

Bibliography of carbohydrate polymers

(Four weeks journals. Search completed at 7th June 1995)

1 BOOKS, REVIEWS & SYMPOSIA

- Kobayashi H, Matsunaga K*, Oguchi Y// *Kureha Chem Ind Co Ltd, Biomed Res Lab, Shinjuku ku, 3-26-2 Hyakunin cho, Tokyo 169, Japan
Cancer Epidemiol Biomarkers Prev 1995 4 (3) 275
Antimetastatic effects of PSK (krestin), a protein-bound polysaccharide obtained from *Basidiomycetes*: An overview (Review)
Linhardt RJ, Hileman RE// Univ Iowa, Coll Pharm, Div Med & Nat Prod Chem, Iowa City, Ia 52242, USA
Gen Pharmacol 1995 26 (3) 443
Dermatan sulfate as a potential therapeutic agent (Review)

2 CELLULOSE

- Akin DE, Rigsby LL, Sethuraman A, Morrison WH, Gamble GR, Eriksson KEL// USDA ARS, Richard B Russell Agr Res Ctr, POB 5677, Athens, Ga 30604, USA
Appl Environ Microbiol 1995 61 (4) 1591
Alterations in structure, chemistry, and biodegradability of grass lignocellulose treated with the white rot fungi *Ceriporiopsis subvermispota* and *Cyathus stercoreus*
Buchanan CM, Dorschel DD, Gardner RM, Komarek RJ, White AW// Eastman Chem Co, Res Labs, POB 1972, Kingsport, Tn 37662, USA
J Macromol Sci Pure Appl Chem 1995 A32 (4) 683
Biodegradation of cellulose esters: Composting of cellulose ester diluent mixtures
Chen H, Wu JC, Chen HY// Natl Cent Univ, Dept Chem Engr, Chungli 320, Taiwan
J Microencapsul 1995 12 (2) 137
Preparation of ethylcellulose microcapsules containing theophylline by using emulsion non-solvent addition method
Frenkel SY, Petropavlovskii GA, Panov YN, Evseev AK, Kutsenko LI, Grigorev AI, Nesterova NS// Russian Acad Sci, Inst Macromolec Cpds, Bolshoi pr 31, St Petersburg 199004, Russia
Vysokomol Soedin 1995 37 (2) 324
Hydroxyethylcyanoethylcellulose: A thermotropic mesogenic polymer (Russian, English Abstract)
Furuhata K, Aoki N, Suzuki S, Sakamoto M, Saegusa Y, Nakamura S// Tokyo Inst Technol, Fac Engr, Dept Organ & Polymer Mat, O-okayama, Meguro ku, Tokyo 152, Japan
Carbohydr Polym 1995 26 (1) 25
Bromination of cellulose with tribromoimidazole, triphenylphosphine and imidazole under homogeneous conditions in LiBr-dimethylacetamide
Garnier G, Glasser WG// *Virginia Tech, Dept Wood Sci & Forest Prod, Blacksburg, Va 24061, USA
J Adhes 1994 46 (1-4) 165
Measurement of the surface free energy of amorphous cellulose by alkane adsorption: A critical evaluation of inverse gas chromatography (IGC)
Gross RA, Gu JD, Eberiel D, McCarthy SP// Univ Massachusetts, NSF, Biodegradable Polymer Res Ctr, Dept Chem, 1 Univ Ave, Lowell, Ma 01854, USA
J Macromol Sci Pure Appl Chem 1995 A32 (4) 613
Laboratory-scale composting test methods to determine polymer biodegradability: Model studies on cellulose acetate
Hedenberg P, Gatenholm P// *Chalmers Univ Technol, Dept Polymer Technol, S-41296 Gothenburg, Sweden
J Appl Polym Sci 1995 56 (6) 641
Conversion of plastic-cellulose waste into composites. I. Model of the interphase
Hsu T, Nguyen Q// Natl Renewable Energy Lab, Div Alternat Fuels, 1617 Cole Blvd, Golden, Co 80401, USA
Biotechnol Technique 1995 9 (1) 25
Analysis of solids resulted from dilute-acid pretreatment of lignocellulosic biomass
Huynh TKX, Lederer M*, Leipzig-Pagani E// *Ctr Univ Lausanne, Inst Chim

- Minerale & Analyt, Boite Postale 115, CH-1015 Lausanne 15, Switzerland
J Chromatogr A 1995 695 (1) 155
Adsorption chromatography on cellulose. XII. General effects of aqueous solutions of α -cyclodextrin as eluent
Huynh TKX, Lederer M*, Leipzig-Pagani E// *Address as above.
J Chromatogr A 1995 695 (1) 160
Adsorption chromatography on cellulose. XIII. Chromatography with aqueous solutions of carbohydrates as eluents
Inoue H, Baba Y, Tsuhako M**// *Kobe Pharmaceut Univ, Dept Chem, Higashinada ku, Kobe 658, Japan
Chem Pharm Bull Tokyo 1995 43 (4) 677
Phosphorylation of cellulose with cyclo-triphosphate
Kennedy JF, Rivera ZS, Lloyd LL, Warner FP, Da Silva MPC// Univ Birmingham, Sch Chem, Res Lab Chem Bioact Carbohydrates & Prot, POB 363, Birmingham B15 2TT, England
Carbohydr Polym 1995 26 (1) 31
Determination of the molecular weight distribution of hydroxyethylcellulose by gel filtration chromatography
Klemm D, Stein A// Univ Jena, Inst Organ & Macromolec Chem, D-07743 Jena, Germany
J Macromol Sci Pure Appl Chem 1995 A32 (4) 899
Silylated cellulose materials in design of supramolecule structures of ultrathin cellulose films
Kokot S, Yang PY// Queensland Univ Technol, Sch Chem, Ctr Instrumental & Dev Chem, Brisbane, Qld, Australia
Anal Chim Acta 1995 304 (3) 297
Comparison of thermogravimetric and differential scanning calorimetric results for cellulosic fabrics by chemometrics
Krisch J, Buzas Z, Dallmann K, Toth M, Gimesi I, Szajani B// Attila Jozsef Univ, Dept Biochem, H-6701 Szeged, Hungary
Biotechnol Technique 1995 9 (3) 221
Application of preformed cellulose beads as a support in cell immobilization
Lennholm H, Iversen T// STFI, Box 5604, S-11486 Stockholm, Sweden
Holzforschung 1995 49 (2) 119
Estimation of cellulose I and II in cellulosic samples by principal component analysis of ^{13}C -CP/MAS-NMR-spectra
Maulik S, Jana PK, Moulik SP, Chatteraj DK// Jadavpur Univ, Ctr Surface Sci, Dept Chem, Calcutta 700032, West Bengal, India
Biopolymers 1995 35 (5) 533
Biopolymer surfactant interaction. I. Kinetics of binding of cetyltrimethyl ammonium bromide with carboxymethyl cellulose (Na salt)
Mayer JM, Elion GR, Buchanan CM, Sullivan BK, Pratt SD, Kaplan DL// USA, Natick Res Dev & Engr Ctr, Natick, Ma 01760, USA
J Macromol Sci Pure Appl Chem 1995 A32 (4) 775
Biodegradable blends of cellulose acetate and starch: Production and properties
Meadows J, Williams PA, Kennedy JC// NE Wales Inst, Fac Sci Hlth & Med Studies, Ctr Water Soluble Polymers, Connahs Quay CH5 4BR, Clwyd, Wales
Macromolecules 1995 28 (8) 2683
Comparison of the extensional and shear viscosity characteristics of aqueous hydroxyethylcellulose solutions
Prasad MP, Kalyanasundaram M// Indian Council Med Res, Vector Control Res Ctr, Pondicherry 605 006, India
Carbohydr Polym 1995 26 (1) 35
Scanning electron microscopic analysis and swelling behaviour of ionotropically crosslinked carboxymethylcellulose and carboxymethylcellulose-gelatin matrices
Rak J, Vitkova M, Chalabala M// Odojarov 10, Bratislava 83232, Slovakia
Pharmazie 1995 50 (2) 154
Matrix tablets formed by hydroxypropylmethyl-cellulose of low viscosity (German, English Abstract)
Rowe RC, Roberts RJ// Zeneca Pharmaceut, Alderley Pk, Macclesfield SK10 2NA, Cheshire, England
J Mater Sci Lett 1995 14 (6) 420
Interrelationships between the yield stress, tensile fracture strength and

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.

