

Bibliography of carbohydrate polymers

(Two weeks journals. Search completed at 23rd Oct 1996)

1 BOOKS, REVIEWS & SYMPOSIA

- Expert Opin Ther Patents* 1996 **6** (9) 921
 Highly-sulfated malto-oligosaccharides with heparin-like properties (Patent evaluation)
- Bergqvist D// Univ Uppsala Hosp, Dept Surg, S-75185 Uppsala, Sweden
J Intern Med 1996 **240** (2) 63
 Low molecular weight heparins (Review)
- Von Sivers M, Zacchi G*// *Lund Univ, Dept Chem Engr 1, POB 124, S-22100 Lund, Sweden
Bioresource Technol 1996 **56** (2-3) 131
 Ethanol from lignocellulosics: A review of the economy

2 CELLULOSE

- Blicharska B, Kluza M// Jagiellonian Univ, Inst Phys, Reymonta 4, PL-31007 Krakow, Poland
Colloid Surface A 1996 **115** 137
 NMR relaxation in cellulose pulp
- Dabbagh MA, Ford JL*, Rubinstein MH, Hogan JE// *Liverpool Moores Univ, Pharmaceut Technol & Drug Deliv Grp, Byron St, Liverpool L3 3AF, England
Int J Pharm 1996 **140** (1) 85
 Effects of polymer particle size, compaction pressure and hydrophilic polymers on drug release from matrices containing ethylcellulose
- Gullapalli RP, Sheth BB*// *Univ Tennessee, Dept Pharmaceut Sci, 62 Sth Dunlap, Memphis, Tn 38163, USA
Int J Pharm 1996 **140** (1) 97
 Effect of methylcellulose on the stability of oil-in-water emulsions
- Heard CM, Suedee R// Univ Wales Coll Cardiff, Welsh Sch Pharm, Cardiff CF1 3XF, Wales
Int J Pharm 1996 **139** (1-2) 15
 Stereoselective adsorption and trans-membrane transfer of propranolol enantiomers using cellulose derivatives
- Kataoka Y, Kondo T*// *Forestry & Forest Prod Res Inst, POB 16, Tsukuba, Ibaraki 305, Japan
Macromolecules 1996 **29** (19) 6356
 Changing cellulose crystalline structure in forming wood cell walls
- Li TQ, Odberg L// Karolinska Mr Res Ctr, Bldg N8, S-17176 Stockholm, Sweden
Colloid Surface A 1996 **115** 127
 Flow properties of cellulose fiber suspensions flocculated by cationic polyacrylamide
- Musin KM, Silaev VA, Kostochko AV// SM Kirov State Technol Univ, Kazan, Russia
Khim Fiz 1996 **15** (6) 94
 Study of the mechanism of cellulose nitrates stabilization by the electron paramagnetic resonance method (Russian)
- Suto S, Ui N// Yamagata Univ, Dept Mat Sci & Engr, Jonan 4-3-16, Yonezawa, Yamagata 992, Japan
J Appl Polym Sci 1996 **61** (13) 2273
 Chemical crosslinking of hydroxypropyl cellulose and chitosan blends

- Tezuka Y, Tsuchiya Y, Shiomi T// Tokyo Inst Technol, Dept Organ & Polymer Mat, Meguro ku, Tokyo 152, Japan
Carbohydr Res 1996 **291** 99
¹³C NMR determination of substituent distribution in carboxymethylcellulose by use of its peresterified derivatives
- Van Hazendonk JM, Reinerink EJM, De Waard P, Van Dam JEG// DLO, ATO, Agrotechnol Res Inst, POB 17, NL-6700 AA Wageningen, The Netherlands
Carbohydr Res 1996 **291** 141
 Structural analysis of acetylated hemicellulose polysaccharides from fibre flax (*Linum usitatissimum* L)
- Wolf B, Schmitz W, Schneider H// Univ Leipzig, Inst Pharm, Dept Pharmaceut Technol, Schonauer Str 160, D-04207 Leipzig, Germany
Int J Pharm 1996 **139** (1-2) 87
 Composites of bead cellulose and hydrophilic solubilizers

3 CELLULOSE-DEGRADING ENZYMES

- Dale BE, Leong CK, Pham TK, Esquivel VM, Rios I, Latimer VM// Texas A&M Univ, Dept Chem Engr, College Stn, Tx 77843, USA
Bioresource Technol 1996 **56** (1) 111
 Hydrolysis of lignocellulosics at low enzyme levels: Application of the AFEX process
- Szabo IJ, Johansson G, Pettersson G*// *BMC, Dept Biochem, POB 576, S-75123 Uppsala, Sweden
J Biotechnol 1996 **48** (3) 221
 Optimized cellulase production by *Phanerochaete chrysosporium*: Control of catabolite repression by fed-batch cultivation
- Tuncer M, Rob A, Ball AS, Wilson MT// Univ Essex, Dept Chem & Biol Sci, Wivenhoe Pk, Colchester CO4 3SQ, England
Bioresour Soc Trans 1996 **24** (3) 378S
 Production of extracellular lignocellulose degrading enzymes by *Thermomonospora fusca* BD25

