, M. Shimojoh

OC1: Hydrolysis of Chitin Oligomers in Concentrated Hydrochloric Acid

A. Einbu, K.M. Vårum

OC2: Overview on Kinetics of Degradation Processes for Chitin and Chitosan

M.R. Kasaai

OC3: Chemical Synthesis of Chitin and Chitosan Oligomers with Controlled Sizes and Architectures

S. Trombotto, A. Pernet-Poil-Chevrier, N. Barroca, A. Domard

OC 4: Study of Chitosan/Poly (Vinyl Alcohol)/Gelatin Ternary Blend Films

C.-H. Chen, F.-C. Wu

OC5: Thin Films of Photocrosslinkable Polymer Electrolytes Based on Chitosan Grafted with PEO Oligomers and a Furan Chromophore

A. Gandini, J.F. Le Nest, S. Hariri

OC6: Novel Thermogelling Hybrid Copolymers Based on Chitosan. Synthesis and Properties in Aqueous Solution

C. Creuzet, M. Rinaudo, *R. Auzély-Velty*

OC7: Synthesis, Characterization and Thermal properties of Chitin-g-Poly(Caprolactone) Copolymers by Using Chitin Gel

R. Jayakumar, H. Tamura

Session: "Chemical Aspects II" (Room Joffre 5)

KC2: Protein-Ligand Interactions of Chitoooligosaccharides as Revealed by X-ray, NMR, and MS Analysis

M.G. Peter

OC8: Synthesis of Novel UV-curable Chitosan Derivatives and Their Palladium Adsorption Property

E. Renbutsu, Y. Omura, F. Nakatsubo, S. Minami, *H. Saimoto*, Y. Shigemasa

OC9: One Pot Preparation of Chitosan Nanoscaffold and its Effective Functionalization with Sugar for Soft and Cotton-like Material

S. Phongying, S. Aiba, *S. Chirachanchai*

OC10: Molecularly Imprinted Chitosan-Genipin Hydrogels with Recognition Capacity towards PCB Analogues

B.M. Espinosa-García, W.M. Argüelles-Monal, J. Hernández-Martínez, L. Félix-Valenzuela, *F.M. Goycoolea*

OC11: Glycation of Peptides with Oligochitosan on the Solid Support

W.A. Neugebauer, R. Brzezinski, S. Bélanger, D. Barbaz, F. Gobeil Jr.

OC12: Chitosan as a Polymeric Scaffold for the Aggregation of Meso-tetrakis(4-sulphonatophenyl)Porphine

An. Synytsya, Al. Synytsya, P. Blafková, M. Maryška, J. Ederová, J. Spěvaček, J. Čopíková, K. Volka, V. Král

OC13: Viscoelastic Properties of Phosphoric and Oxalic Acid-based Chitosan Hydrogels

M. Hamdine, *M.-C. Heuzey*, A. Bégin

Session: “Physical & Physico-Chemical Aspects I” (Room Joffre 1)

KP1: Molecular Aspects of Hydrated Chitin

S. Tokura, H. Tamura

OP1: Accessibility of the Functional Groups of Chitosan Probed by FT-IR Spectroscopy of Deuterated Aerogels and Xerogels

R. Valentin, B. Bonelli, E. Garrone, F. Di Renzo, *F. Quignard*

OP2: Crystal or Ordered Structure of Chitosan Derivatives

Y. Wu, *K. Sakurai*

OP3: Dynamic Study of the Interaction between Ions and a 30 Monomers Chitosan Chain.

R. Terreux, M. Domard, A. Domard

OP4: Versatile and Efficient Formation of Nano-particles of Polysaccharide-based Polyelectrolyte Complexes

T. Delair, C. Schatz, A. Drogoz, A. Bionaz, C. Viton, L. David, A. Domard

OP5: Dynamic Surface Tension and Viscoelastic Properties of Adsorption Layers of Amphiphilic Chitosan Derivatives Systems

J. Desbrières, V.G. Babak, C. Bousquet

OP6: Preparation Conditions Affect the Pore Size, Water Vapor Permeability and Other Physical Characteristics of Resulting Chitosan-gamma-polyglutamic Acid Complex Scaffolds

H.P. Win, J.G. Lee, *R.H. Chen*

Session: “Physical & Physico-Chemical Aspects II” (Room Joffre 1)

KP2: The concept of Chemical and Physical Decoy of Biological Media: Applications for Tissue Engineering

L. David, A. Montembault, N. Boucard, S. Ladet, S. Popa-Nita, S. Trombotto, A. Domard, K. Tahiri, C. Korwin-Zmijowska, M.-T. Corvol.