Young's modulus of elasticity of films prepared from cellulose ethers and esters

Sanopoulou M, Roussis PP, Petropoulos JH// Demokritos Natl Ctr Sci Res, Inst Phys Chem, GR-15310 Athens, Greece
J Polym Sci B-Polym Phys 1995 33 (7) 993

A detailed study of the viscoelastic nature of vapor sorption and transport in a cellulosic polymer. I. Origin and physical implications of deviations from Fickian sorption kinetics

Sisler WJ, Tilcock C// Univ British Columbia, Dept Radiol, 2211 Westbrook Mall, Vancouver, Brit Columbia, Canada V6T 2B5
J Ultrasound Med 1995 14 (4) 267

Effect of cellulose concentration on the efficacy of a cellulose-based oral contrast agent for gastrointestinal ultrasonography

Tomasi G, Scandola M// Univ Bologna, Dipt Chim G Ciamician, Via Selmi 2, I-40126 Bologna, Italy

J Macromol Sci Pure Appl Chem 1995 A32 (4) 671

Blends of bacterial poly(3-hydroxybutyrate) with cellulose acetate butyrate in activated sludge

Walderhaug H, Nystrom B*, Hansen FK, Lindman B// *Univ Oslo, Dept Chem, POB 1033, N-0315 Oslo 3, Norway
J Phys Chem 1995 99 (13) 4672

Interactions of ionic surfactants with a nonionic cellulose ether in solution and in the gel state studied by pulsed field gradient NMR

Wang G, Olofsson G*// *Lund Univ, Ctr Chem, POB 124, S-22100 Lund, Sweden
J Phys Chem 1995 99 (15) 5588

Ethyl(hydroxyethyl)cellulose and ionic surfactants in dilute solution. Calorimetric and viscosity study of the interaction with SDS and some cationic surfactants

Wan LSC, Heng PWS, Tan YTF// Natl Univ Singapore, Dept Pharm, 10 Kent Ridge Crescent, Singapore 0511, Singapore
STP Pharma Sciences 1995 5 (2) 128

Influence of hydroxypropylmethyl cellulose and sodium carboxymethyl cellulose as coating polymers on drug release from spheroids

Xu GJ, Sunada H*// *Meijo Univ, Fac Pharm, Tempaku ku, Nagoya, Aichi 468, Japan
Chem Pharm Bull Tokyo 1995 43 (3) 483

Influence of formulation change on drug release kinetics from hydroxypropylmethylcellulose matrix tablets

Yashima E, Yamada M, Kaida Y, Okamoto Y*// *Nagoya Univ, Sch Engr, Dept Appl Chem, Chikusa ku, Nagoya, Aichi 46401, Japan
J Chromatogr A 1995 694 (2) 347

Computational studies on chiral discrimination mechanism of cellulose trisphenylcarbamate

Zhao CT, Cai BL// Acad Sinica, Inst Chem, POB 2709, Beijing 100080, Peoples Rep China
Macromol Rapid Commun 1995 16 (4) 323

UV-initiated solidification of liquid crystalline ethylcellulose/acrylic acid films and bands formed in this process

Zimina TR, Petropavlovskii GA// Russian Acad Sci, Inst Macromolec Cpds, St Petersburg 199004, Russia
Russ J Appl Chem-Eng Tr 1994 67 (4 Pt 2) 568

Dynamics and route of reactions of cellulose with urea

3 CELLULOSE-DEGRADING ENZYMES

Benoit L, Cailliez C, Gehin A, Thirion J, Raval G, Petitdemange H*// *Univ Nancy 1, Chem Biol Lab 1, BP 239, F-54506 Vandoeuvre les Nancy, France
Curr Microbiol 1995 30 (5) 305

Carboxymethylcellulase and avicelase activities from a cellulolytic *Clostridium* strain A11

Bronnenmeier K, Kern A, Liebl W, Staudenbauer WL// Tech Univ Munich, Inst Mikrobiol, D-80290 Munich, Germany
Appl Environ Microbiol 1995 61 (4) 1399

Purification of *Thermotoga maritima* enzymes for the degradation of cellulosic materials

Kim CH, Kim DS// Korea Adv Inst Sci & Technol, Genet Engr Res Inst, Molec & Cellular Biol Lab, Taejeon 305600, South Korea
Enzyme Microb Technol 1995 17 (3) 248

Purification and specificity of a specific endo- β -1,4-D-glucanase (avicelase II) resembling exo-cellobiohydrolase from *Bacillus circulans*

Kurakake M, Shirasawa T, Ooshima H*, Converse AO, Kato J// *Osaka City Univ, Dept Bioappl Chem, Sumiyoshi ku, Sugimoto 3-3-138, Osaka 558, Japan
Appl Biochem Biotech 1995 50 (3) 231

An extension of the Harano-Ooshima rate expression for enzymatic hydrolysis of cellulose to account for changes in the amount of adsorbed cellulase

Mladenovska Z, Mathrani IM, Ahning BK*// *Tech Univ Denmark, Dept Biotechnol, Anaerob Microbiol Biotechnol Res Grp, Bldg 223, DK-2800 Lyngby, Denmark

Arch Microbiol 1995 163 (3) 223

Isolation and characterization of *Caldicellulosiruptor lactoaceticus* sp nov, an extremely thermophilic, cellulolytic, anaerobic bacterium

Okeke BC, Obi SKC// Univ Strathclyde, Dept Biosci & Biotechnol, Royal Coll Bldg, Glasgow G1 1XW, Scotland
Bioresource Technol 1995 51 (1) 23

Saccharification of agro-waste materials by fungal cellulases and hemicellulases

Pembroke JT, McMahon M, Sweeney B// Univ Limerick, Dept Chem & Environm Sci, Biochem Lab, Limerick, Rep Ireland
Biotechnol Lett 1995 17 (3) 331

Purification and characterisation of a cellulose binding endoxylanase from *Celulomonas flavigena*

Yu AHC, Saddler JN// MAFF, Food Sci Lab, Colney Lane, Norwich Res Pk, Norwich NR4 7UQ, England
Biotechnol Appl Biochem 1995 21 (2) 185

Identification of essential cellulase components in the hydrolysis of a steam-exploded birch substrate

Yu AHC, Lee D, Saddler JN// Address as above.

Biotechnol Appl Biochem 1995 21 (2) 203

Adsorption and desorption of cellulase components during the hydrolysis of a steam-exploded birch substrate

4 CHITIN/CHITOSAN

Blaak H, Schrempf H*// *Univ Osnabruck, FB Biol Chem, Barbarastr 11, D-49069 Osnabruck, Germany
Eur J Biochem 1995 229 (1) 132

Binding and substrate specificities of a *Streptomyces olivaceoviridis* chitinase in comparison with its proteolytically processed form

Ilyina AV, Tikhonov VE*, Varlamov VP, Radigina LA, Tatarinova NY, Yarnskov IA// *Russian Acad Sci, Ctr Bioengn, 4-5 Vavilov St, Moscow 117334, Russia
Biotechnol Appl Biochem 1995 21 (2) 139

Preparation of affinity sorbents and isolation of individual chitinases from a crude supernatant produced by *Streptomyces kurssanovii* by a one-step affinity-chromatographic system

Inoue K, Ohto K, Yoshizuka K, Shinbaru R, Kina K// Saga Univ, Fac Sci & Engr, Dept Appl Chem, Honjo machi, Saga 840, Japan
Bunseki Kagaku 1995 44 (4) 283

Adsorption behaviors of some metal ions on chitosan modified with EDTA-type ligand (Japanese, English Abstract)

Kaneko H, Shirai A, Takahashi K, Miura Y, Nitta K, Nishimura SI, Nishi N, Tokura S*, Tsutsumi A// *Hokkaido Univ, Grad Sch Environm Earth Sci, Div Biosci, Sapporo, Hokkaido 060, Japan
Polym Int 1995 36 (4) 365