4 CHITIN/CHITOSAN

- Gorbatenko IY, Onishchuk IA, Krivtsov GG, Vanyushin BF// Russian Acad Agr Sci, Inst Agr Biotechnol, Timiryazevskaya ul 42, Moscow 127550, Russia
Izv Akad Nauk Biol 1996 **4** 402
 Eliciting and growth-regulating effects of chitosan on plants (Russian, English Abstract)
- Guan YL, Shao L, Yao KD// Tianjin Univ, Dept Appl Chem, Tianjin 300072, Peoples Rep China
J Appl Polym Sci 1996 **61** (13) 2325
 A study on correlation between water state and swelling kinetics of chitosan-based hydrogels
- Kaya VM, Picard G// Univ Laval, Dept Sci & Technol Aliments, Grp Rech Recyclage Biol & Agriculture, St Foy, Quebec, Canada G1K 7P4
Bioresource Technol 1996 **56** (2-3) 147
 Stability of chitosan gel as entrapment matrix of viable *Scenedesmus bicellularis* cells immobilized on screens for tertiary treatment of wastewater

As a service to subscribers, each issue of the Journal contains a bibliography of newly published material in the field of carbohydrate polymers. The bibliography is divided into thirteen sections: 1 Books, Reviews & Symposia; 2 Cellulose; 3 Cellulose-degrading Enzymes; 4 Chitin/Chitosan; 5 Cyclodextrins; 6 Lignin; 7 Lipopolysaccharides; 8 Pectin; 9 Starch; 10 Starch-degrading Enzymes; 11 Polysaccharides - Microbial; 12 Polysaccharides - Plant; 13 Polysaccharides - Other. Within each section, articles are listed in alphabetical order with respect to author. When there are no publications to appear under one of these headings, that section will be omitted.

Minami S, Oh-oka M, Okamoto Y, Miyatake K, Matsushashi A, Shigemasa Y, Fukumoto Y// Tottori Univ, Dept Vet Surg, Tottori 680, Japan
Carbohydr Polym 1996 **29** (3) 241

Chitosan-inducing hemorrhagic pneumonia in dogs

Viala S, Freche M, Lacout JL// URA CNRS 445, INPT-ENSCT, Lab Mat Phys-Chim Solid, 38 rue 36 ponts, F-31400 Toulouse, France
Carbohydr Polym 1996 **29** (3) 197

Effects of chitosan on octacalcium phosphate crystal growth

5 CYCLODEXTRINS

Bicchi C, D'Amato A, Manzin V, Galli A, Galli M// Univ Turin, Dipt Sci & Tecnol Farmaco, Via Pietro Giuria 9, I-10125 Turin, Italy
J Chromatogr A 1996 **742** (1-2) 161

Cyclodextrin derivatives in the gas chromatographic separation of racemic mixtures of volatile compounds. X. 2,3-Di-*O*-ethyl-6-*O*-*tert*-butyldimethylsilyl- β - and γ -cyclodextrins

Cescutti P, Garozzo D, Rizzo R// Dipt Biochim Biofis & Chim Macromol, Via L Giorgieri 1, I-34127 Trieste, Italy
Carbohydr Res 1996 **290** (2) 105

Study of the inclusion complexes of aromatic molecules with cyclodextrins using ionspray mass spectrometry

Chen Z, Bradshaw JS*, Lee ML// *Brigham Young Univ, Dept Chem & Biochem, Provo, Ut 84602, USA
Tetrahedron Lett 1996 **37** (38) 6831

A convenient synthesis of mono-6 hydroxy permethylated β -cyclodextrin via *tert*-butyldimethylsilylation

Davey SN, Leigh DA*, Smart JP, Tetler LW, Truscetto AM// *UMIST, Dept Chem, Michael Barber Ctr Mass Spect, Sackville St, Manchester M60 1QD, England
Carbohydr Res 1996 **290** (2) 117

Fast atom bombardment mass spectrometry as a tool for the rapid determination of enantioselective binding of methylated cyclodextrins

Fanali S, Camera E// CNR, Ist Cromatog, Area Ric, POB 10, I-00016 Monterotondo, Roma, Italy
Chromatographia 1996 **43** (5-6) 247

Use of methylamino β -cyclodextrin in capillary electrophoresis. Resolution of acidic and basic enantiomers

Guttman A, Brunet S, Cooke N// Beckman Instruments Inc, 9500 Harbor Blvd, Fullerton, Ca 92634, USA
LC GC-Mag Separation Sci 1996 **14** (1) 32

Capillary electrophoresis separation of enantiomers by cyclodextrin array chiral analysis

Guttman A// Address as above.

