GRAPHICAL ABSTRACT

Carbohydr. Res. **1997**, *304*, 315

Electrokinetic characterisation of cationic anylopectin starch; screening by salt and screening by nanosized silica particles

Anders Larsson, Mikael Rasmusson

Göteborg University, Department of Physical Chemistry, S-412 96 Göteborg, Sweden

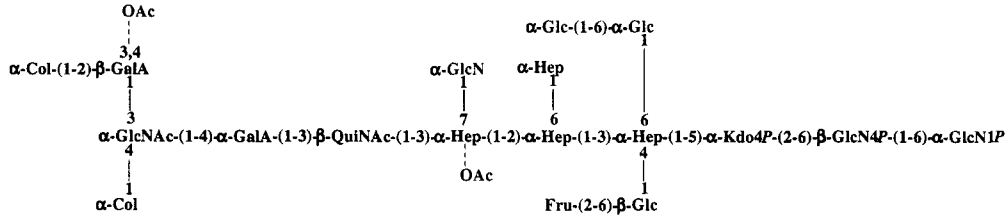
The screening of cationic amylopectin starch with salt has been investigated using the technique of electrokinetic sonic amplitude. The dynamic mobility was found to decrease as the electrolyte concentration increases. The experimental data were satisfactorily explained by applying a porous sphere model. The radius of the porous sphere could be used to evaluate the contraction of the amylopectin molecule as the electrolyte concentration increases. The screening of cationic amylopectin starch with nanosized silica particles was also followed using the technique of phase analysis light scattering. The formation of large macroscopic flocs could be explained in terms of available cationic and anionic sites of the initially formed polyelectrolyte complexes between one amylopectin molecule and a number of small silica particles.

Carbohydr. Res. **1997**, *304*, 191

Structural analysis of the lipopolysaccharide from *Vibrio cholerae* serotype O22

Andrew D. Cox, Jean-Robert Brisson, Pierre Thibault and Malcolm B. Perry

Institute for Biological Sciences, National Research Council, Ottawa, ON, Canada. K1A OR6.



Carbohydr. Res. **1997**, *304*, 209

Studies on the structure and the solution conformation of an acidic extracellular polysaccharide isolated from *Bradyrhizobium*.

Ana Poveda[1], Mónica Santamaría[2], Manuel Bernabé, Alicia Prieto[4], Marta Bruix[5], Javier Corzo[2], and Jesús Jiménez-Barbero[3]*

[1] SIDI. UAM. Cantoblanco 28049 Madrid. [2]Dep. Bioquím. Biol. Mol. Universidad de la Laguna, 38071 Tenerife. [3]Inst. Quim. Org. CSIC, Juan de la Cierva 3, 28006 Madrid. [4]CIB, CSIC, Velazquez, 28006 Madrid. [5]IEM., CSIC, Serrano 117, 28006 Madrid, Spain.

The structure of an acidic polysaccharide has been identified by NMR and chemical methods as being:
→ 3)-[α-D-Gal *p*-(1 → 6)]-α-D-Glc *p*-(1 → 3)-β-D-Glc *p*-(1 → 3)-α-D – Gal *p*A-(1 → 3)-α-D-Man *p*-(1 →
The conformational features have been studied by molecular mechanics calculations

Carbohydr. Res. **1997**, *304*, 219

Solution conformation and dynamics of an extracellular polysaccharide isolated from *Bradyrhyzobium* as deduced from ^{1}H-NMR off resonance ROESY and ^{13}C-NMR relaxation measurements.

Ana Poveda[1], Mónica Santamarï, Manuel Bernabé[3], A. Rivera[4], Javier Corzo[2], and Jesús Jiménez-Barbero[3]*

[1]SIDI. UAM. Cantoblanco 28049 Madrid. [2]Dep. Bioquím. Biol. Mol. Universidad de la laguna, 38071 Tenerife. [3]Inst. Quím. Org. CSIC, Juan de la Cierva 3, 28006 Madrid. [4]SB, Tres Cantos, Madrid.