Stabilization of photo-induced radicals in hematoporphyrin-IX doped chitosan film

Miyazaki S, Nakayama A, Oda M, Takada M, Attwood D*// *Univ Manchester, Dept Pharm, Oxford Rd, Manchester M13 9PL, England
Int J Pharm 1995 118 (2) 257

Drug release from oral mucosal adhesive tablets of chitosan and sodium alginate

Neumann-Hensel H, Ahlf W*// *Tech Univ Hamburg, Arbeitsbereich Umweltschutztech, Eissendorfer Str 40, D-21071 Hamburg, Germany
Acta Hydrochim Hydrobiol 1995 23 (2) 72

Fate of copper and cadmium in a sediment-water system, and effect on chitin degrading bacteria

Nuero OM// CSIC, Ctr Invest Biol, Unidad Microbiol Molec, Velazquez 144, E-28006 Madrid, Spain
Curr Microbiol 1995 30 (5) 287

Production of chitinase by *Fusarium* species

Peter MG// Univ Potsdam, Inst Organ Chem & Strukturanalyt, Neuem Palais 10, D-14469 Potsdam, Germany
J Macromol Sci Pure Appl Chem 1995 A32 (4) 629

Applications and environmental aspects of chitin and chitosan

Salmon S, Hudson SM*// *Nth Carolina State Univ, Fiber & Polymer Sci Program, Box 8301, Raleigh, NC 27695, USA
J Polym Sci B-Polym Phys 1995 33 (7) 1007

Shear-precipitated chitosan powders, fibrils, and fibril papers: Observations on their formation and characterization

Sekine S, Watanabe T, Tanaka H*// *Niigata Univ, Fac Agr, Dept Agr Chem, 8050 Ikarashi 2, Niigata 95021, Japan

J Clin Lab Anal 1995 **9** (3) 193

Novel homogeneous enzyme immunoassay: Chitinase activity enhancement immunoassay (CAEIA)

Shantha KL, Bala U, Rao KP// *Cent Leather Res Inst, Biomat Lab, Madras 600020, Tamil Nadu, India

Eur Polym J 1995 **31** (4) 377

Tailor-made chitosans for drug delivery

Song Y, Onishi H, Machida Y, Nagai T// Hoshi Univ, Fac Pharmaceut Sci, Shinagawa ku, Ebara 2-4-41, Tokyo 142, Japan

STP Pharma Sciences 1995 **5** (2) 162

Particle characteristics of carboxymethyl-chitin-mitomycin C conjugate and N-succinyl-chitosan-mitomycin C conjugate and their distribution and histological effect on some tissues after intravenous administration

Wrzyszczyński A, Qu X, Szosland L, Adamczak E, Linden LA, Rabek JF// Tech & Agr Univ, Dept Chem, Seminaryjna 3, PL-85326 Bygoszoz, Poland

Polym Bull 1995 **34** (4) 493

Blends of poly(ethylene oxide) with chitosan acetate salt and with dibutylchitin: Structure and morphology

Zhang SK, Gonsalves KE// *Univ Connecticut, Inst Mat Sci, Polymer Sci Prog, U-136, Storrs, Ct 06269, USA

J Appl Polym Sci 1995 **56** (6) 687

Synthesis of calcium carbonate chitosan composites via biomimetic processing

5 CYCLODEXTRINS

Armspach D, Ashton PR, Ballardini R, Balzani V, Godi A, Moore CP, Prodi L, Spencer N, Stoddart JF, Tolley MS, Wear TJ, Williams DJ// Univ Birmingham, Sch Chem, POB 363, Birmingham B15 2TT, England

Angew Chem Int Ed 1995 **34** (7) 33

Catenated cyclodextrins

Brown SE, Haskard CA, Easton CJ, Lincoln SF// *Univ Adelaide, Dept Chem, Adelaide, SA 5005, Australia

J Chem Soc Faraday Trans 1995 **91** (6) 1013

Complexation of phenylalanine and histidine by β -cyclodextrin, 6^A-(3-amino-propylamino)-6^A-deoxy- β -cyclodextrin and its metalcyclodextrins in aqueous solution

Craig DQM, McDonald C// Univ London, Sch Pharm, Ctr Mat Sci, 29-39 Brunswick Sq, London WC1N 1AX, England

J Phys Chem 1995 **99** (15) 5413

Low-frequency dielectric effects in the measurement of β -cyclodextrin interactions with sodium dodecyl sulfate

Crini G, Lekchiri Y, Morcellet M// Univ Sci & Technol Lille, Chim Macromolec Lab, CNRS, URA 351, F-59655 Villeneuve Dascq, France

Chromatographia 1995 **40** (5-6) 296

Separation of structural isomers using cyclodextrin-polymers coated on silica beads

Endo T, Ueda H*, Kobayashi S, Nagai T// *Hoshi Univ, Dept Chem Phys, Shinagawa ku, 4-41 Ebara 2 chome, Tokyo 142, Japan

Carbohydr Res 1995 **269** (2) 369

Isolation, purification, and characterization of cyclomaltododecaose (η -cyclodextrin)

Irwin PL, Brouillette JN, Hicks KB// USDA ARS, Eastern Reg Res Ctr, 600 East Mermaid Lane, Philadelphia, Pa 19118, USA

Carbohydr Res 1995 **269** (2) 201

Cyclomaltoheptaose (β -cyclodextrin) and hydroxyethyl-substituted β -cyclodextrin inclusion complex formation with chlorogenic acid: Solvent effects on inclusion complex stability

Nakamura M, Ikeda A, Ise N, Ikeda T, Ikeda H, Toda F, Ueno A// *Tokyo Inst Technol, Fac Biosci & Biotechnol, Dept Bioengn, Midori ku, 4259 Ngatsuta cho, Yokohama, Kanagawa 226, Japan

J Chem Soc-Chem Commun 1995 (7) 721

Dansyl-modified β -cyclodextrin with a monensin residue as a hydrophobic, metal responsive cap

Preiss A, Mehnert W, Fromming KH// *Free Univ Berlin, Inst Pharm Pharmazeut Technol, Kelchstr 31, D-12169 Berlin, Germany

Pharmazie 1995 **50** (2) 121

Penetration of hydrocortisone into excised human skin under the influence of cyclodextrins

Tanaka M, Yoshinaga M, Ito M, Ueda H// Osaka Univ, Environm Preservat Res Ctr, 2-2 Yamadaoka, Suita, Osaka 565, Japan

Anal Sci 1995 **11** (2) 227

Preparation and retention behavior of cyclodextrin-bonded stationary phases on a silica support without an unreacted spacer chain

Wang XM, Chen HY// *Nanjing Univ, Dept Chem, Nanjing 210008, Peoples Rep China

Spectrochim Acta Pt A-Mol Spe 1995 **51** (3) 333

Investigation of the β -cyclodextrin-quinine inclusion complex in aqueous solution by spectroscopic study

Wind RD, Leibl W, Buitelaar RM, Penninga D, Spreinat A, Dijkhuizen L, Bahl H// Agrotechnol Res Inst, POB 17, 6700 AA Wageningen, The Netherlands

Appl Environ Microbiol 1995 **61** (4) 1257

Cyclodextrin formation by the thermostable α -amylase of *Thermoanaerobacterium thermosulfurigenes* EM1 and reclassification of the enzyme as a cyclodextrin glycosyltransferase

Wu WH, Stalcup AM// Univ Hawaii Manoa, Dept Chem, 2545 Mall, Honolulu, HI 96822, USA

J Liq Chromatogr 1995 **18** (7) 1289

Capillary electrophoretic chiral separations using a sulfated β -cyclodextrin containing electrolyte

Yan TR, Lin TT// Tatung Inst Technol, Dept Bioengn, Taipei, Taiwan

Biotechnol Technique 1995 **9** (3) 215

Purification and characterization of a β -cyclodextrin glucosyltransferase from an alkalophilic *Bacillus* sp