LC GC-Mag Separation Sci 1996 **14** (4) 274

Capillary electrophoresis separation of enantiomers by cyclodextrin array chiral analysis (Reply)

Hicks KB, Haines RM, Tong CBS, Sapers GM, El Atawy Y, Irwin PL, Seib PA// USDA/ARS, Eastern Reg Res Ctr, 600 East Mermaid Lane, Wyndmoor, Pa 19038, USA

J Agr Food Chem 1996 **44** (9) 2591

Inhibition of enzymatic browning in fresh fruit and vegetable juices by soluble and insoluble forms of β -cyclodextrin alone or in combination with phosphates

Reinhardt R, Richter M, Mager PP// Univ Leipzig, Inst Pharmacol & Toxicol, Hartelstr 16-18, D-04107 Leipzig, Germany
Carbohydr Res 1996 **291** 1

Investigation of the conformational behaviour of permethylated cyclodextrins by molecular modelling

Sakairi N, Nishi N, Tokura S, Kuzuhara H// Hokkaido Univ, Grad Sch Environm Earth Sci, Kita ku, Sapporo, Hokkaido 060, Japan
Carbohydr Res 1996 **291** 53

Interglycosidic acetals. III. Synthesis and structure determination of cyclic monobenzylidene acetals of cyclodextrin derivatives bridging between two contiguous D-glucopyranosyl residues

Sfihi H, Legrand AP, Doussot J, Guy A// ESPCI, CNRS URA 1428, Lab Phys Quant, 10 rue Vauquelin, F-75231 Paris 05, France
Colloid Surface A 1996 **115** 115

Solid-state ^{13}C NMR study of β -cyclodextrin/substituted aromatic ketone complexes: Evidence for two kinds of complexation of the guest molecules

6 LIGNIN

Evstigneev EI, Kurzin AV, Platonov AY, Maiorov ED// St Petersburg State Technol Univ, St Petersburg, Russia

Russ J Appl Chem-Eng Tr 1996 **69** (1) 130

Freudenberg lignin as a model for studying alkaline delignification of wood

Khvan AM, Agduazimov KA// Uzbek Acad Sci, Inst Bot Chem, Tashkent, Uzbekistan
Khim Priir Soedin 1996 (2) 241

Intramacromolecular reactions of nitrolignin (Russian)

Saake B, Argyropoulos DS*, Beinhoff O, Faix O// *McGill Univ, Dept Chem, 3240 Univ St, Montreal, Quebec, Canada H3A 2A7
Phytochemistry 1996 **43** (2) 499

A comparison of lignin polymer models (DHPs) and lignins by ^{31}P NMR spectroscopy

Smirnov LS, Rokhin AV, Kanitskaya LV, Kushnarev DF, Kalabin GA, Abdugazimov KA, Pulatov BK// Uzbek Acad Sci, Inst Bot Chem, Tashkent, Uzbekistan
Khim Priir Soedin 1996 (2) 234

Diagram of the structure of cotton plant lignin molecule fraction (Russian)

7 LIPOPOLYSACCHARIDES

Knirel YA, Zdorovenko GM, Paramonov NA, Veremeychenko SP, Toukach FV, Shashkov AS// Russian Acad Sci, ND Zelinskii Organ Chem Inst, Leninsky pr 47, Moscow 117913, Russia

Carbohydr Res 1996 **291** 217

Somatic antigens of pseudomonads: Structure of the O-specific polysaccharide of the reference strain for *Pseudomonas fluorescens* (IMV 4125, ATCC 13525, biovar A)

Landersjo C, Weintraub A, Widmalm G// *Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden
Carbohydr Res 1996 **291** 209

Structure determination of the O-antigen polysaccharide from the enteroinvasive *Escherichia coli* (EIEC) O143 by component analysis and NMR spectroscopy

Linnerborg M, Widmalm G*, Rahman MM, Jansson PE, Holme T, Qadri F, Albert MJ// *Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden
Carbohydr Res 1996 **291** 165

Structural studies of the O-antigenic polysaccharide from an *Aeromonas caviae* strain

Rundlof T, Weintraub A, Widmalm G// *Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden
Carbohydr Res 1996 **291** 127

Structural studies of the enteroinvasive *Escherichia coli* (EIEC) O28 O-antigenic polysaccharide

8 PECTIN

Braudo EE, Danilova IV, Dianova VT, Kobak VV, Plashchina IG, Sidorov EV, Bogatyrev AN// Russian Acad Sci, Inst Food Subst, Vavilova 28, Moscow 117813, Russia

Nahrung 1996 **40** (4) 205

Thermodynamic approach to the selection of polyuronide sequestrants for preventive and medicinal nutrition

Hounsa CG, Aubry JM, Dubourguier HC, Hornez JP// *Univ Sci & Tech Lille Flandres Artois, Lab Microbiol Fond & Appl, Bat SN2, F-59655 Ville-

neuve Dascq, France

Appl Microbiol Biotechnol 1996 **45** (6) 764

Application of factorial and Doehlert designs for optimization of pectate lyase production by a recombinant *Escherichia coli*