OP7: Studies on the Mechanism of Chitosan-Induced Metachromasy

G.A.F. Roberts

OP8: Physico-chemical Behavior of Chitosan Grafted N-Isopropylacrylamide Copolymers

M. Recillas-Mota, L. Silva, F.M. Goycoolea, C. Peniche, M. Rinaudo, *W. Argüelles-Monal*

OP9: Chitin Colloidal Liquid-Crystals, Biomimetic Self-Assembly and Materials.

E. Belamie, P. Davidson, M.M. Giraud-Guille

OP10: Analysis of the Structure of Solutions, Gels and Nanoparticles of Tailor-Made Chitosans with Controlled DA and DP

S. Popa-Nita, L. David, C. Rochas, A. Domard

OP11: Stability of Chitosan in Solution and in Solid State

H.K. Holme, A. Kristiansen, O. Smidsrød

Session: “Applications in Life Sciences I” (*Auditorium Pasteur*)

KL1: Novel Nanoparticles Shelled with Chitosan for Oral Delivery of Protein Drugs

Y.-H. Lin, C.-T. Chen, H.-F. Liang, P.-W. Lee, F.-L. Mi, *H.-W. Sung*

OL1: Quaternized Chitosan/Alginate Nanoparticles for Protein Delivery

X. Shi, Y. Du

OL2: Chitosan for Mucosal Delivery in Veterinary Medicine

S. Senel, S. McClure

OL3: Design of New Chitosan/Silica Composites for Drug-Delivery Systems

A. Tourrette, C. Tourne-Peteilh, S. Bégu, J.M. Devoisselles, F. Quignard

OL4: Aggregation and Synthetic Studies on Chitosan and PEG-Grafted Chitosan

E. Fernandez-Megia, R. Novoa-Carballal, E. Quiñoa, R. Riguera

KL2: Chitosans as Gene Delivery Vehicles

S.P. Strand, K.M. Vårum

Session: “Applications in Life Sciences II” (*Auditorium Pasteur*)

KL3: Biomedical Effects of Chitin and its Derivatives with Special Reference to Skin, Cartilage, and Tendon Repair

S. Minami, Y. Okamura, Y. Okamoto

OL5: A New Design Architecture for Tissue Engineering

S. Ladet, L. David, A. Domard

OL6: Tendon Regeneration by GlcNAc and Fish Collagen Peptide

Y. Okamoto, N. Eto, Y. Okamura, Y. Matahira, S. Minami

OL7: Early Gene Expression Analyzed by cDNA Microarray and Real-time PCR in Osteoblasts Cultured with Chitosan Monomer.

T. Ganno, S. Yamada, N. Ohara, T. Matsunaga, T. Ikeda, Y. Hayashi

OL8: Pro-apoptotic Effect of Chitosan Oligosaccharides on Neutrophils Separated from Glycogen-induced Peritonitis in Mice

J. Dou, *C.-Y. Tan*, Y. Du, X. Bai, K. Wang, X. Ma

OL9: Chewing-gum Containing Chitosan Effectively Inhibits the Growth of Cariogenic Bacteria

Y. Hayashi, N. Ohara, T. Ganno, K. Yamaguchi, T. Nakamura, M. Sato

OL10: Design and Development of Chitosan-Based Thermogels for Tissue Repair and Therapeutic Applications

E. DesRosiers, C. Jarry, D. Wang, A. Serreqi, M. Shive, A. Chenite

OL 11: Immunomodulatory Activity of Oral Administration of Chitosan Hydrolytic Products in BALB/C Mice

G.-J. Tsai, G.-J. Wu

OL17: Hybrid Biomaterials Composed of Chitosan and Blood Improve Cartilage Repair in Animal Models

M.D. Buschmann, C.D. Hoemann, M.S. Shive, E. Rossomacha, A. Chevrier, M.B. Hurtig

KL4: Anti-Inflammatory and Anti-Platelet Actions of Glucosamine

I. Nagaoka, J. Hua, S. Yomogida, Y. Tsutsumi-Ishii, K. Sakamoto

OL12: Use of Chitin and Chitinolytic Bacteria for the Control of Late Leaf Spot Disease of Groundnut

A.R. Podile, K.K. Gali, A. Kondreddy, P. Pallinti

OL13: Chitosan, Chitin Glucan and Chitin Effects on Minerals (Iron, Lead, Cadmium) and Organic (Ochratoxin A) Contaminants in Wines