Zhao SH, Luong JHT// *Natl Res Council Canada, Biotechnol Res Inst, Montreal, Quebec, Canada H4P 2R2

J Chem Soc Chem Commun 1995 (6) 663

A cyclodextrin-porphyrin assembly as chemosensor for pentachlorophenol

6 LIGNIN

Brage C, Eriksson T, Gierer J// Royal Inst Technol, Dept Chem Engn & Technol, Div Chem Technol, S-10044 Stockholm, Sweden

Holzforchung 1995 **49** (2) 127

Reactions of chlorine dioxide with lignins in unbleached pulps. III. Reactions with model compounds representing olefinic structures in native and residual lignins

Brunow G, Karhunen P, Lundquist K, Olson S, Stomberg R// Univ Helsinki, Dept Chem, SF-000140 Helsinki, Finland

J Chem Crystallography 1995 **25** (1) 1

Investigation of lignin models of the biphenyl type by X-ray crystallography and NMR spectroscopy

Chen CM// Univ Georgia, Warnell Sch Forest Resources, Athens, Ga 30602, USA

Holzforchung 1995 **49** (2) 153

Gluability of Kraft lignin copolymer resins on bonding southern pine plywood

Homolka L, Volakova I, Nerud F// Acad Sci Czech Republ, Inst Microbiol, Videnska 1083, CR-14220 Prague 4, Czech Republic

Biotechnol Technique 1995 **9** (3) 157

Variability of enzymatic activities in ligninolytic fungi *Pleurotus ostreatus* and *Lentinus tigrinus* after protoplasting and UV-mutagenization

Karmanov AP, Belyaev VY, Monakov YB// Russian Acad Sci, Komi Res Ctr, Dept Chem, ul Komunisticheskaya 26, Syktyvkar 167610, Russia

Vysokomol Soedin 1995 **37** (2) 266

Hydrodynamic properties and branching of lignin macromolecules (Russian, English Abstract)

Tariq VN, Irvine WT// Queens Univ Belfast, Sch Biol & Biochem, MBC 97, Lisburn Rd, Belfast BT9 7BL, Northern Ireland

Biotechnol Technique 1995 **9** (3) 197

Ligninolytic enzyme activity: A comparison of the veratril alcohol and azure, B assay systems

Weir NA, Arct J, Ceccarelli A// Lakehead Univ, Dept Chem, Thunder Bay, Ontario, Canada P7B 5E1

Polym Degrad Stabil 1995 **47** (2) 289

Photodegradation of lignin model compounds. II. Substituted stilbenes

7 LIPOPOLYSACCHARIDES

Dalmo RA, Seljelid R// Univ Tromso, Med Biol Inst, Dept Exptl Pathol, N-9037 Tromso, Norway

J Fish Diseases 1995 **18** (2) 175

The immunomodulatory effect of LPS, laminaran and sulphated laminaran [B(1,3)-D-glucan] on Atlantic salmon, *Salmo salar* L, macrophages *in vitro*

Holst O, Bock K, Brade L, Brade H// Forschungsinstitut Borstel, Inst Exptl Biol & Med, Div Biochem Microbiol, Parkallee 22, D-23845 Borstel, Germany

Eur J Biochem 1995 **229** (1) 194

The structures of oligosaccharide bisphosphates isolated from the lipopolysaccharide of a recombinant *Escherichia coli* strain expressing the gene *gseA* [3-deoxy-D-manno-octulopyranosonic acid (Kdo) transferase] of *Chlamydia psittaci* 6BC

Palomar J, Leranoz AM, Vinas M// *Univ Barcelona, Dept Microbiol & Parasitol, Div Hlth Sci, E-08028 Barcelona, Spain

Microbios 1995 **81** (327) 107

Serratia marcescens adherence: The effect of O-antigen presence

Ravenscroft N, Dabrowski J, Romanowska E// Max Planck Inst Med Res, Jahnstr 29, D-69120 Heidelberg, Germany
Eur J Biochem 1995 **229** (1) 299

Structural elucidation of the biological repeating unit of O-specific polysaccharide from *Citrobacter* serotype 041

8 PECTIN

Alonso J, Rodriguez T, Canet W// Univ Surrey, Sch Biol Sci, Guildford GU2 5XH, Surrey, England

J Agr Food Chem 1995 **43** (4) 1011

Effect of calcium pretreatments on the texture of frozen cherries. Role of pectinesterase in the changes in the pectic materials

Bartling S, Wegener C, Olsen O// Carlsberg Lab, Dept Physiol, Gamle Carlsberg Vej 10, DK-2500 Copenhagen, Denmark
Microbiology-UK 1995 **141** (4) 873

Synergism between *Erwinia* pectate lyase isoenzymes that depolymerize both pectate and pectin

Chesson A, Gordon AH, Scobbie L// Rowett Res Inst, Aberdeen AB2 9SB, Scotland

Phytochemistry 1995 **38** (3) 579

Pectic polysaccharides of mesophyll cell walls of perennial ryegrass leaves

Corradini A// Address not available.

Ind Aliment 1994 **34** (333) 25

Certified food grade pectin for every need (Italian)

Dinnella C, Lanzarini G, Ercolessi P// Univ Bologna, Dept Ind Chem & Mat, Viale Risorgimento 4, I-40136 Bologna, Italy

Process Biochem 1995 **30** (2) 151

Preparation and properties of an immobilized soluble-insoluble pectinase

Fonseca MJV, Said S*// *USP, Fac Ciencias Farmaceut Ribeirao Preto, Avenida Cafe s/n, BR-14040-903 Ribeirao Preto, SP, Brazil

World J Microbiol Biotechnol 1995 **11** (2) 174

Sequential production of pectinases by *Penicillium frequentans*

Ioppolo A, Petrone G, Lo Piero AR, D'Arrigo CM// Address not available.

Potato Res 1994 **37** (4) 449

Metabolic changes during tuber storage: Polyamines and polygalacturonases

9 STARCH

Abdel-Hafiz SA// Helwan Univ, Fac Sci, Dept Chem, Cairo, Egypt

Polym Degrad Stabil 1995 **47** (2) 275

Accelerated oxidation of maize starch using the sodium chlorite thiourea system

Bello-Perez LA, Paredes-Lopez O*// *IPN, Ctr Invest Estud Avanzados, Dept Biotechnol & Bioquim, Apartado Postal 629, Irapuato 36500, Mexico

Starch 1995 **47** (3) 83

Effects of solutes on retrogradation of stored starches and amylopectins: A calorimetric study

Chandler LD, McGuire MR, Shasha BS// USDA ARS, Nthn Grain Insects Res Lab, RR 3, Brookings, SD 57006, USA

J Agr Entomol 1995 **12** (1) 33

Evaluation of starch-encapsulated diflubenzuron for use in management of fall armyworm (Lepidoptera: Noctuidae) larvae

Delwiche SR, Bean MM, Miller RE, Webb BD, Williams PC// USDA ARS, Beltsville Agr Res Ctr, Beltsville, Md 20705, USA

Cereal Chem 1995 **72** (2) 182

Apparent amylose content of milled rice by near-infrared reflectance spectrophotometry

Dintzis FR, Bagley EB// USDA ARS, Natl Ctr Agr Utilizat Res, Food Phys Chem Res Unit, Peoria, IL 61604, USA

J Appl Polym Sci 1995 **56** (5) 637

Shear thickening and transient flow effects in starch solutions

Galinsky G, Burchard W*// *Univ Freiburg, Inst Macromolec Chem, D-79104 Freiburg, Germany

Macromolecules 1995 **28** (7) 2363

Starch fractions as examples for nonrandomly branched macromolecules. I. Dimensional properties

Glenn GM, Irving DW// USDA ARS, Western Reg Res Ctr, 800 Buchanan St, Albany, Ca 94710, USA

Cereal Chem 1995 **72** (2) 155

Starch-based microcellular foams

Hubner F, Sander C// Stadt Krankenhaus Worms, Frauenklin, Gabriel von Seidl Str 81, Worms, Germany

Geburtsh Frauenheilk 1995 **55** (2) 87

Doppler ultrasound results in the treatment of IUGR with volume replacement using hydroxyethyl starch (German, English Abstract)