Khodzhaeva MA, Turakhozaev MT, Kristallovich EL, Abdullaev ND, Azimkhodzhaeva MN// Uzbek Acad Sci, Inst Bot Chem, Tashkent, Uzbekistan

Khim Priir Soedin 1996 (1) 3

Extraction of beet sugar pectin under the solid phase fermentation (Russian)

O'Neill MA, Warrenfeltz D, Kates K, Pellerin P, Doco T, Darvill AG, Albersheim P// Univ Georgia, Complex Carbohydrate Res Ctr, 220 Riverbend Rd, Athens, Ga 30602, USA

J Biol Chem 1996 **271** (37) 22923

Rhamnogalacturonan-II, a pectic polysaccharide in the walls of growing plant cell, forms a dimer that is covalently cross-linked by a borate ester: *In vitro* conditions for the formation and hydrolysis of the dimer

Pellerin P, Doco T, Vidal S, Williams P, Brillouet JM, O'Neill MA// INRA, Inst Prod Vigne, Lab Polymeres & Tech Physicochim, 2 Pl Viala, F-34060 Montpellier, France

Carbohydr Res 1996 **290** (2) 183

Structural characterization of red wine rhamnogalacturonan II

Pretel MT, Lozano P, Riquelme F, Romojaro F// Univ Politecnica Valencia, Carretera de Beniel s/n, EPSO, Orihuela, Alicante, Spain

Process Biochem 1997 **32** (1) 43

Pectic enzymes in fresh fruit processing: Optimization of enzymic peeling of oranges

Sosnina NA, Khaziev RS, Vandyukova II, Garusov AV, Tsepaeva OV, Ofitsev EN, Konovalov AI// Russian Acad Sci, Inst Phys & Organ Chem, ul Acad Arbuzova 8, Kazan 420083, Russia

Khim Priir Soedin 1996 (1) 7

Pectin substances of *Amaranthus cruentus* (Russian)

Spiro MD, Ridley BL, Glushka J, Darvill AG, Albersheim P// *Univ Georgia, Complex Carbohydrate Res Ctr, 220 Riverbend Rd, Athens, Ga 30602, USA

Carbohydr Res 1996 **290** (2) 147

Synthesis and characterization of tyramine-derivatized (1→4)-linked α -D-oligogalacturonides

Yuldasheva NP, Rakhimov DA// Uzbek Acad Sci, Inst Bot Chem, Tashkent, Uzbekistan

Khim Priir Soedin 1996 (1) 99

Polysaccharides of *Eremurus*. XXVII. Fractionation of pectin substances of *Eremurus lactiflorus* leaves (Russian)

9 STARCH

Aggarwal P, Dollimore D// *Univ Toledo, Dept Chem & Pharm, Toledo, Oh 43606, USA

Talanta 1996 **43** (9) 1527

A comparative study of the degradation of different starches using thermal analysis

Eskins K, Fanta GF, Felker FC, Baker FL// USDA/ARS, Natl Ctr Agric Utiliz Res, Biomat Proces Res, 1815 Nth Univ St, Peoria, Il 61604, USA

Carbohydr Polym 1996 **29** (3) 233

Ultrastructural studies on microencapsulated oil droplets in aqueous gels and dried films of a new starch-oil composite

Lawton JW// USDA/ARS, Natl Ctr Agric Util Res, Plant Polym Res, Peoria, Il 61604, USA

Carbohydr Polym 1996 **29** (3) 203

Effect of starch type on the properties of starch containing films

Mischnick P, Kuhn G// Univ Hamburg, Inst Organ Chem, Martin Luther King Pl 6, D-20146 Hamburg, Germany

Carbohydr Res 1996 **290** (2) 199

Model studies on methyl amyloses, correlation between reaction conditions and primary structure

Mitrevej A, Faroongsamg D, Sinchaipanid N// Mahidol Univ, Dept Mfg Pharm, Bangkok, Thailand

Int J Pharm 1996 **140** (1) 61

Compression behavior of spray dried rice starch

Moussa IS, Cartilier LH// *Univ Montreal, Fac Pharm, CP 6128, Succ Ctr Ville, Montreal, Quebec, Canada H3C 3J7

J Control Release 1996 **42** (1) 47

Characterization of moving fronts in cross-linked amylose matrices by image analysis

Numfor FA, Walter WM*, Schwartz SJ// *USDA/ARS, Raleigh, NC 27695, USA

J Agr Food Chem 1996 **44** (9) 2595

Effect of emulsifiers on the physical properties of native and fermented cassava starches

Sebecic B, Sebecic B// Univ Zagreb, Dept Food Chem, Domagojeva 2-1, Zagreb 10000, Croatia

Nahrung 1996 **40** (4) 209

Wheat flour starch granule-size distribution and rheological properties of dough. III. Amylographic measurements

Shibanuma Y, Takeda Y, Hizukuri S// *Kagoshima Univ, United Grad Sch Agri Sci, Korimoto-1, Kagoshima 890, Japan