A. Bornet, P. L. Teissedre

OL14: Bioactivity of Chitosans Against Fruit Phytopathogens

E.N. Oliveira Junior, N.E. El Gueddari, M.G. Peter, B.M. Moerschbacher, **T.T. Franco**

OL15: Influence of Chitosan on Lipase Activity and Bioavailability of Fatty Acids during Lipid Digestion

T. Helgason, J. Gislason, D. J. McClements, K. Kristbergsson, J. Weiss

OL16: High Efficiency Genet Transfer Using Chitosan/DNA Nanoparticles with Specific Combinations of Molecular Weight and Degree of Acetylation

S. Méthot, M. Lavertu, P. L. Ma, F. Winnik, M.D. Buschmann

KA1: Chitosan: an Interface between Biology and Microsystems

R. Ghodssi, S. T. Koev, M. A. Powers, V. Badilita, H. Yi, L-Q. Wu, W. E. Bentley, G. W. Rubloff, G. F. Payne

OA1: Removal of Long-Lived Minor Actinides by Means of Solvent Extraction with Lipophilic Chemically Modified Chitosan

K. Inoue, K. Ohto, K. Yoshizuka, H. Naganawa, S. Tachimori

OA2: Chitosan-supported Ionic Liquid Phase: Application to Organometallic Catalysis

J. Baudoux, **I. Dez**, A.-C. Gaumont, P.-J. Madec

OA3: Biofabrication with Chitosan – Connecting the Nano and Macro Worlds

G. F. Payne, C. Zhu, L.-Q. Wu, S. R. Raghavan, W. E. Bentley, R. Ghodssi

OA4: Hydrogenation of Nitrotoluene Using Palladium Supported on Chitosan Hollow Fiber. Influence of Experimental Parameters

F. Peirano Blondet, T. Vincent, E. Guibal.

OA5: Equilibrium and Kinetic of Copper Ion Adsorption onto Natural and Crosslinked Chitosan Membranes

R.S. Vieira, E. Meneghetti, M.M. Beppu, E. Guibal

OA6: The Use of Chitosan in Water Treatment - An Assessment of Practical Application

T. Hakonsen

OA7: Influence of Chitosan on Wool Treatment with Enzymes

S. Vilchez, A.M. Manich, P. Jovancic, P. Erra

OA8: A Comparative Study of the Metal Ion Adsorption Capacities of Chitin and Chitosan

G. Karthikeyan, K. Anbalagan, N. Muthulakshmiandal

POSTERS (Room Joffre 2 & 3)

"Ecological & Biological Aspects"

PB1: Study on Antimicrobial Activities of Quaternary Ammonium Modified Chitin-PAA Gels

S. Tanodekaew, S. Channasanon, P. Uppanan

PB2: Application of Chitosans and Yeast as Growth Inhibitors of *Penicillium digitatum*

N. Pacheco, P. Larralde, M. Plascencia, A. Domard, K. Shirai

PB3: Impact of Chitosan on Growth Inhibition of Micro-organisms Isolated from Fishery Products

Z. Cruz, H.L. Lauzon, *I. Olabarrieta*, J.C. Arboleya, M. Nuin, F. Amarita, I. Martínez de Marañón

PB4: Myosin-dependent Chitin Synthesis: new Perspectives for Mollusk Shell Biomineralization

I. M. Weiss, V. Schönlitzer, F. Lüke, N. Eichner

PB5: In Vivo Studies on the Biodegradation Processes of Chitin and Chitosan

T. Ikeda, K. Yanagiguchi, T. Matsunaga, S. Yamada, N. Ohara

PB6: Chitinase Inhibitor Allosamidin is a Signal Molecule for Chitinase Production in its Producing *Streptomyces*

S. Suzuki, E. Nakanishi, T. Ohira, R. Kawachi, Y. Ohnishi, S. Horinouchi, H. Nagasawa, *S. Sakuda*

PB7: Chitinolytic Bacteria from the Soil of a Chitosan-Producing Company

C. Neeraja, A.R. Podile, D. Gillet, B.M. Moerschbacher

PB8: Chito-Oligosaccharides Induces PAL Activation, Cell Death and Water Peroxide Production in *Arabidopsis* Cell Suspensions

J.C. Cabrera, J. Messiaen, P. Cambier, P. Van Cutsem

PB9: Photothermal and Structural Comparative Analysis of Chitinous Exoskeletons of Marine Invertebrates

B.A. Juárez-de la Rosa, P.-L. Ardisson, P. Quintana, J.J. Alvarado-Gil

PB10: Excretion of Material from or Across Walls of Fungal Cells

G.B. Ouellette

PB11: Synthesis and Properties Improve of Azole Chitosan Derivatives Having a Phosphate Glucose Unit Functional Groups as an Antifungal Effect