Jane J// Iowa State Univ Sci & Technol, Ctr Crops Utilizat Res, Ames, Ia 50011, USA

J Macromol Sci Pure Appl Chem 1995 **A32** (4) 751

Starch properties, modifications, and applications

Jansson C, Puthigae S, Sun CX, Grenthe C// Univ Stockholm, Arrhenius Lab, Dept Biochem, S-10691 Stockholm, Sweden

J Macromol Sci Pure Appl Chem 1995 **A32** (4) 895

Genetically modified starch as an industrial raw material

Le Botlan D, Desbois P// Fac Sci Nantes, Lab RMN & React Chim, CNRS, URA 472, Nantes, France

Cereal Chem 1995 **72** (2) 191

Starch retrogradation study in presence of sucrose by low-resolution nuclear magnetic resonance

Makino T, Kitamori N// Takeda Chem Ind Ltd, Div Prod, Pharmaceut Dev Labs, Yodogawa ku, 2-17-85 Juso Honmachi, Osaka 532, Japan

Chem Pharm Bull Tokyo 1995 **43** (3) 514

Importance of gelatinization degree of starch paste binder in hardness and disintegration time of tablets

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

Starch 1995 **47** (3) 86

Physicochemical changes in cassava starch and flour associated with fermentation: Effect on textural properties

Ramaswamy HS, Basak S, Abbate-Marco C, Sablani SS// McGill Univ, Dept Food Sci, MacDonald Campus, St Anne de Bellvue, Quebec, Canada H9X 3V9

J Food Eng 1995 **25** (3) 441

Rheological properties of gelatinized starch solutions as influenced by thermal processing in an agitating retort

Ring SG// Food Res Inst, Dept Food Molec Biochem, Norwich Res Pk, Norwich NR4 7UA, England

Chem Brit 1995 **31** (4) 303

Stiff tests for designer starches

Shah PB, Bandopadhyay S, Bellare JR*// *Indian Inst Technol, Dept Chem Engr, Microstruct Engr & Ultramicroscopy Lab, Bombay 400076, Maharashtra, India

Polym Degrad Stabil 1995 **47** (2) 165

Environmentally degradable starch filled low density polyethylene

Shomer I// Agr Res Org, Volcani Ctr, Dept Food Sci, POB 6, IL-50250 Bet Dagan, Israel

Carbohydr Polym 1995 **26** (1) 47

Swelling behaviour of cell wall and starch in potato (*Solanum tuberosum* L.) tuber cells. I. Starch leakage and structure of single cells

Shomer I, Vasiliver R, Lindner P// Address as above.

Carbohydr Polym 1995 **26** (1) 55

Swelling behaviour of cell wall and starch in potato (*Solanum tuberosum* L.) tuber cells. II. Permeability and swelling in macerates

Tomasik P, Wang YJ, Jane JL// Hugo Kollataj Acad Agr, Dept Chem & Phys, Mickiewicz Ave 24-28, PL-30059 Krakow, Poland

Starch 1995 **47** (3) 91

Complexes of starch with dioic acids

Tomasik P, Wang YJ, Jane JL// Address as above.

Starch 1995 **47** (3) 96

Facile route to anionic starches: Succinylation, maleination and phthalation of corn starch on extrusion

Tomas RL, Oliveira JC, Akdogan H, McCarthy KL// Univ Catolica Portuguesa, Escola Super Biotecnol, Rua Dr Antonio Bernardino Almeida, P-4200 Oporto, Portugal

Int J Food Sci Technol 1994 **29** (5) 503

Effect of operating conditions on physical characteristics of extruded rice starch

Velasco MV, Munoz-Ruiz A, Monedero MC, Jimenez-Castellanos MR// Univ Sevilla, Fac Farm, Dept Farm & Tecnol Farmaceut, C/ Tramontana s/n, E-41012 Seville, Spain

Drug Develop Ind Pharm 1995 **21** (10) 1235

Flow studies on maltodextrins as directly compressible vehicles

Yuryev VP, Nemirovskaya IE, Maslova TD// Russian Acad Sci, Inst Food Subst, ul Vavilova 28, Moscow 117813, Russia

Carbohydr Polym 1995 **26** (1) 43

Phase state of starch gels at different water contents

10 STARCH-DEGRADING ENZYMES

- Anderson KL// Mississippi State Univ, Dept Biol Sci, Mississippi State, Ms 39762, USA
Appl Environ Microbiol 1995 **61** (4) 1488
 Biochemical analysis of starch degradation by *Ruminobacter amylophilus* 70
- Chung YC, Kobayashi T*, Kanai H, Akiba T, Kudo T// *Inst Phys & Chem Res, Microbiol Lab, 2-1 Hirosawa, Wako, Saitama 35101, Japan
Appl Environ Microbiol 1995 **61** (4) 1502
 Purification and properties of extracellular amylase from the hyperthermophilic archaeon *Thermococcus profundus* DT5432
- Coma V, Copinet A, Couturier Y, Prud'homme JC// Ecole Super Ingen Embal & Condition, F-51069 Reims, France
Starch 1995 **47** (3) 100
 Biofragmentation of acetylated starch by the α -amylase of *Aspergillus oryzae*
- Dees C, Scott CD, Scott TC// Oak Ridge Natl Lab, Div Hlth Sci Res, Oak Ridge, Tn 37831, USA
Appl Biochem Biotech 1995 **50** (3) 243
 Partial characterization of an inducible amylase produced by *Pseudomonas cellulosa*: Scientific note
- Fagerstrom R, Kalkkinen N// Alko Ltd, Res Labs, POB 350, SF-00101 Helsinki, Finland
Biotechnol Appl Biochem 1995 **21** (2) 223
 Characterization, subsite mapping and partial amino acid sequence of glucoamylase from the filamentous fungus *Trichoderma reesei*
- Gupta AK, Gautam SP// Rani Durgavati Univ, Dept Biol Sci, Jabalpur 482001, Madhya Pradesh, India
World J Microbiol Biotechnol 1995 **11** (2) 193
 Improved production of extracellular α -amylase, by the thermophilic fungus *Malbranchea sulfurea*, following protoplast fusion
- Ivanova V, Stefanova M, Tonkova A, Dobrova E, Spassova D// Bulgarian Acad Sci, Inst Microbiol, Academician G Bonchev, BU-1113 Sofia, Bulgaria
Appl Biochem Biotech 1995 **50** (3) 305
 Screening of a growing cell immobilization procedure for the biosynthesis of thermostable α -amylases
- Khoo SL, Amirul AA, Kamaruzaman M, Nazalan N, Azizan MN// Univ Sains Malaysia, Sch Biol Sci, Minden 11800, Malaysia
Folia Microbiol Prague 1994 **39** (5) 392
 Purification and characterization of α -amylase from *Aspergillus flavus*
- Morgan JE, Williams PC// Address not available.
Cereal Chem 1995 **72** (2) 209
 Starch damage in wheat flours: A comparison of enzymatic, iodometric, and near-infrared reflectance techniques
- Nogrady N, Pocsí I*, Szentirmai A// *Lajos Kossuth Univ, Dept Microbiol & Biotechnol, POB 63, H-4010 Debrecen, Hungary
Biotechnol Appl Biochem 1995 **21** (2) 233
 Cyclodextrin glycosyltransferase may be the only starch-degrading enzyme in *Bacillus macerans*
- Planchot V, Colonna P, Gallant DJ, Bouchet B// INRA, BPP 527, F-44026 Nantes 03, France
J Cereal Sci 1995 **21** (2) 163
 Extensive degradation of native starch granules by α -amylase from *Aspergillus fumigatus*
- Schrickx JM, Stouthamer AH, Van Verseveld HW// *Vrije Univ Amsterdam, Dept Microbiol, De Boelelaan 1087, 1081 HV Amsterdam, The Netherlands
Appl Microbiol Biotechnol 1995 **43** (1) 109
 Growth behaviour and glucoamylase production by *Aspergillus niger* N402 and a glucoamylase overproducing transformant in recycling culture without a nitrogen source
- Sole SM// Address not available.
J Inst Brew 1995 **101** (2) 71
 Determination of α -amylase and diastatic power in high enzyme malts: Collaborative trial
- Tamang JP, Sarkar PK// *Univ Nth Bengal, Ctr Life Sci, Microbiol Lab, Raja Rammohanpur 734430, West Bengal, India
Microbios 1995 **81** (327) 115
 Microflora of murcha: An amylolytic fermentation starter
- Vikman M, Itavaara M, Poutanen K// VTT, Biotechnol & Food Res, Biologinkuja 1, POB 1500, Espoo, Finland
J Macromol Sci Pure Appl Chem 1995 **A32** (4) 863
 Biodegradation of starch-based materials
- Wang RH, Webb C// Univ Manchester Inst Sci & Technol, Dept Chem Engr, POB 88, Manchester M60 1QD, England
Biotechnol Technique 1995 **9** (1) 55
 Effect of cell concentration on the rheology of glucoamylase fermentation broth

