

# GLUPOR-3

3º Encontro Internacional do Grupo da Química dos Glúcidos  
da Sociedade Portuguesa de Química

1º Encontro Ibérico dos Glúcidos



**3<sup>rd</sup> International Meeting of the Portuguese Carbohydrate Chemistry Group**

**1<sup>st</sup> Iberian Carbohydrate Meeting**



Department of Chemistry

University of Aveiro, Portugal

19-23 September 1999



## ACKNOWLEDGMENTS

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L'Ambassade de France



*Fundação*  
**Luso-Americana**  
*para o Desenvolvimento*



Governo Civil  
de Aveiro



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Câmara Municipal de Ovar

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Discoteca-Restaurante Oito Graus Oeste

Hotel-Palace do Buçaco

### **EXHIBITION STANDS**

Elsevier

Júlio Figueiredo, Lda

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WHISTLER, Roy L.



## SUMMARY PROGRAMME

	Sunday, 19	Monday, 20	Tuesday, 21	Wednesday, 22	Thursday, 23
		Session 1	Session 5	Session 9	Session 13
09:00		Opening	IL9	IL19	IL29
09:15		PL1	“	“	“
09:30		“	IL10	IL20	IL30
10:00		IL1	IL11	IL21	IL31
10:30		IL2	IL12	IL22	IL32
11:00		Coffee	Coffee	Coffee	Coffee
		Session 2	Session 6	Session 10	Session 14
11:30		OC1	OC7	OC13	PL2
11:45		OC2	OC8	OC14	“
12:00		OC3	OC9	OC15	“
12:15		OC4	OC10	OC16	Closing
12:30		Photograph	Lunch	Lunch	Lunch
12:45		Lunch			
14:00		Posters	Posters	Posters	
14:30					Excursion
		Session 3	Session 7	Session 11	“
15:00		IL3	IL13	IL23	“
15:30		IL4	IL14	IL24	“
16:00		IL5	IL15	IL25	“
16:30		IL6	IL16	IL26	“
					“
17:00		Coffee	Coffee	Coffee	“
					“
		Session 4	Session 8	Session 12	“
17:30	Registration	IL7	IL17	IL27	“
18:00	“	IL8	IL18	IL28	“
18:30	Reception	OC5	OC11	OC17	“
18:45	“	OC6	OC12	OC18	“
19:00	“		GQG Meeting		“
20:00				Banquet	“
21:00		Classic Music	Disco Music		“

Session 3 (IL3-6) is dedicated to the memory of Professor Stanislas Czernecki

Session 7 (IL13-16) is dedicated to the memory of Dr. Margaret Clarke

**SOCIAL PROGRAMME****Sunday, 19<sup>th</sup> September 1999**

18:30 – 20:00 RECEPTION at the Department of Environment and Planning, University campus.  
Courtesy of the Rector of the University of Aveiro

**Monday, 20<sup>th</sup> September 1999**

12:30 – 12:45 Glupor-3 group photograph  
14:30 – 18:00 Visit to Aveiro – Programme for accompanying persons  
Courtesy of Câmara Municipal de Aveiro  
21:00 – 23:00 Classic Music Evening at Igreja da Misericórdia, Aveiro  
Courtesy of the Cultural Department of the Câmara Municipal de Aveiro

**Tuesday, 21<sup>st</sup> September 1999**

14:30 – 18:00 Visit to Ovar – Programme for accompanying persons  
Courtesy of Câmara Municipal de Ovar  
21:00 – 23:30 Disco Music Evening at Oito Graus Oeste, Aveiro

**Wednesday, 22<sup>nd</sup> September 1999**

14:30 – 18:00 Visit to Ílhavo – Programme for accompanying persons  
Courtesy of Câmara Municipal de Ílhavo  
20:00 – 23:00 Banquet at Hotel Imperial, Aveiro

**Thursday, 23<sup>rd</sup> September 1999**

14:30 – 23:00 Excursion to Bairrada Region  
Visit to Buçaco thicket and its Palace-Hotel building.  
Bairrada wine tasting at Caves Messias, Mealhada.  
Dinner in Malaposta Restaurant.