The conformational and dynamical features of a bacterial polysaccharide have been studied by using homo and heteronuclear relaxation parameters.
→ 3)-[α-D-Gal *p*-(1 → 6)]-α-D-Glc *p*-(1 → 3)-β-D-Glc *p*-(1 → 3)-α-D-Gal *p*A-(1 → 3)-α-D-Man *p*-(1 →

Carbohydr. Res. **1997,** *304*, 229

Inclusion effects of cyclomaltohexa- and heptaose (α- and β-cyclodextrins) on the acidities of several phenol derivatives

Sanyo Hamai *, Noriko Satoh
Department of Chemistry, College of Education, Akita University, Tegata Gakuen-machi 1-1, Akita 010, Japan

Phenol derivatives bound to the cyclomaltohexaose (α-CD) cavity was found to be stronger acids than the uncomplexed ones, except for 4-methoxyphenol.

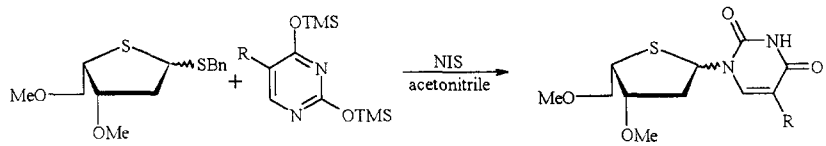
$$\alpha\text{-CD}\cdot\text{PhOH} \overset{K_a}{\rightleftharpoons} \alpha\text{-CD}\cdot\text{PhO}^- + \text{H}^+$$

Carbohydr. Res. **1997,** *304*, 239

Thiosugars, Part 1.- Preparation, structural elucidation and reaction of benzyl 2-deoxy-3,5-di-*O*-methyl-1,4-dithio-L-*threo*-pentofuranoside and synthesis of the corresponding 2′-deoxy-4′-thionucleosides

Claudia Birk, Jürgen Voss *, Jörn Wirsching
Institut für Organische Chemie der Universität Hamburg, Martin-Luther-King-Platz 6, D-20146 Hamburg, Germany.

Benzyl 2-deoxy-3,5-di-*O*-methyl-1,4-dithio-L-*threo*-pentofuranoside is prepared and transformed into the corresponding pyrimidine nucleosides.

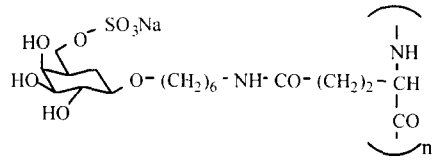


Carbohydr. Res. **1997,** *304*, 249

Synthesis of a set of highly clustered monosulfated galactopyranoside

Tomoaki Yoshida
Dept. of Biology and the McCollum-Pratt Inst., The Johns Hopkins Univ., 3400 N. Charles St., Baltimore, MD, USA.

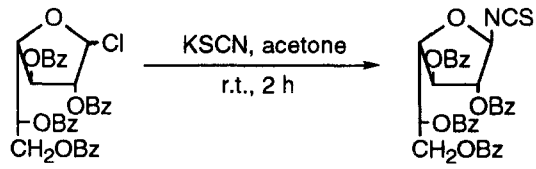
6-Aminohexyl ξ-D-galactoside 2,3,4,6-O-monosulfates have been synthesized and clustered to a polyglutamic acid.



Carbohydr. Res. **1997,** *304*, 251

Facile synthesis of glycofuranosyl isothiocyanates

Carlo Marino, Oscar Varela, Rosa M. de Lederkremer *
Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Pabellón II, Ciudad Universitaria, (1428) Buenos Aires, Argentina

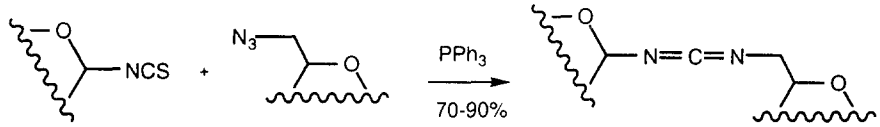


Carbohydr. Res. **1997,** *304*, 261

Synthesis of (1 → 6) carbodiimide-tethered pseudooligosaccharides via aza-Wittig reaction.

José Manuel García Fernández[a]*, Carmen Ortiz Mellet[b], Victor Manuel Díaz Pérez[b], José Fuentes[b]*, József Kovács[c], István Pintér[c]*.