11 POLYSACCHARIDES - MICROBIAL

- An JH, Carlson RW*, Glushka J, Streeter JG// *Univ Georgia, Complex Carbohydrate Res Ctr, 220 Riverbend Rd, Athens, Ga 30602, USA
Carbohydr Res 1995 **269** (2) 303
 The structure of a novel polysaccharide produced by *Bradyrhizobium* species within soybean nodules
- Altman E, Schaffer C, Brisson JR, Messner P// Natl Res Council Canada, Inst Biol Sci, 100 Sussex Dr, Ottawa, Ontario, Canada K1A 0R6
Eur J Biochem 1995 **229** (1) 308
 Characterization of the glycan structure of a major glycopeptide from the surface layer glycoprotein of *Clostridium thermosaccharolyticum* E207-71
- Ashtaputre AA, Shah AK// *Maharaja Sayajirao Univ Baroda, Dept Microbiol, Baroda 390002 Gujarat, India
World J Microbiol Biotechnol 1995 **11** (2) 219
 Emulsifying property of a viscous exopolysaccharide from *Sphingomonas paucimobilis*
- Besra GS, Khoo KH, McNeil MR, Dell A, Morris HR, Brennan PJ// Colorado State Univ, Dept Microbiol, Ft Collins, Co 80523, USA
Biochemistry-USA 1995 **34** (13) 4257
 A new interpretation of the structure of the mycolyl-arabinogalactan complex of *Mycobacterium tuberculosis* as revealed through characterization of oligoglycosylalditol fragments by fast-atom bombardment mass spectrometry and ^1H nuclear magnetic resonance spectroscopy
- Black GW, Hazlewood GP, Millward-Sadler SH, Laurie JI, Gilbert HJ// *Univ Newcastle upon Tyne, Dept Biol & Nutr Sci, Newcastle upon Tyne NE1 7RU, England
Biochem J 1995 **307** (1) 191
 A modular xylanase containing a novel-catalytic xylan-specific binding domain
- Breccia JD, Baigori MD, Castro GR, Sineriz F// Univ Nacl Tucuman, PROIMI, Fac Bioquim Quim & Farm, Catedra Microbiol Super, Avda Belgrano & Caseros, RA-4000 Tucuman, Tucuman, Argentina
Biotechnol Technique 1995 **9** (2) 145
 Detection of endo-xylanase activities in electrophoretic gels with congo red staining
- Brito E, Torres L, Galindo E// Natl Autonomous Univ Mexico, Fac Quim, Dept Alimentos & Biotecnol, Mexico City 04510, DF, Mexico
Biotechnol Progr 1995 **11** (2) 221
 Diffusion behavior of ammonium in xanthan gum solutions
- Chen WC, Hau DM*, Lee SS// *Natl Tsing Hua Univ, Inst Radiat Biol, Hsinchu 300, Taiwan
Amer J Chin Med 1995 **23** (1) 71
 Effects of *Ganoderma lucidum* and krestin on cellular immunocompetence in γ -ray-irradiated mice
- Choy YM, Dutton GGS, Leslie MR, Parolis H*, Parolis LAS// *Rhodes Univ, Sch Pharmaceut Sci, Grahamstown 6140, Rep Sth Africa
Carbohydr Res 1995 **269** (2) 295
 The structure of the capsular polysaccharide of *Escherichia coli* O8:K43:H11
- Colquhoun IJ, Defernez M, Morris VJ// AFRC Inst Food Res, Norwich Lab, Norwich Res Pk, Norwich NR4 7UA, England
Carbohydr Res 1995 **269** (2) 319
 NMR studies of acetan and the related bacterial polysaccharide, CR1/4, produced by a mutant strain of *Acetobacter xylinum*
- Coviello T, Dentini M, Crescenzi V, Vincenti A// Univ Roma La Sapienza, Dept Chem, I-00185 Rome, Italy
Carbohydr Polym 1995 **26** (1) 5
 Ionic strength and temperature dependence of oxidized scleroglucan solution properties: Optical activity and viscosity data
- Czamecki R, Grzybek J// Nicholas Copernicus Med Acad, Dept Pharmacodynam, 1 Podchorazych St, PL-30084 Krakow, Poland
Phytother Res 1995 **9** (2) 123
 Antiinflammatory and vasoprotective activities of polysaccharides isolated from fruit bodies of higher fungi. I. Polysaccharides from *Trametes gibbosa* (Pers: Fr) Fr (Polyporaceae)
- Fontes CMGA, Hazlewood GP, Morag E, Hall J, Hirst BH, Gilbert HJ// *Univ Newcastle upon Tyne, Dept Biol & Nutr Sci, Newcastle upon Tyne NE1 7RU, England
Biochem J 1995 **307** (1) 151
 Evidence for a general role for non-catalytic thermostabilizing domains in xylanases from thermophilic bacteria
- Garcia-Ochoa F, Santos VE, Alcon A// Univ Complutense Madrid, Fac Ciencias Quim, Dept Ingn Quim, E-28040 Madrid, Spain
Enzyme Microb Technol 1995 **17** (3) 206
 Xanthan gum production: An unstructured kinetic model
- Grzybek J, Zgorniak-Nowosielska I, Kasprzowicz A, Zawilinska B, Kohlmunzer S// Jagiellonian Univ, Coll Med, Dept Pharmaceut Bot, 9 Medyczna St, PL-