Carbohydr Polym 1996 **29** (3) 253

Molecular and pasting properties of some wheat starches

Tovar J, Melito C// Cent Univ Venezuela, Inst Expt Biol, POB 47069, Caracas 1041A, Venezuela

J Agr Food Chem 1996 **44** (9) 2642

Steam-cooking and dry heating produce resistant starch in legumes

Van Soest JIG, Hulleman SHD, De Wit D, Vliegenthart JFG// ATO-DLO, POB 17, NL-6700 AA Wageningen, The Netherlands

Carbohydr Polym 1996 **29** (3) 225

Changes in the mechanical properties of thermoplastic potato starch in relation with changes in B-type crystallinity

10 STARCH-DEGRADING ENZYMES

Hillier P, Wase DAJ, Emery AN, Solomons GL// Univ Birmingham, Sch Chem Engr, POB 363, Edgbaston, Birmingham B15 2TT, England

Process Biochem 1997 **32** (1) 51

Instability of α -amylase production and morphological variation in continuous culture of *Bacillus amyloliquefaciens* is associated with plasmid loss

Juge N, Andersen JS, Tull D, Roepstorff P, Svensson B// *Carlsberg Lab, Dept Chem, Gamle Carlsberg Vej 10, DK-2500 Copenhagen, Denmark

Protein Express Purif 1996 **8** (2) 204

Overexpression, purification, and characterization of recombinant barley α -amylases 1 and 2 secreted by the methylotrophic yeast *Pichia pastoris*

Murado MA, Gonzalez MP, Torrado A, Pastrana LM// Inst Invest Marinas (CSIC), Eduardo Cabello 6, E-36208, Vigo, Spain

Process Biochem 1997 **32** (1) 35

Amylase production by solid state culture of *Aspergillus oryzae* on polyurethane foams. Some mechanistic approaches from an empirical model

11 POLYSACCHARIDES - MICROBIAL

Auzanneau FI, Forooghian F, Pinto BM// *Simon Fraser Univ, Dept Chem, Burnaby, Brit Columbia, Canada V5A 1S6

Carbohydr Res 1996 **291** 21

Efficient, convergent synthesis of oligosaccharide allyl glycosides corresponding to the *Streptococcus* Group A cell-wall polysaccharide

Chauveau C, Talaga P, Wieruszkeski JM, Strecker G, Chavant L// Univ Littoral, Lab Biol Cellulaire & Mol, 17 Ave Bleriot, BP 699, Calais, France

Phytochemistry 1996 **43** (2) 413

A water-soluble β -D-glucan from *Boletus erythropus*

Dubreucq G, Domon B*, Fournet B// *Univ Sci & Tech Lille Flandres Artois, CNRS 111, Lab Chim Biol, Unite Mixte Rech, F-59655 Villeneuve Dascq, France