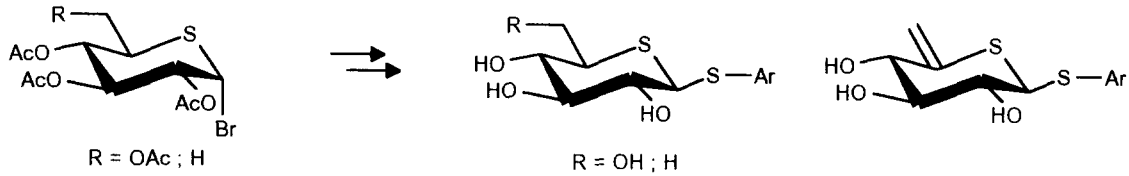
[a]*Instituto de Investigaciones Quimicas, CSIC, Américo Vespucio s / n, Isla de la Cartuja, E-41092 Sevilla, Spain.* [b]*Departamento de Química Orgánica, Facultad de Química, Universidad de Sevilla, Aptdo. 553, E-41071 Sevilla, Spain.* [c]*Central Research Institute for Chemistry, Hungarian Academy of Sciences, P.O.B. 17, H-1525 Budapest, Hungary.*



Carbohydr. Res. **1997,** *304*, 271

Synthesis of 4-cyanophenyl 1,5-dithio-β-D-glucopyranoside and its 6-deoxy, as well as 6-deoxy-5-ene derivatives

Éva Bozó, Sándor Boros, and János Kuszmann;



Carbohydr. Res. **1997,** *304*, 281

Structure of complex cell wall polysaccharides isolated from *Trichoderma* and *Hypocrea* species.

Alicia Prieto[b], Ana Poveda[c], Jesús Jiménez-Barbero[a], Begoña Goméz-Miranda[b], Jezabel Domenech[b], Oussama Ahrazem[b], Juan Antonio Leal[b] and Manuel Bernabé[a]*.

[a]*Grupo de carbohidratos. Instituto de Química Orgánica. CSIC. Juan de la Cierva 3, 28006-Madrid (Spain).* [b]*Centro de Investigaciones Biológicas, CSIC, Velázquez 144, 28006 Madrid (Spain).* [c]*SIDI. Universidad Autónoma de Madrid. Cantoblanco. 28049 Madrid (Spain).*

A structure of the polysaccharides chain of *Trichoderma* and *Hypocrea* is proposed:

α-*Glcp*-(1 → 4)-α-*GlcpA*-(1 → 2)-β-*Galf*-(1 → 6)-β-*Galf*-(1 → 5)-β-*Galf*-(1 → 6)-β-*Galf*-(1 → 2)-α-*Manp*...

(*Mannan core*)

β-*Galf*-(1 → 6)-β-*Galf*-(1 → 5)-β-*Galf*-(1 → 6)-β-*Galf*-(1 → 2)-α-*Manp*....

Carbohydr. Res. **1997,** *304*, 293

Hydrogen-bonding and conformation of agarose in methyl sulfoxide and aqueous solutions investigated by ^{1}H and ^{13}C NMR spectroscopy

Amelia Gamini[a], Renato Toffanin[b]*, Erminio Murano[b], Roberto Rizzo[a]

[a] *Department of Biochemistry, Biophysics and Macromolecular Chemistry, University of Trieste, Via L. Giorgieri 1, I-34127 Trieste, Italy*

[b] *Poly-biós Research Centre, Area Science Park, Padriciano 99, I-134012 Trieste, Italy*

The hydrogen bonding and conformation of agarose in methyl sulfoxide or in aqueous solutions were studied by NMR spectroscopy. Based on ^{1}H NMR data, an inter-residue H-bond is proposed for HO-4 of β-D-Gal*p* in Me_2SO, while the involvement of HO-2 of 3,6-anhydro-α-L-Gal*p* in an agarose-Me_2SO complex is suggested. These hypotheses are supported by the ^{13}C NMR data.

Carbohydr. Res. **1997,** *304*, 303

Conformations of cycloamylose in aqueous solution.

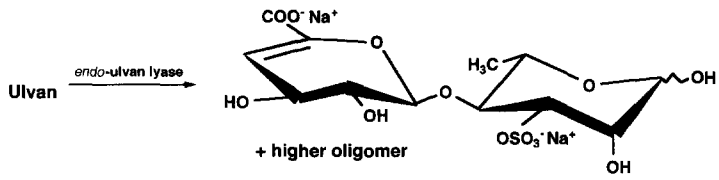
S. Kitamura[a], H. Isuda[a], J. Shimada[b], T. Takada[b], T. Takaha[c], S. Okada[c], M. Mimura[d], K. Kajiwara[d]
[a]Dept. of Biological Resource, Kyoto Prefectural University, Kyoto, Japan; [b]Fundamental Research Laboratories, NEC Corp., Ibaraki, Japan; [c]Biochemical Research Laboratory, Ezaki Blico Co., Ltd., Osaka, Japan; [d]Faculty of Engineering and Design, Kyoto Institute of Technology, Kyoto, Japan.