S.-R. Ryu, G.-Y. Ryu, T. Watanabe, T. Mikami, T. Matsumoto

PB12: Synthesis and Preliminary Biological Studies of Novel Retinamide Derivatives Having a Phosphate Glucosamine Unit Functional Groups

S.-R. Ryu, G.-Y. Ryu, T. Watanabe, T. Mikami, T. Matsumoto

PB13: Toxic Effect of an Insect Chitin Inhibitor, Flufenoxuron on Freshwater Microinvertebrate (*Tetrahymena pyriformis*)

R. Rouabhi, H. Debar-Berrebah, M.R. Djebbar

PB14: Chitin Distribution in Molluscan Cuticle and Shell

T. Furuhashi, H. Meschke, H. Schrempf, G. Steiner

"Sources & Production"

PS1: Fungal Biomass as an Alternative Source of Chitin and Chitosan

F. Di Mario, E. Galli, P. Rapanà, U. Tomati

PS2: Chitin Reactivity During Thermoalkaline Heterogeneous Deacetylation: Comparative Kinetic Study

E.I. Diaz-Rojas, W.M. Argüelles-Monal, J. Hernández-Martínez, G. Galed, J. Lizardi, **F.M. Goycoolea**

PS3: Isolation of Useful Bioproducts Remaining from the Large scale Fermentation of *Penicillium chrysogenum*

H.R. Watson, D.R.W. Hodgson, R. Edwards, J. Davies, R. Johnson

PS4: Characterization of Chitosan Heterooligosaccharides Fractions Obtained with Enzymatic Depolymerization

G. Galed, **B. Miralles**, M. Mengibar, A. Heras

PS5: Physico-chemical Characterization of Chitosan from Fungi and Crabs

T.L.M. Stamford, T.C.M. Stamford, T.M. Stamford, P. Santa Cruz, A. Rosenblatt, G. Campos-Takaki

PS6: Chitin and Chitosan Production by *Cunninghamella elegans* UCP 542 in a new economic medium

N.P. Stamford, T.C.M. Stamford, T.L.M. Stamford, L.O. Franco, A. Rosenblatt, G.M. Campos-Takaki

PS7: Nitrogen Balance of Fungal Chitosan Synthesis in Solid Substrate Fermentation

N. Nwe, W.F. Stevens, H. Nagahama, S. Tokura, H. Tamura

PS8: Production and Application of Chitosan from Fungus, Yeast in Agricultural Sector

T. Han, **N. Nwe**, M.M. Oo, K.N. Aye

PS9: Production of Chitin from Shrimp Shell Waste Using Proteolytic Extract from *Carica papaya*

G.I.J. Aruldass, K. Rathnakumar, G.A.V. Pandidurai

"Enzymatic Aspects"

PE1: Purification, Heterologous Expression and Molecular Characterization of Chitin Deacetylase from *Rhizopus circinans*

C. Gauthier, F. Cl  risse, M-F. Jaspar-Versali, J. Dommes

PE2: Heterologous Expression of a Chitinase from *Cucumis sativus* in a Recombinant Yeast

M.F. Jaspar-Versali, J. Denoyelle, C. Gauthier, F. Cl  risse, J. Dommes

PE3: Identification of a High-Affinity Binding Oligosaccharide by (+) Nanoelectrospray Quadrupole Time-of-flight Mass Spectrometry of a Non-covalent Enzyme-ligand Complex

F. H. Cederkvist, A. Zamfir, S. Bahrke, **V.G.H. Eijssink**, M. S  rlie, J. Peter-Katalini  , M.G. Peter

PE4: Natural Substrate Assay for Chitinases Using High Performance Liquid Chromatography: Determination of Kinetic Parameters

I-M. Krokeide, F.H. Cederkvist, S.J. Horn, **V.G.H. Eijssink**, M. S  rlie

PE5: Thermodynamic Study of Chitoooligosaccharide Binding to Chitinase B of *Serratia marcescens*

F.C. Cederkvist, S.F. Saua, V. Karlsen, S. Fjeld, S. Sakuda, **V.G.H. Eijssink**, M. S  rlie

PE6: Crystal Structure and Enzymatic Properties of a Bacterial Family 19 Chitinase Reveal Differences with Plant Enzymes

I. A. Hoell, B. Dalhus, E.B. Heggset, S.I. Aspmo, V.G.H. Eijssink

PE7: Degradation of Chitosan with Chitinase G from *Streptomyces coelicolor* A3(2)