**SCHEDULE OF SCIENTIFIC PROGRAMME****Sunday, 19<sup>th</sup> September 1999**

17:30 – 20:00 REGISTRATION at the building of Departamento de Ambiente e Ordenamento,  
University campus

**Monday, 20<sup>th</sup> September 1999**

9:00 OPENING CEREMONY

Session 1 – Chairman: Roy Whistler

9:15 PL 1 THE CHEMISTRY OF INOSITOLPHOSPHOGLYCANS AND THEIR ROLE IN  
INTRACELLULAR SIGNAL TRANSDUCTION  
Manuel Martín-Lomas

10:00 IL 1 CONFORMATIONAL STUDIES OF GLYCOPROTEINS  
Elizabeth F. Hounsell

10:30 IL 2 MOLECULAR TEMPLATES BASED ON ARCHAEAL MEMBRANE  
GLYCOLIPIDS – SYNTHESIS AND SUPRAMOLECULAR ASSEMBLIES  
Daniel Plusquellec

11:00 Coffee Break

Session 2 – Chairman: J.F. Kennedy

11:30 OC 1 GLYCOSYLATION OF FUCOSYLTRANSFERASE III  
Costa, T., Grabenhorst, E., Sousa, V., Costa, Júlia

11:45 OC 2 CLONING AND OVEREXPRESSION OF  $\alpha$  1,2 AND  $\alpha$  1,6  
FUCOSYLTRANSFERASES  
Agatha Bastida, Alfonso Fernández-Mayoralas, Eduardo García-Junceda

12:00 OC 3 SYNTHESIS OF THE FULLY PHOSPHORYLATED GPI-ANCHOR OF  
*T.GONDII*  
Klaus Pekari, Ralf S. Weingart, Richard R. Schmidt

12:15 OC 4 NEW OLIGOSACCHARIDE MACROLACTONES FROM THE EUROPEAN  
CONVOLVULACEAE *CALYSTEGIA SOLDANELLA*.  
Elvira Maria M. Gaspar

12:30 – 12:45 Glupor-3 group photograph

12:45 Lunch

14:00 Posters session (P 01 – P 75)

Session 3 – Chairman: Gérard Descotes

*Session dedicated to the memory of Professor Stanislas Czernecki*

15:00 IL 3 ANOMERIC SULFIMIDES: NOVEL GLYCOSYL DONORS  
Patrick Rollin

15:30 IL 4 CHEMOENZYMATIC SYNTHESIS OF CARBOHYDRATE MIMICS  
Beat Ernst

16:00 IL 5 GLYCOSIDASE INHIBITORS FROM CARBOHYDRATES VIA FREE RADICAL  
MEDIATED STRATEGIES: A NEW AND EFFICIENT APPROACH FOR THE  
SYNTHESIS OF *N*-AZOLEANNULATED FUSED PIPERIDINOSES  
José Marco-Contelles

16:30 IL 6 SYNTHETIC APPROACH TO NOVEL BIOACTIVE SUGAR DERIVATIVES BY  
C-C BOND FORMATION  
Amélia P. Rauter

17:00 Coffee Break

Session 4 – Chairman: André Pavia

17:30 IL 7 A NEW CONCEPT FOR LINKING CLUSTERS OF CARBOHYDRATE  
ANTIGENS TO PROTEINS  
Pavol Kovác

18:00 IL 8 INVESTIGATING MULTIVALENCY IN CARBOHYDRATE-PROTEIN  
INTERACTIONS: SYNTHESIS OF GLYCOCLUSTERS, GLYCODENDRIMERS,  
AND OCTOPUS GLYCOSIDES  
Thisbe K. Lindhorst

18:30 OC 5 MULTINUCLEAR NMR STUDY OF THE COMPLEXATION OF D-GULONIC  
ACID WITH OXOIONS OF Mo(VI) AND W(VI)  
M. Luísa Ramos, M. Madalena Caldeira and Victor M.S. Gil.

18:45 OC 6 SPACER ARM INFLUENCE ON GLUCIDOAMPHIPHILE COMPOUND  
PROPERTIES  
Goethals G., Fernandez A., Godé P., Martin P., Miñana-Perez M., Scorza C., Villa P.

**Tuesday, 21<sup>st</sup> September 1999**

Session 5 – Chairman: Jacques Defaye

- 9:00 IL 9 NEW ASPECTS OF GLYCOSIDE BOND FORMATION  
Richard R. Schmidt
- 9:30 IL 10 RECENT DEVELOPMENTS IN SULFUR CONTAINING SUGAR  
DERIVATIVES  
José G. Fernández-Bolaños
- 10:00 IL 11 STEREOSELECTIVE SYNTHESIS OF CARBOHYDRATE AND NUCLEOSIDE  
ANALOGUES USING SELENIUM REAGENTS  
Sergio Castillon
- 10:30 IL 12 AN APPROACH TO BIODEGRADABLE POLYESTERAMIDES FROM  
CARBOHYDRATES  
Juan Galbis Pérez
- 11:00 Coffee Break