The conformation of cyclic (1 → 4)-α-D-glucan (cycloamylose) was determined via small-angle X-ray scattering (SAXS).

Carbohydr. Res. **1997,** *304*, 325

Fine chemical structure analysis of oligosaccharides produced by an ulvan-lyase degradation of the water-soluble cell-wall polysaccharides from *Ulva* sp. (Ulvales, Chlorophyta)

Marc Lahaye *, Magali Brunel, Estelle Bonnin
Institut National de la Recherche Agronomique, Laboratoire de Biochimie et Technologie des Glucides, B.P. 71627, 44316 Nantes, France



Carbohydr. Res. **1997,** *304*, 335

Synthesis and characterization by ^{13}C CP MAS and high resolution ^{1}H, ^{13}C NMR of new ureido sugars, derivatives of methyl 2-amino-2-deoxy-β-D-glucopyranose and dipeptides

Andrzej Temeriusz[a], Bogusława Piekarska-Bartoszewicz[a], Iowana Wawer[b]
[a]Department of Chemistry, Warsaw University, Pasteura 1, 02-093 Warsaw, Poland.
[b]Department of Physical Chemistry, Faculty of Pharmacy, Medical Academy, Banacha 1, 02-097 Warsaw, Poland

Dipeptide ethyl and benzyl esters were used as amination agents in reaction with methyl 3,4,6-tri-O-acetyl-2-deoxy-2-(4-nitrophenoxycarbonylamino)-β-D-glucopyranoside. Ten new ureido sugars, derivatives of GlyAla, AlaGly, AlaAla, GlyVal, ValGly, LeuGly, PheGly, GlyPhe, and AlaPhe were obtained. The new ureido sugars were studied by means of ^{1}H and ^{13}C NMR spectroscopy in solution, and ^{13}C CP MAS NMR in the solid-state.

Carbohydr. Res. **1997,** *304*, 341

Chain conformational analysis of beijeran by *n-h* map calculations

Toshifumi Yui[a,*], Teru Nabekura[a], Kozo Ogawa[b]
[a] Faculty of Engineering, Miyazaki University, Miyazaki 889-21, Japan
[b] Research Institute for Advanced Science and Technology, Osaka Prefecture University, Sakai, Osaka 593, Japan.

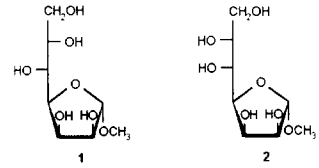
Possible regular helix models of beijeran, a new acidic heteropolysaccharide consisting of a trisaccharide as a repeating unit, were investigated by calculating relaxed-residue energy maps with respect to the glycoside bond rotations, Φ and Ψ.

Carbohydr. Res. **1997,** *304*, 347

Synthesis of methyl D- and L-*glycero*-α-D-*manno*-heptofuranosides

H. Stępowska and A. Zamojski
Institute of Organic Chemistry, Polish Academy of Sciences, ul. Kasprzaka 44 / 52, PL-01-224 Warsaw, Poland

Syntheses of L- and D-*glycero*-α-D-*manno*-heptofuranosides (**1** and **2**) have been described.



Carbohydr. Res. **1997,** *304*, 357

Rhamnogalacturonan I from xylem differentiating zones of *Cryptomeria japonica*

Yusuke Edashige and Tadashi Ishii
Forestry and Forest Products Research Institute, P.O. Box 16, Tsukuba Norin Kenkyu Danchi-nai, Ibaraki 305, Japan

The backbone of sugi (*Cryptomeria japonica* D. Don, gymnosperm) rhamnogalacturonan I (RG-I) comprises a disaccharide repeating unit →4)-α-D-Gal*p* A-(1→2)-α-L-Rha*p*-(1→. Arabinan and oligogalactosyl sidechains are attached at *O*-4 of rhamnosyl residues of the backbones.