E.B. Heggset, M. Kristoffersen, I.A. Hoell, S.J. Horn, V.G.H. Eijssink, K.M. V  rum

PE8: Characterisation and Heterologous Expression of Chitin-De-N-Acetylases from *Fusarium graminearum* in *Schizosaccharomyces pombe*

S. Feldner, B. Jaszczuk, C. Schulze Gronover, **A. Schaaf**, B.M. Moerschbacher

PE9: Characterisation and Heterologous Expression of Chitin N-Acetylases from *Ustilago maydis* in *Escherichia coli* and *Aspergillus niger*

M. Rhotert, B. G  nther, **R. Sareen**, J. K  mper, B.M. Moerschbacher

PE10: Chitosanase from *Fusarium graminearum*

F. Bernard, B.M. Moerschbacher

PE11: Chitosanase from *Alternaria alternata*

M. Kohlhoff, **N. E. El Gueddari**, E.N. Oliveira Jr., T.T. Franco, B.M. Moerschbacher

PE12: Evaluation of Chitinolytic Activities of *Lecanicillium* Strains Cultivated with Addition of Hydrocarbons as Carbon Source

K. Shirai, **M.C. Mar  n**, E. Soriano, M. Archundia, M. Maga  a, S. Revah

PE13: Detection of Exo-Chitinase Activity from Submerged Culture of *Lecanicillium fungicola*

J. Espinosa, L. Ramirez Cout  o, **T.T. Franco**, K. Shirai

PE14: Bioscreening of Fungi for Extracellular Chitin Deacetylase

U. Stoll, C. Kulmann, J. Warrelmann, W. Heyser

PE15: Production of Chitinolytic Enzymes by a Strain (BM17) of *Paenibacillus amylolyticus* Isolated from Crab Shells Samples Collected in the East Sector of Central Tyrrhenian Sea.

B. Juarez Jimenez, A.M. Gallo, **M. Fenice**

PE16: Purification and Characterization of f  N-Acetylhexosaminidase from the Liver of Japanese Common Squid *Todarodes pacificus*

M. Matsumiya, N. Suzuki, H. Tanaka, M. Shigeo

PE17: Cloning of the Gene Encoding A Novel Goose Type Lysozyme-Like Enzyme from Moderately Thermophilic Bacterium *Ralstonia* sp. A-471

M. Ueda, T. Konishi, A. Sutrisno, H. Okada, M. Nakazawa, K. Miyatake

**PE18: Structure and Antifungal Activity of a Novel Chitinase from the Leaves of a Fern (*Pteris ryukyuensis*):
The Role of LysM Domains in Antifungal Activity of the Chitinase**

T. Taira, S. Onaga, M. Ishihara

PE19: Enzymatic Preparation of Mono-N-Acetylated Chitooligosaccharides

M. Mitsutomi, M. Ueda, M. Nakazaw, K. Miyatake, K. Seki

**PE20: Improved Production of Chitosan Oligosaccharides Having Physiological Activities Using
Immobilized Chitosanases**

T. Kuroiwa, S. Ichikawa, S. Sato, S. Mukataka

**PE21: Production of Chitosan Oligosaccharides at a High Concentration by Chitosanase Directly
Immobilized on an Agar Gel Coated Multidisk Impeller**

M. Ming, **T. Kuroiwa**, S. Ichikawa, S. Sato, S. Mukataka

PE22: Secretion of Chitosanases

M. G. Ghinet, H. Li, W.A. Neugebauer, R. Morosoli, **R. Brzezinski**

"Chemical Aspects"

PC1: FT-IR Spectroscopic Analysis of Fungal Chitosans from Mycelium *Aspergillus niger* and Chitosan Contained Food Supplements

J. Copikova, *An. Synytsya*, K. Mickova, P. Blafkova

PC2: Mass Spectrometry of Oligochitosans

W.A. Neugebauer, M.-P. Dubeau, M.-È. Lacombe-Harvey, R. Brzezinski

PC3: Validation of Simple Liquid Phase ¹H NMR Method for the Determination of Degree of Deacetylation of Chitosans

A. Serreqi, M. Lavertu, A. Rodrigues, M. Berrada, D. Wang, *A. Chenite*

PC4: Synthesis of (1→4)-b-D-Glucosamine Tetrasaccharide

H. Liu, *C.-Y. Tan*, Y. Du, X. Bai, X. Ma, Yuguo Du

PC5: Chemical Synthesis of Chitooligosaccharides with Controlled Sizes and Architectures

A. Pernet-Poil-Chevrier, N. Barroca, S.Trombotto, A. Domard

PC6: Synthesis of Novel Polysaccharides Having Amino Sugar Branches from Cellulose