- 30688 Krakow, Poland
Acta Soc Bot Pol 1994 **63** (3-4) 293
 Antitumor activity of a fungal glucan tylopilane and *Propionibacterium acnes* preparation
- Khanna P, Sundari SS*, Kumar NJ// *CSIR, Natl Environm Engrg Res Inst, Madras Zonal Lab, Madras Complex, Taramani 600113, India
World J Microbiol Biotechnol 1995 **11** (2) 242
 Production, isolation and partial purification of xylanases from an *Aspergillus* sp
- Kosma P, Neuninger C, Christian R, Schulz G, Messner P// *Agr Univ Vienna, Zentrum Ultrastrukturforsch, Gregor Mendel Str 33, A-1180 Vienna, Austria
Glycoconjugate J 1995 **12** (1) 99
 Glycan structure of the S-layer glycoprotein of *Bacillus* sp L420-91
- Kubata BK, Takamizawa K, Kawai K, Suzuki T, Horitsu H// Mori Inst Ecol Co Ltd, 3-2-7 Uchikyuhoji cho, Osaka 540, Japan
Appl Environ Microbiol 1995 **61** (4) 1666
 Xylanase IV, an exoxylanase of *Aeromonas caviae* ME-1 which produces xylo-tetraose as the only low-molecular-weight oligosaccharide from xylan
- Leitao JH, Sa-Correia I// *Inst Super Tecn, Engrg Bioquim Lab, Avda Rovisco Pais, P-1096 Lisbon, Portugal
Arch Microbiol 1995 **163** (3) 217
 Growth-phase-dependent alginate synthesis, activity of biosynthetic enzymes and transcription of alginate genes in *Pseudomonas aeruginosa*
- Ma L, Barbosa-Canovas GV// Washington State Univ, Dept Biol Syst Engrg, Pullman, WA 99164, USA
J Food Eng 1995 **25** (3) 397
 Rheological characterization of mayonnaise. I. Slippage at different oil and xanthan gum concentrations
- Ma L, Barbosa-Canovas GV// Address as above.
J Food Eng 1995 **25** (3) 409
 Rheological characterization of mayonnaise. II. Flow and viscoelastic properties at different oil and xanthan gum concentrations
- Martinez MJ, Simon-Pujol D, Congregado F*, Merino S, Rubires X, Tomas JM// *Univ Barcelona, Fac Farm, Dept Microbiol & Parasitol Sanitarias, Avda Joan 23 s/n, E-08028 Barcelona, Spain
FEMS Microbiol Lett 1995 **128** (1) 69
 The presence of capsular polysaccharide in mesophilic *Aeromonas hydrophila* serotypes O:11 and O:34
- Messner P, Christian R, Neuninger C, Schulz G// Agr Univ Vienna, Zentrum Ultrastrukturforsch, Gregor Mendel Str 33, A-1180 Vienna, Austria
J Bacteriol 1995 **177** (8) 2188
 Similarity of "core" structures in two different glycans of tyrosine-linked eubacterial S-layer glycoproteins
- Milas M, Rinaudo M, Duplessix R, Borsali R*, Lindner P// *CNRS, CER-MAV, Ctr Rech Macromolec Vegetales, BP 53, F-38041 Grenoble 9, France
Macromolecules 1995 **28** (9) 3119
 Small angle neutron scattering from polyelectrolyte solutions: From disordered to ordered xanthan chain conformation
- Mozzi F, Oliver G, De Giori GS, De Valdez GF// Ctr Referencia Lactobacilos, Chacabuco 145, RA-4000 Tucuman, Argentina
Milchwissenschaft 1995 **50** (2) 80
 Influence of temperature on the production of exopolysaccharides by thermophilic lactic acid bacteria
- Oshtrakh MI, Kopelyan EA, Semionkin VA, Livshits AB, Kozlov AA// Ural State Tech Univ, UPI, Fac Exptl Phys, Sverdlovsk 620002, Russia
J Radioanal Nucl Chem Art 1995 **190** (2) 449
 Mossbauer and positron annihilation studies of microstructural peculiarities of iron-dextran complexes
- Pavlova IS, Lukin YV, Avdeev DN, Kulshin VA// Shemyakin & Ovchinnikov Inst Bioorgan Chem, Miklukho Maklaya St 16-10, Moscow 117871, Russia
J Immunoassay 1995 **16** (2) 199
 Non-instrumental immunoassay based on coloured polyacrolein latex: Application to group-specific polysaccharide of *Streptococcus pyogenes*
- Platonov AE, Beloborodov VB, Pavlova LI, Vershinina IV, Kayhty H// Moscow Cent Epidemiol Inst, Novogireevskaya St 3A, Moscow 111123, Russia
Clin Exp Immunol 1995 **100** (1) 32
 Vaccination of patients deficient in a late complement component with tetravalent meningococcal capsular polysaccharide vaccine
- Raj KC, Chandra TS// *Indian Inst Technol, Dept Chem, Div Biochem, Madras 600036, Tamil Nadu, India
Biotechnol Lett 1995 **17** (3) 309
 A cellulase-free xylanase from alkali-tolerant *Aspergillus fischeri* Fxn1
- Ramirez JC, Sanchez-Chaves M, Arranz F// *CSIC, Inst Ciencia & Tecnol Polimeros, Juan Cierva 3, E-28006 Madrid, Spain
Angew Makromol Chem 1995 **225** 123
- Dextran functionalized by 4-nitrophenyl carbonate groups: Aminolysis reactions
- Reeslev M, Jorgensen BB, Jorgensen OB// Univ Copenhagen, Dept Gen Microbiol, Solvgade 83H, DK-1307 Copenhagen K, Denmark
Biotechnol Technique 1995 **9** (3) 191
 A vibrating reed viscometer, sensitive to changes in the concentration of exopolysaccharide and mycelial biomass and to the morphology of the mycelium
- Shah SB, Patel CP, Trivedi HC// *Sardar Patel Univ, Dept Chem, Vallabh Vidyanagar 388 120, Gujarat, India
Carbohydr Polym 1995 **26** (1) 61
 Ceric-induced grafting of acrylate monomers onto sodium alginate
- Stephan MP, Fontaine T, Previato JO, Mendonca-Previato L// CNPAB EM-BRAPA, Natl Ctr Res Agrobiol, Biochem Lab, km 47 Antiga Rio Sao Paulo, BR-23851-970 Itagua, RJ, Brazil
Microbiol Immunol 1995 **39** (4) 237
 Differentiation of capsular polysaccharides from *Acetobacter diazotrophicus* strains isolated from sugarcane
- Tuohy MG, Laffey CD, Coughlan MP// Natl Univ Ireland, Univ Coll Galway, Dept Biochem, Galway, Rep Ireland
Bioresour Technol 1994 **50** (1) 37
 Characterization of the individual components of the xylanolytic enzyme system of *Talaromyces emersonii*
- Tyagi R, Gupta MN// Indian Inst Technol, Dept Chem, Delhi 110016, India
Biotechnol Appl Biochem 1995 **21** (2) 217
 Immobilization of *Aspergillus niger* xylanase on magnetic latex beads
- Walsh GA, Murphy RA, Killeen GF, Headon DR, Power RF// Natl Univ Ireland, Univ Coll Galway, Alltechs European Biosci Res Ctr, Galway, Rep Ireland
J Anim Sci 1995 **73** (4) 1074
 Technical note: Detection and quantification of supplemental fungal β -glucanase activity in animal feed
- Wang Y, McNeil B// Univ Strathclyde, Dept Biosci & Biotechnol, 204 George St, Glasgow G1 1XW, Scotland
Biotechnol Lett 1995 **17** (3) 257
 Dissolved oxygen and the scleroglucan fermentation process
- Wessels MR, Paoletti LC, Pintel J, Kasper DL// Brigham & Women's Hosp, Channing Lab, 180 Longwood Ave, Boston, MA 02115, USA
J Infect Dis 1995 **171** (4) 879
 Immunogenicity and protective activity in animals of a type V group B streptococcal polysaccharide/tetanus toxoid conjugate vaccine

12 POLYSACCHARIDES - PLANT

- Bhosle NB, Sawant SS, Garg A, Wagh AB// Natl Inst Oceanog, Div Marine Corrosion & Mat Res, Panaji 403004, Goa, India
Bot Mar 1995 **38** (2) 103
 Isolation and partial chemical analysis of exopolysaccharides from the marine fouling diatom *Navicula subinflata*
- Chanliaud E, Saulnier L, Thibault JF// INRA, Lab Biochim & Technol Glucides, BP 1627, F-44316 Nantes 03, France
J Cereal Sci 1995 **21** (2) 195
 Alkaline extraction and characterisation of heteroxylans from maize bran
- Chiovitti A, Kraft GT*, Saunders GW, Liao ML, Bacic A// *Univ Melbourne, Sch Bot, CRC Ind Plant Biopolymers, Parkville, Vic 3052, Australia
J Phycol 1995 **31** (1) 153
 A revision of the systematics of the Nizymeniaceae (Gigartinales, Rhodophyta) based on polysaccharides, anatomy, and nucleotide sequences
- De Pinto GL, Martinez M, Mendoza JA, Ocampo E, Rivas C// Fac Humanidades & Educ Maracaibo, Ctr Invest Quim Prod Nat, Apartado 526, Maracaibo, Venezuela
Biochem Syst Ecol 1995 **23** (2) 151
 Comparison of three Anacardiaceae gum exudates
- Elcin YM, Oktmer A// Ankara Univ, Fac Sci, Dept Chem, Ankara 06100, Turkey
J Control Release 1995 **33** (2) 245
 Larvicidal and spore behaviour of *Bacillus sphaericus* 2362 in carrageenan microcapsules
- Enriquez PM, Jung C, Josephson L*, Tennant BC// *Adv Magnet Inc, 61 Mooney St, Cambridge, MA 02138, USA
Bioconjugate Chemistry 1995 **6** (2) 195
 Conjugation of adenine arabinoside 5'-monophosphate to arabinogalactan: Synthesis, characterization, and antiviral activity
- Gorshkova TA, Gibeau D, Ibragimov MR, Carpita N, Lozovaya VV// Russian Acad Sci, Inst Biol, POB 30, Kazan 420503, Russia
Biochemistry-Engl Tr 1995 **60** (2) 185