- Carbohydr Res* 1996 **290** (2) 175
Structure determination of a novel uronic acid residue isolated from the exopolysaccharide produced by a bacterium originating from deep sea hydrothermal vents
- Fuglestad GA, Mikkelsen A, Elgsaeter A, Stokke BT*// *Univ Trondheim, Dept Phys, NOBIPOL, N-7034 Trondheim, Norway
Carbohydr Polym 1996 **29** (3) 277
Transient electric birefringence study of rod-like triple-helical polysaccharide schizophyllan
- He M, Horikawa Y// Kochi Univ, Fac Agr, Nankoku, Kochi 783, Japan
Soil Sci Plant Nutr 1996 **42** (3) 603
Stability of allophane, allophanic clay, and allophane-halloysite floc in aqueous solutions of an anionic exocellular heteropolysaccharide (gum xanthan) from *Xanthomonas campestris*
- He M, Horikawa Y// Address as above.
Soil Sci Plant Nutr 1996 **42** (3) 637
Flocculation and stabilization of allophane in the presence of an anionic microbial polysaccharide (gum xanthan) and several of its hydrolytic intermediates
- Heyraud A, Colin-Morel P, Girond S, Richard C, Kloareg B// CNRS, Ctr Rech Macromol Vegetales, BP 53, F-38041 Grenoble, France
Carbohydr Res 1996 **291** 115
HPLC analysis of saturated or unsaturated oligoguluronates and oligomannuronates. Application to the determination of the action pattern of *Halitotis tuberculata* alginate lyase
- Kim DM, Jhon DY, Park KH, Day DF// Chonnam Natl Univ, Dept Biochem Engrn, Kwangju, South Korea
Biotechnol Lett 1996 **18** (9) 1031
Mixed culture fermentation for the production of clinical quality dextran with starch and sucrose
- Kumar NS, Ratnayake RMSK, Widmalm G, Jansson PE// Univ Peradeniya, Dept Chem, Peradeniya, Sri Lanka
Carbohydr Res 1996 **291** 109
Selective cleavage of welan gum (S-130) by oxidative decarboxylation with lead tetraacetate
- Manna B, Gambhir A, Ghosh P*// *Birla Inst Sci Res, Ctr Sci & Technol, Statue Circle, Jaipur 302001, Rajasthan, India
Lett Appl Microbiol 1996 **23** (3) 141
Production and rheological characteristics of the microbial polysaccharide gellan
- Matsunaga K, Ohhara M, Oguchi Y, Iijima H, Kobayashi H// Kureha Chem Ind Co Ltd, Biomed Res Labs, Shinjuku ku, 3-26-2 Hyakunin cho, Tokyo 169, Japan
Invas Metast 1996 **16** (1) 27
Antimetastatic effect of PSK, a protein-bound polysaccharide, against the B16-BL6 mouse melanoma
- McCutchen CM, Duffaud GD, Leduc P, Petersen ARH, Tayal A, Khan SA, Kelly RM*// *Nth Carolina State Univ, Dept Chem Engrn, Raleigh, NC 27695, USA
Biotechnol Bioeng 1996 **52** (2) 332
Characterization of extremely thermostable enzymatic breakers (α -1,6-galactosidase and β -1,4-mannanase) from the hyperthermophilic bacterium *Thermotoga neapolitana* 5068 for hydrolysis of guar gum
- Miyoshi E, Takaya T, Williams PA, Nishinari K*// *Osaka City Univ, Dept Food & Nutr, Osaka 558, Japan
J Agr Food Chem 1996 **44** (9) 2486
Effects of sodium chloride and calcium chloride on the interaction between gellan gum and konjac glucomannan
- Nagasawa K, Ohgata K, Takahashi K, Hattori M*// *Tokyo Univ Agr & Technol, Dept Appl Biol Sci, Tokyo 183, Japan
J Agr Food Chem 1996 **44** (9) 2538
Role of the polysaccharide content and net charge on the emulsifying properties of β -lactoglobulin-carboxymethyl-dextran conjugates
- Ntawukulilyayo JD, Vervaeke C, Remon JP*, Gortz JP, Berlo JA// *State Univ Ghent, Pharmaceut Technol Lab, Harelbekestr 72, B-9000 Ghent, Belgium
Int J Pharm 1996 **139** (1-2) 79
In vitro and *in vivo* evaluation of a xanthan gum-N-octenylsuccinate starch matrix tablet containing ibuprofen as a model drug
- Staff M, Widmalm G*, Yang ZN, Huttunen E// *Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden
Carbohydr Res 1996 **291** 155
Structural elucidation of an extracellular polysaccharide produced by *Lactobacillus helveticus*
- Suda M, Ohno N, Hashimoto T, Koizumi K, Adachi Y, Yadomae T*// *Tokyo Univ Pharm & Life Sci, Lab Immunopharmacol Microbial Prod, 1432-1 Hori-nouchi, Hachioji, Tokyo 19203, Japan
FEMS Immunol Med Microbiol 1996 **15** (2-3) 93
Kupffer cells play important roles in the metabolic degradation of a soluble anti-tumor (1 $\rightarrow$ 3)- β -D-glucan, SSG, in mice
- Tatnell PJ, Russell NJ, Gowan JRW, Gacesa P// Univ Wales Coll Cardiff, Sch Mol & Med Biosci, Cardiff CF1 3US, Wales
Biochem Soc Trans 1996 **24** (3) 404S
Characterisation of alginates from mucoid strains of *Pseudomonas aeruginosa*
- Tatnell PJ, Russell NJ, Gacesa P// Address as above.
Biochem Soc Trans 1996 **24** (3) 405S
Overexpression of the GDP-mannose dehydrogenase gene from *Pseudomonas aeruginosa*
- Tatnell PJ, Russell NJ, Gowan JRW, Gacesa P// Address as above.
Biochem Soc Trans 1996 **24** (3) 406S
Colonisation of cystic fibrosis patients by non-mucoid *Pseudomonas aeruginosa*: Characterisation of the alginate from mucoid variants
- Tatnell PJ, Goldberg JB, Gacesa P// Address as above.
Biochem Soc Trans 1996 **24** (3) 407S
Expression of the *Klebsiella pneumoniae* alginate lyase gene in *Pseudomonas aeruginosa*: Effect on alginate structure
- Van den Born J, Jann K, Assmann KJM, Lindahl U, Berden JHM// Univ Nijmegen St Radboud Hosp, Div Nephrol, POB 9101, NL-6500 HB Nijmegen, The Netherlands
J Biol Chem 1996 **271** (37) 22802
N-Acetylated domains in heparan sulfates revealed by a monoclonal antibody against the *Escherichia coli* K5 capsular polysaccharide: Distribution of the cognate epitope in normal human kidney and transplant kidney with chronic vascular rejection