M. Nagatsuka, J. Yang, M. Shimojoh, K. Kurita

PC7: Synthesis of Partially Acetylated Chitotetraoses

A. Issaree, M.G. Peter

PC8: Synthesis of Thio-Oligosaccharides and Glycosides

D. Peikow, C.-M. Matern, K.-D. Spindler, U. Schilde, *M. G. Peter*

PC9: Synthesis of Na-(3-Bromopropanoyl)-amino Acids and its Binding to Chitosan

M.K.S. Batista, C.A.R. Gomes, P. Gomes

PC10: Synthesis of PAMPS-modified oligochitosan hydrogels via acrylamidomethylation by NMA/NH₄Cl

W. Janvikul, W. Kosorn, P. Ngamviriyavong

PC11: In-Gel Carboxyethylation of Chitosan by β-Halopropionic Acids

A. V. Pestov, Y.A. Skorik, Y.G. Yatluk

PC12: Thiocarbamoylation of Chitosan

A. V. Pestov, Y.G. Yatluk, Y.A. Skorik

PC13: Novel Unique Reagent for Preparation of Carboxyethyl Chitosan-β-Acryloyloxypropionic Acid

Y.G. Yatluk, *A.V. Pestov*, Y.A. Skorik

PC14: Synthesis and Characterization of Phosphorylated Chitosan by New Method

R. Jayakumar, H. Tamura

PC15: Synthesis of Amphiphilic Chitosan Derivatives through the Introduction of Long-Chain Alkyls

C. Ohira, J. Yang, K. Kurita

PC16: Chiral Separation of Amino Acids by Using Chitosan Derivatives as Mobile Phase Additives

J. Yang, K. Ohnishi, K. Kurita

PC17: Low Molecular Weight Chitosan-g-L-Phenylalanine: Preparation, Characterization, and Feasible Application

R. Yoksan, M. Akashia

PC18: Preparation and Properties of Carboxymethylchitosan

F. R. Abreu, *S. P. Campana-Filho*

PC19: Preparation of Silver Nanoparticles on a Chitosan Film by UV Irradiation Method

C.-H. Chen, F.-C. Wu

PP1: Effects Accompanying Sorption in Chitosan Blends

M. Mucha, S. Ludwiczak, J. Balcerzak

PP2: Novel Peptide Chitosan Derivatives – Some Physico-chemical Properties

M.K.S. Batista, L.F. Pinto, P.A.P. Silva, *C.A.R. Gomes*, P. Gomes

PP3: Partial Reacetylation of Chitosan Improves the Thermosensitivity of Chitosan/Glycerophosphate System

A. Chenite, C. Jarry, M. Shive, E. DesRosiers

PP4: Overview on Molecular Weight Distribution and N-Acetyl Glucosamine/ Glucosamine Unit of Original and Degraded Chitin and chitosan

M.R. Kasaai

PP5: Oxidative Degradation of Chitosan Using Hydrogen Peroxide

K. Ziani, S. Grelier, J.M. Caballero, V. Coma

PP6: Solid State Acid Hydrolysis of Chitosan. Evolution of the Crystallinity and Macromolecular Structure.

A. Osorio, S. Trombotto, C. Peniche, L. David, A. Domard

PP7: Chitosan Macrofibers for Tissue Engineering

R.N. Rivas, L. David, A. Domard

PP8: Synthesis and Morphological Investigation of Colloidal PECs from Polysaccharides

A. Drogoz, A. Domard, L. David, T. Delair

PP9: Two-Component Solvent for Measurements of Average Molecular Weight of Chitosan with High Degree of Deacetylation

R. Czechowska-Biskup, A. Henke, P. Ulanski, J.M. Rosiak

PP10: Electrochemical Method for Obtaining Water-Soluble Oligomers of Chitin

E. Kuprina, E. Batchische

PP11: Liquid Crystalline Properties of Acetylchitosan

H.M. Lisboa, A.M. Ramos, J.P. Borges

PP12: Chitosan/ Copolyamide Compatibility: Thermodynamic Aspects

A.I. Suvorova, A.P. Safronov, I.S. Tyukova., E.A. Smirnova

PP13: Studies on the Mechanism of Thermal Gelation of Chitosan-Glycerol Phosphate Solutions

M. Lavertu, D. Fillion, A. Schmid, M. Zayani, M.D. Buschmann

PL1: The Susceptibility of Anaerobic Bacteria to Chitosan and Metronidazole. In Vitro Study