Session 6 – Chairman: José Fuentes Mota

- 11:30 OC 7 EXPLOITING HETERO DIELS-ALDER REACTIONS FOR THE  
STEREOSELECTIVE SYNTHESIS OF 5-ARYLPENTOPYRANOSSES  
Richard J. Stoodley
- 11:45 OC 8 SYNTHESIS OF SOME 6-SUBSTITUTED-D-FRUCTOSE DERIVATIVES  
C. Mgina, H. Regeling, B. Zwanenburg and G.J.F. Chittenden
- 12:00 OC 9 GLYCOSYLATION STUDIES ON THE SORDARICIN MOLECULE  
José M. Coterón, José L. Chiara, Alfonso Fernández-Mayoralas,  
José M. Fiandor and Nuria Valle
- 12:15 OC 10 REDUCTIVE CARBOCYCLIZATIONS OF CARBOHYDRATE DERIVATIVES  
PROMOTED BY SAMARIUM DIIODIDE. A NEW AND HIGHLY EFFICIENT  
SYNTHESIS OF TREHAZOLIN AND ANALOGS  
Sofía Bobo, Isabel Storch de Gracia, María D. Martín-Ortega and Jose Luis Chiara
- 12:30 Lunch
- 14:00 Posters session (P 01 – P 75)

## Session 7 – Chairman: Per J. Garegg

*Session dedicated to the memory of Dr. Margaret Clarke*

- 15:00 IL 13 IN MEMORY OF MARGARET CLARKE: THE INTERFACE OF CARBOHYDRATE CHEMISTRY WITH INDUSTRY, A VERY SUCCESSFUL EXAMPLE  
Mary An Godshall
- 15:30 IL 14 EFFECT OF SMALL CARBOHYDRATES ON THE ACTIVITY OF HYDROLASES  
Mohamed Mathlouthi
- 16:00 IL 15 SUGAR DEGRADATION AND COLOUR FORMATION IN BEET SUGAR MANUFACTURE  
Jan Maarten de Bruijn
- 16:30 IL 16 POLYSACCHARIDES IN SUGAR. AN ANALYTICAL APPROACH TO THEIR EVALUATION  
Luis San Miguel Bento
- 17:00 Coffee Break

## Session 8 – Chairman: Pedro Cintas

- 17:30 IL 17 STRUCTURE DETERMINATION OF OLIGOSACCHARIDES FROM RECOMBINANT GLYCOPROTEIN THERAPEUTICS  
Angela Savage
- 18:00 IL 18 CARBOHYDRATES IN THE PAPER INDUSTRY: A FEW CHALLENGES  
A. Dolores Ferreira
- 18:30 OC 11 THE USE OF SUCROSE AS A RAW MATERIAL: REACTIVITY IN AQUEOUS SOLUTION  
Juliette Gagnaire, Anne Cornet, Alain Bouchu, Gérard Descotes and Yves Queneau
- 18:45 OC 12 D(+)-GLUCOSE OXIDATION BY OZONE: DETERMINATION OF THE REACTION SCHEME USING <sup>13</sup>C-LABELLING  
O. Marcq, J.M. Barbe, A. Trichet, R. Guillard
- 19:00 GQG Meeting



**Wednesday, 22<sup>nd</sup> September 1999**

Session 9 – Chairman: Alfonso Fernández-Mayoralas

9:00 IL 19 GLYCOSIDASE INHIBITORS: SYNTHETIC AND MECHANISTIC ASPECTS  
Andrea T. Vasella

9:30 IL 20 BIOINFORMATICS IN STRUCTURAL GLYCOBIOLOGY  
Serge Pérez

10:00 IL 21 ON THE CONFORMATION OF SULFATED CARBOHYDRATES  
Hans P. Wessel

10:30 IL 22 NEW TECHNOLOGY FOR CARBOHYDRATE STRUCTURAL ANALYSIS  
Gary R. Gray

11:00 Coffee Break

Session 10 – Chairman: M. Gómez-Guillén

11:30 OC 13 ANOMERIC EFFECTS IN NON-CARBOHYDRATE COMPOUNDS:  
CONFORMATIONAL DIFFERENCES BETWEEN OXAZOLIDINE RINGS OF A  
CIS-FUSED BICYCLIC SYSTEM  
André Pavia

11:45 OC 14 CATALYTIC TRANSFER HYDROGENATION OF SUGAR DERIVATIVES  
László Jicsinszky

12:00 OC 15 SYNTHESIS OF PYRAZOLE PRECURSORS IN FURANOSIDIC SYSTEMS  
M. Isabel Ismael, J. Albertino Figueiredo, Jorge M. Pinheiro, Licínia M. Severino,  
A. Pilar Rauter