12 POLYSACCHARIDES - PLANT

- Aslani P, Kennedy RA*// *Univ Sydney, Dept Pharm, Sydney, NSW 2006, Australia
J Control Release 1996 **42** (1) 75
Studies on diffusion in alginate gels. I. Effect of cross-linking with calcium or zinc ions on diffusion of acetaminophen
- Bixler HJ// Seaweed Ind Assoc Philippines, POB 402, Cebu 6000, Philippines
Hydrobiologia 1996 **327** 35
Recent developments in manufacturing and marketing carrageenan
- Brillouet JM, Williams P, Will F, Muller G, Pellerin P*// *Inst Natl Rech Agron, Inst Prod Vigne, Lab Polym & Tech Phys-Chim, 2 Place Viala, F-34060 Montpellier, France
Carbohydr Polym 1996 **29** (3) 271
Structural characterization of an apple juice arabinogalactan-protein which aggregates following enzymic dearabinosylation
- Declerck S, Strullu DG, Plenchette C, Guillemette T// Univ Angers, LIPM, 2 Blvd Lavoisier, F-49045 Angers, France
J Biotechnol 1996 **48** (1-2) 51
Entrapment of *in vitro* produced spores of *Glomus versiforme* in alginate beads: *In vitro* and *in vivo* inoculum potentials
- Dragnet KI, Skjak-Braek G, Christensen BE, Gaserod O, Smidsrod O// Norwegian Univ Sci & Tech, Dept Biotechnol, NOBIPOL, N-7034 Trondheim, Norway
Carbohydr Polym 1996 **29** (3) 209

Swelling and partial solubilization of alginic acid gel beads in acidic buffer

Lahaye M, Ray B, Baumberger S, Quemener B, Axelos MAV// INRA, Ctr Rech Agroalimentaires, BP 1627, F-44316 Nantes 03, France
Hydrobiologia 1996 **327** 473

Chemical characterisation and gelling properties of cell wall polysaccharides from species of *Ulva* (Ulvales, Chlorophyta)

Martinez LA, Buschmann AH*// *Univ Los Lagos, Dept Acuicultura, Casilla 933, Osorno, Chile
Hydrobiologia 1996 **327** 341

Agar yield and quality of *Gracilaria chilensis* (Gigartinales, Rhodophyta) in tank culture using fish effluents

Martinez M, Leon de Pinto G, Rivas C, Ocando E// Univ Zulia, Ctr Invest Quim Prod Nat, Maracabio, Venezuela
Carbohydr Polym 1996 **29** (3) 247

Chemical and spectroscopic studies of the gum polysaccharide from *Acacia macracantha*

Matsuhiro B// Univ Santiago, Fac Quim & Biol, Casilla 307, Santiago 2, Chile
Hydrobiologia 1996 **327** 481

Vibrational spectroscopy of seaweed galactans

Matsuhiro B, Urzua CC// Address as above.

Hydrobiologia 1996 **327** 491
The acidic polysaccharide from *Palmaria decipiens* (Palmariales, Rhodophyta)

Miller IJ, Falshaw R, Furneaux RH// Carina Chem Labs Ltd, POB 30-366, Lower Hutt, New Zealand
Hydrobiologia 1996 **327** 505

A polysaccharide fraction from the red seaweed *Champia novae-zealandiae* Rhodymeniales, Rhodophyta

Murano E, Toffanin R, Pedersini C, Carabot-Cuervo A, Blunden G, Rizzo R// POLY-bios Res Ctr, Area Ric, Padriciano 99, I-34012 Trieste, Italy
Hydrobiologia 1996 **327** 497

Structure and properties of agar from two unexploited agarophytes from Venezuela

Ndjouenkeu R, Goycoolea FM, Morris ER*, Akingbala JO// *Cranfield Univ, Silsoe Coll, Dept Food Res Tech, Silsoe, Beds MK45 4DT, England
Carbohydr Polym 1996 **29** (3) 263

Rheology of okra (*Hibiscus esculentus* L) and dika nut (*Irvingia gabonensis*) polysaccharides

Nestle N, Kimmich R// Univ Ulm, Sect Kernresonanzspektroskopie, D-89069 Ulm, Germany
Colloid Surface A 1996 **115** 141

Heavy metal uptake of alginate gels studies by NMR microscopy

Nishide E, Anzai H, Uchida N, Nisizawa K// Nihon Univ, Coll Agr & Vet Med, Tokyo 154, Japan
Hydrobiologia 1996 **327** 515

Changes in M:G ratios of extracted and residual alginate fractions on boiling with water the dried brown alga *Kjellmaniella crassifolia* (Laminariales, Phaeophyta)

Oliveira EC, Saito RM, Neto JFS, Garofalo GMC// Univ Sao Paulo, Inst Biociencias, CP 11461, BR-05422-970 Sao Paulo, Brazil
Hydrobiologia 1996 **327** 501

Temporal and spatial variation in agar from a population of *Pterocladia capillacea* (Gelidiales, Rhodophyta) from Brazil

Olle D, Lozano YF*, Brillouet JM// *Ctr Cooperat Int Rech Agron Dev, 2477 Ave Val de Montferrand, BP 5035, F-34032 Montpellier 1, France
J Agr Food Chem 1996 **44** (9) 2658