A. Kędzia, **B. Kochańska**, A. Cedro, R. Jachowicz

PL2: Assessment of Chitosan/Cyclodextrin Nanoparticles in Calu-3 Cells

D. Teijeiro-Osorio, C. Remuñán-López, M.J. Alonso

PL3: Effect of Chitosan Oligosaccharides Against Hepatotoxicity Induced by Carbon Tetrachloride in Mice

Q.-S. Xu, **C.-Y. Tan**, X.-F. Bai, Y.-G. Du

PL4: Influence of Chitosan on MMP-2 Activity of Human Melanoma Cells

C. Gorzelanny, B. Pöppelmann, B.M. Moerschbacher, S.W. Schneider

PL5: Encapsulation of D-Hydantoinase and D-Carboamylase from a Crude Cell Extract of *Agrobacterium radiobacter* in Alginate-Chitosan Beads. Effect on the Environment Variables

I. Aranaz, N. Acosta, G. Galed, **Beatriz Miralles**, A. Heras

PL6: Study of the Amount of Chitosan Bound to Alginate in Polyelectrolyte Complexes

B. Miralles, I. Paños, R. Harris, G. Galed, N. Acosta, A. Heras

PL7: Chitosan as an Active Factor in Multifunctional Medical Wound Coverings

P. Wcislo, B. Peczkowska, **M.M Jaworska**

PL8: Evaluation of the Biocompatibility of Chitosan Derivatives with Sulfoalkyl Groups in Vitro

S.-J. Lee, Y. Son, **C. H. Kim**, J. Na

PL9: Loading, Delivery, Swelling and Mucoadhesiveness of Didanosine in Chitosan Microspheres

C. F. da Silva, F. Martins, M.H.A. Santana

PL10: Functional Granules Containing Didanosine-Loaded Chitosan Microspheres

C.F. da Silva, M.V. Chaud, F. Martins, M.H.A. Santana

PL11: Controlled Release of Diclofenac Sodium from Chitosan/Tripolyphosphate Beads

T. Buranachai, N. Prapairaksit, N. Muangsin

PL12: Chitosan or Chitin-glucan Hydrolysed Efficiently Protect Hypercholesterolemic Hamsters Against Aortic Fatty Streak Accumulation

A. Bornet, J.M. Rouanet, P.L. Teissedre

PL13: Chitins, Chitosans and Derivatives Clarification Effects on White Must Components from Grenache Variety

A. Bornet, S. Gautier, P. L. Teissedre

PL14: Forms of Protective Chitosan-Based Coatings for Fish Products and other Food Stuff

V. Krasavtsev, **G. Maslova**, L. Spodobina, L. Noudga, V. Petrova

PL15: Reduction of Dental Plaque Formation by Chitosan from Fungi and Crabs

T.C.M. Stamford, M.A.B. Lima, A.E. Nascimento, B.B. Neto, Rosenblatt, G.M. de Campos-Takaki

PL16: Chitosan-Based Coatings for Lightly Processed Food

D. de Britto, **S.P. Campana-Filho**, O.B.G. de Assis

PL17: Effects of Chitosan Oligosaccharides on PMA-Stimulated Rabbit Neutrophils in Vitro

J. Dou, **C.-G. Tan**, Y. Du, X. Bai, K. Wang, X. Ma

PL18: Application of Chitosan as a Feed Supplement in Aquaculture

K. N. Aye, A.M. Mya, L.L. Naing, A. Yakupitiyage, M.M. Oo., W.F. Stevens

"Applications in Other Fields"

PA1: Multipoint Covalent Immobilization of Microbial Lipase on Chitosan and Agarose Activated by Different Methods

D.S. Rodrigues; A.A. Mendes, W.S. Adriano, L.R.B. Gonçalves, *R.L.C. Giordano*

PA2: Covalent Attachment of *Aspergillus oryzae* Lipase on Chemically Bound Hybrid Matrixes

A.A. Mendes, D.S. Rodrigues, W.S. Adriano, E.J. Mammarella, H.F. Castro, *R.L.C. Giordano*

PA3: Performance of Trypsin Soluble and Immobilized on Chitosan Gels in the Hydrolysis of Cheese Whey Proteins

C.M.A. Galvão, C.D.F. Jesus, R.C. Giordano, *R.L.C. Giordano*

PA4: Immobilization of Trypsin on Chitosan Gels Using Different Activation Protocols and Comparison with Other Supports

A. Manrich, C.M.A. Galvão, C.D.F. Jesus, R.C. Giordano, *R.L.C. Giordano*

PA5: Stability and Reactivity of Beta-Glucosidase Enzyme Immobilized on Chitosan-Clay Composite