12:15 OC 16 STEREOELECTRONIC AND SOLVENT EFFECTS IN CARBOHYDRATE-  
BASED DOMINO CYCLOADDITIONS  
M. Ávalos, R. Babiano, J.L. Bravo, P. Cintas, J.L. Jiménez, J.C. Palacios, and M.A.  
Silva

12:30 Lunch

14:00 Posters session (P 01 – P 75)

Session 11 – Chairman: Johannes F.G. Vliegenthart

- 15:00 IL 23 STRUCTURE ELUCIDATION OF CELL WALL POLYSACCHARIDES  
Fons Voragen
- 15:30 IL 24 PARTIALLY ACETYLATED AND METHYLATED  
HOMOGALACTURONANS: PREPARATION AND SOME PROPERTIES  
Catherine Renard
- 16:00 IL 25 APOPLASTIC  $\alpha$ -FUCOSIDASE AND  $\alpha$ -XYLOSIDASE AND THEIR ACTION  
AGAINST XYLOGLUCAN SIDE-CHAINS  
Ignacio Zarra
- 16:30 IL 26 FT-IR SPECTROSCOPY AS A TOOL FOR ANALYSIS OF PLANT CELL WALL  
POLYSACCHARIDES  
Manuel A. Coimbra
- 17:00 Coffee Break

Session 12 – Chairman: Lopez Herrera

- 17:30 IL 27 CHARACTERISING POLYSACCHARIDES AND THEIR INTERACTIONS  
WITH THE ATOMIC FORCE MICROSCOPE  
Victor J.Morris
- 18:00 IL 28 CLASSIFICATION OF *HELICOBACTER PYLORI* LIPOPOLYSACCHARIDES  
INTO GLYCOTYPE FAMILIES  
Mário Monteiro
- 18:30 OC 17  $\beta$ -CYCLODEXTRIN-GLYCODENDRIMER HYBRIDS AS MULTIVALENT  
CARRIERS FOR SITE-SPECIFIC DRUG DELIVERY  
J.M. Benito, H. Law, I. Baussanne, C. Ortiz-Mellet, J.M. Garcia Fernández,  
J. Defaye
- 18:45 OC 18 RAMAN SPECTROSCOPIC STUDY OF THE H/D AND D/H EXCHANGE  
RATES IN  $\alpha$ -,  $\beta$ - AND  $\gamma$ -CYCLODEXTRIN INCLUSION COMPOUNDS  
Paulo J.A. Ribeiro-Claro and Ana M. Amado

**Thursday, 23<sup>rd</sup> September 1999**

Session 13 – Chairman: José Cavaleiro

- 9:00 IL 29 MYCOBACTERIA ANTIGENS: SYNTHESIS OF THE PENTASACCHARIDE UNIT OF THE CELL-SURFACE GLYCOPEPTIDOLIPID OF *M. AVIUM* SEROVAR 19  
András Lipták
- 9:30 IL 30 FORMATION OF NITROGENATED QUATERNARY CENTRES ON SUGAR SUBSTRATES EN ROUTE TO NATURAL PRODUCTS  
Ricardo Alonso
- 10:00 IL 31 SYNTHESIS OF PSEUDOSUGARS AND RELATED COMPOUNDS FROM FURAN  
Joaquín Plumet
- 10:30 IL 32 SYNTHESIS OF NATURAL AND MODIFIED CARBOHYDRATES BASED ON DIAZO AND SULFUR YLIDS CHEMISTRY  
Francisco Sarabia
- 11:00 Coffee Break

Session 14 – Chairwoman: Amélia P. Rauter

- 11:30 PL 2 FUNCTIONALIZED SUGARS AS VERSATILE SYNTHONS: ACCESS TO CHIRAL HETEROCYCLES, CARBOCYCLES, AND ALLENES  
Derek Horton
- 12:15 CLOSING CEREMONY

## POSTER COMMUNICATIONS

- P 01 REARRANGEMENT REACTIONS OF BRANCHED-CHAIN PHENYL 1-THIO-D- AND L-GLUCOSIDES PROMOTED BY *DAST*  
P. Borrachero, F. Cabrera, A. T. Carmona, and M. Gómez-Guillén
- P 02 SYNTHESIS OF SULFONATE DERIVATIVES OF D-GLUCOSE AND D-GALACTOSE  
J.G. Fernández-Bolaños, V. Ulgar, C. Saborido, I. Robina and José Fuentes
- P 03 SYNTHESIS OF IMIDAZOLE DERIVATIVES WITH TWO SUGAR MOETIES. PSEUDO C- AND N-NUCLEOSIDES  
José G. Fernández-Bolaños, Encarnación Zafra, Oscar López, Inmaculada Robina and José Fuentes
- P 04 FIVE-MEMBERED THIOSUGARS AND N-SUBSTITUTED AZASUGARS  
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