Isolation and characterization of soluble polysaccharides and insoluble cell wall material of the pulp from four mango (*Mangifera indica* L) cultivars

Samuel M, Lam TJ, Sin YM*// *Nat'l Univ Singapore, Sch Biol Sci, Lower Ridge Rd, Singapore 119260, Rep Singapore
Fish Shellfish Immunol 1996 **6** (6) 443

Effect of laminaran [β (1,3)-D-glucan] on the protective immunity of blue gourami, *Trichogaster trichopterus* against *Aeromonas hydrophila*

Shiomi N, Onodera S, Vieira CCJ, Figueiredo-Ribeiro RCL// Rakuno Gakuen

Univ, Dept Food Sci, 582 Bunkyo-dai, Ebetsu, Hokkaido 069, Japan

New Phytol 1996 **133** (4) 643

Structure of fructan polymers from tuberous roots of *Gomphrena macrocephala* (Amaranthaceae) from the cerrado

Sousa-Pinto I, Lewis R, Polne-Fuller M// Univ Oporto, Inst Bot Dr Goncalo Sampaio, R Campo Alegre 1191, P-4150 Oporto, Portugal
Hydrobiologia 1996 **327** 437

The effect of phosphate concentration on growth and agar content of *Gelidium robustum* (Gelidiaceae, Rhodophyta) in culture

Zertuche-Gonzalez JA// Univ Autonoma Baja California, Inst Invest Oceanol, Apdo Postal 453, Ensenada, Baja California, Mexico
Hydrobiologia 1996 **327** 381

Feasibility for the establishing a carrageenan industry in Mexico

Zinoun M, Cosson J// Univ Caen, Lab Biol & Biotechnol Marines, Esplanade Paix, F-14032 Caen, France
J Appl Phycol 1996 **8** (1) 29

Seasonal variation in growth and carrageenan content of *Calliblepharis jubata* (Rhodophyceae, Gigartinales) from the Normandy coast, France

13 POLYSACCHARIDES - OTHER

Burova TV, Golubeva IA, Grinberg NV, Mashkevich AY, Grinberg VY, Usov AI, Navarini L, Cesaro A// Russian Acad Sci, Inst Food Subst, Vavilov Str 28, Moscow 117813, Russia
Biopolymers 1996 **39** (4) 517

Calorimetric study of the order-disorder conformational transition in succinoglycan

Christensen BE, Myhr MH, Aune O, Hagen S, Berge A, Ugelstad J// Univ Trondheim, Dept Biotechnol, NOBIPOL, N-7034 Trondheim, Norway
Carbohydr Polym 1996 **29** (3) 217

Macroporous, monodisperse particles and their application in aqueous size exclusion chromatography of high molecular weight polysaccharides

De Baulny MO, Quentel C*, Fournier V, Lamour F, Le Gouvello R// *CNEVA Brest, Lab Pathol Anim Aquat, BP 70, F-29280 Plouzane, France
Disease Aquat Org 1996 **26** (2) 139

Effect of long-term oral administration of β -glucan as an immunostimulant or an adjuvant on some non-specific parameters of the immune response of turbot *Scophthalmus maximus*

Guile GR, Rudd PM, Wing DR, Prime SB, Dwek RA*// *Univ Oxford, Glycobiol Inst, Sth Parks Rd, Oxford OX1 3QU, England
Anal Biochem 1996 **240** (2) 210

A rapid high-resolution high-performance liquid chromatographic method for separating glycan mixtures and analyzing oligosaccharide profiles

Mann B, Malik RC// Nat'l Dairy Res Inst, Div Dairy Chem, Karnal 132001, Haryana, India
J Food Sci Technol-Mysore 1996 **33** (3) 202

Studies on some functional characteristics of whey protein-polysaccharide complex

Mourao PAS, Pereira MS, Pavao MSG, Mulloy B, Tollefsen DM, Mowinckel MC, Abildgaard U// Univ Fed Rio de Janeiro, Dept Bioquim, CP 68041, BR-21941-590 Rio de Janeiro, Brazil
J Biol Chem 1996 **271** (39) 23973

Structure and anticoagulant activity of a fucosylated chondroitin sulfate from echinoderm: Sulfated fucose branches on the polysaccharide account for its high anticoagulant action

Pavao MSG// Fed Univ Rio de Janeiro, Dept Bioquim Med, BR-21941-590 Rio de Janeiro, RJ, Brazil
Braz J Med Biol Res 1996 **29** (9) 1227

Unique sulfated polysaccharides from ascidians (Chordata, Tunicata)

Shu YW, Sahara S, Nakamura S, Kato A*// *Yamaguchi Univ, Dept Biol Chem, Yamaguchi 753, Japan
J Agr Food Chem 1996 **44** (9) 2544

Effects of the length of polysaccharide chains on the functional properties of the Maillard-type lysozyme-polysaccharide conjugate