M.-Y. Chang, *R.-S. Juang*

PA6: Equilibrium Studies on Complexation Reactions between Chitosan and Heavy Metal Ions by Membrane Ultrafiltration

R.-C. Hsiao, R.-S. Juang

PA7: Chromium (III) Recovery by Polymer-Enhanced Ultrafiltration Using a Water Soluble Chitosan Derivative as Macroligand

J. Carreón, I. Saucedo, *R. Navarro*, M. Maldonado, R. Guerra, E. Guibal

PA8: Mercury Sorption on Chitosan

K. Campos Gavilan, F. Peirano Blondet, J. Roussy, E. Guibal

PA9: Removal of Copper(II) from Aqueous Solution with Cross-linked Chitosan Beads: a Thermodynamic and Kinetic Study

P.O. Osifo, H.W.J.P. Neomagus, M.A. van der Gun, A. Webster, D.M. Grant

PA10: Molecular Mechanics and Quantum Mechanics Study Interaction Between Zinc(II) Ions and Chitin-Containing Sorbents

B.F. Minaev, V.I. Unrod, *T.V. Solodovnik*, A.B. Minaev

PA11: An EXAFS Study of the Binding of Copper, Mercury and Chromium on Natural and Crosslinked Chitosan Films

R.S. Vieira, C.G. Aimoli, E. Meneghetti, G.A.S. Goulart, R.G. Paiva, M.M. Beppu

PA12: Transport Through Chitosan Membranes

H.C. Van der Merwe, *P.O. Osifo*, M.A. van der Gun, H.W.J.P. Neomagus

PA13: Removal of Cationic Dyes from Aqueous Solutions by Chitosan-based Adsorbent

O. Adam, G. Crini, B. Martel, Fe Degiorgi, G. Torri

PA14: Removal of Anionic Dyes from Aqueous Solutions by Coagulation-Flocculation Process

A. Szygula, M. Ruiz, A.M. Sastre, E. Guibal

PA15: CO₂ Critical Point Dried Chitosan as a Catalyst: Influence of the Gelling Conditions on the Catalytic Properties

R. Valentin, K. Molvinger, D. Brunel, C. Viton, A. Domard, *F. Quignard*

PA16: Physicochemical Characterization of Catalytic Palladium Supported on Chitosan Hollow Fiber and Diffusion Properties.

F. Peirano Blondet, T. Vincent, P. Gaudon, J.-M. Taulemesse, E. Guibal

PA17: Novel Reactors Based on Chitosan-Supported Ionic Liquid for Catalysis

J. Baudoux, *I. Dez*, A.-C. Gaumont, P.-J. Madec

PA18: Potassium Sorbate Diffusivity in Chitosan Films: Active Package Films

C.M.P. Yoshida, *T.T. Franco*

PA19: Chitosan an Effective Surface Sizing Agent in Papermaking Processing

A. Ashori

PA20: Comparisons of Physical Properties and Adsorption Performance of Chitosan Nanoparticles

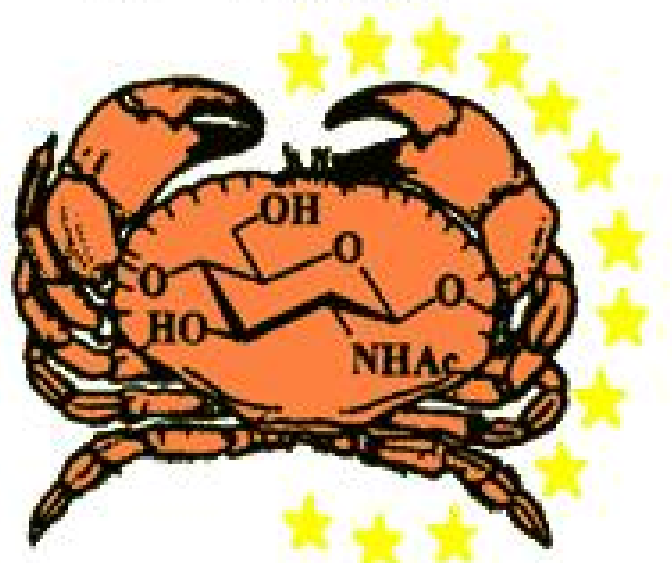
Prepared by New Methods

R.-L. Tseng, F.-C. Wu

PA21: Application of Chitosan-EDTA Derivatives for Removal of Toxic Metal Ions from Aqueous Solutions

P.K. Dutta, J. Dutta, Santosh

10th ICCC



EUCHIS' 06



SPONSORSHIP