Chromatographic analysis of cell wall matrix polysaccharides in various organs of flax seedlings

Harkonen H, Lehtinen P, Suortti T, Parkkonen T, Siikaaho M, Poutanen K// VTT, POB 1500, SF-02044 Espoo, Finland
J Cereal Sci 1995 **21** (2) 173

The effects of a xylanase and a β -glucanase from *Trichoderma reesei* on the non-starch polysaccharides of whole meal rye slurry

Hertzberg S, Moen E, Vogelsang C, Ostgaard K// Univ Trondheim, Norwegian Inst Technol, Dept Biotechnol, N-7034 Trondheim, Norway
Appl Microbiol Biotechnol 1995 **43** (1) 10

Mixed photo-cross-linked polyvinyl alcohol and calcium-alginate gels for cell entrapment

Maule JC// Western Gen Hosp, MRC Human Genet Unit, Crewe Rd, Edinburgh, EH4 2XU, Scotland
Trends Genet 1995 **11** (4) 127

Coloured microparticles for clear visualization of agarose beads and plugs

Monshipouri M, Rudolph AS// *USN Res Lab, Ctr Biomolec Sci & Engr, Washington, DC 20375, USA
J Microencapsul 1995 **12** (2) 117

Liposome-encapsulated alginate: Controlled hydrogel particle formation and release

Noseda MD, Cerezo AS// *Ciudad Univ, Fac Ciencias Exactas & Nat, Dept Quim Organ, Pabellon 2, RA-1428 Buenos Aires, DF, Argentina
Carbohydr Polym 1995 **26** (1) 1

Alkali modification of carrageenans. II. The cyclization of model compounds containing nonsulfated β -D-galactose units

Ren DL, Wang JZ, Noda H*, Amano H, Ogawa S// *Mie Univ, Fac Bioresources, Marine Biochem Lab, Tsu, Mie 514, Japan
Planta Med 1995 **61** (2) 120

The effects of an algal polysaccharide from *Gloiopeltis tenax* on transplantable tumors and immune activities in mice

Sesmiolo G, Coves MJ, Gomis R// Hosp Clin Barcelona, Endocrinol & Nutr Unit, Villarroel 170, E-08036 Barcelona, Spain
Diabetes Care 1995 **18** (4) 584

Guar gum in the treatment of NIDDM (Letter)

Stellwagen J, Stellwagen NC// Univ Iowa, Dept Biochem, Iowa City, Ia 52242, USA
J Phys Chem 1995 **99** (12) 4247

Internal structure of the agarose gel matrix

Stirling GR, Mani A// Queensland Dept Primary Ind, Meiers Rd, Indooroopilly, Qld 4068, Australia
Nematologica 1995 **41** (2) 240

The activity of nematode-trapping fungi following their encapsulation in alginate

Sundberg B, Tilly AC, Aman P// Swedish Univ Agr Sci, Dept Food Sci, Box 7026, S-75007 Uppsala, Sweden
J Cereal Sci 1995 **21** (2) 205

Enrichment of mixed-linked (1 $\rightarrow$ 3), (1 $\rightarrow$ 4)- β -D-glucans from a high-fibre barley-milling stream by air classification and stack-sieving

Vinkx CJA, Delcour JA, Verbruggen MA, Gruppen H// Katholieke Univ Leuven, Res Unit Food Chem, Kardinaal Mercierlaan 92, B-3001 Heverlee, Belgium
Cereal Chem 1995 **72** (2) 227

Rye water-soluble arabinoxylans also vary in their 2-monosubstituted xylose content

Wimalasiri KMS, Kumar NS// *Univ Peradeniya, Dept Chem, Peradeniya, Sri Lanka
Carbohydr Polym 1995 **26** (1) 19

A water-soluble polysaccharide from the leaves of *Litsea gardneri* (Lauraceae)

Yoon SH, Berglund PT, Faustaught CE// Nth Dakota State Univ, Dept Food & Nutr, Fargo, ND 58105, USA
Cereal Chem 1995 **72** (2) 187

Evaluation of selected barley cultivars and their fractions for β -glucan enrichment and viscosity

Zabackis E, Huang J, Muller B, Darvill AG, Albersheim P// *Univ Georgia, Complex Carbohydrate Res Ctr, 220 Riverbend Rd, Athens, Ga 30602, USA
J Plant Physiol 1995 **107** (4) 1129

Structure of plant cell walls. XXXIX. Characterization of the cell-wall polysaccharides of *Arabidopsis thaliana* leaves

Zvyagintseva TN, Elyakova LA, Isakov VV// Russian Acad Sci, Pacific Inst Bioorgan Chem, Vladivostok 690022, Russia
Bioorg Khim 1995 **21** (3) 218

The enzymic transformations of laminarans in 1 $\rightarrow$ 3:1 $\rightarrow$ 6- β -D-glucans with immunostimulating activity (Russian, English Abstract)

13 POLYSACCHARIDES - OTHER

Bick RL// Univ Texas, SW Med Ctr, Dept Med, 8200 Walnut Hill Lane, Dallas, Tx 75231, USA
Lab Med 1995 **26** (4) 261

Monitoring heparin therapy to manage thrombotic disease

Coe EM, Bowen LH, Speer JA, Bereman RD// *Nth Carolina State Univ, Dept Chem, Box 8204, Raleigh, NC 27695, USA
J Inorg Biochem 1995 **57** (4) 287

Comparison of polysaccharide-iron complexes used as iron supplements

Collignon F, Frydman A*, Caplain H, Ozoux ML, Le Roux Y, Bouthier J, Thebault JJ// *Rhône Poulenc Rorer SA, Res & Dev, Inst Biopharm, Dept Biopharm, 18-20 Ave R Aron, F-92165 Antony, France
Thromb Haemost 1995 **73** (4) 630

Comparison of the pharmacokinetic profiles of three low molecular mass heparins - dalteparin, enoxaparin and nadroparin - administered subcutaneously in healthy volunteers (doses for prevention of thromboembolism)

Durrer C, Irache JM, Duchene D, Ponchel G// *Univ Paris Sud, Ctr Etud Pharmaceut, CNRS URA 1218, 5 rue Jean Baptiste Clement, F-92296 Chatenay Malabry, France
J Colloid Interface Sci 1995 **170** (2) 555

Mucin interactions with functionalized polystyrene latexes

Huckerby TN, Brown GM, Dickenson JM, Nieduszynski IA// Univ Lancaster, Ctr Polymer, Sch Phys & Mat, Bailrigg, Lancaster LA1 4YA, England
Eur J Biochem 1995 **229** (1) 119

Spectroscopic characterisation of disaccharides derived from keratan sulfates

Ii T, Kubota M, Okuda S, Hirano T, Ohashi M// *Univ Electrocommun, Dept Appl Phys & Chem, Chofu, Tokyo 182, Japan
Glycoconjugate J 1995 **12** (2) 162

Negative-ion fast atom bombardment tandem mass spectrometry for characterization of sulfated unsaturated disaccharides from heparin and heparan sulfate

Jouan N, Rinaudo M, Milas M, Desbrieres J// Univ Joseph Fourier/CNRS, CERMV, BP 53X, F-38041 Grenoble, France
Carbohydr Polym 1995 **26** (1) 69

Hydration of hyaluronic acid as a function of the counterion type and relative humidity

Kajihara Y, Endo T, Ogasawara H, Kodama H, Hashimoto H// *Tokyo Inst Technol, Fac Biosci & Biotechnol, Dept Life Sci, Midori ku, Yokohama, Kanagawa 227, Japan
Carbohydr Res 1995 **269** (2) 273

Enzymic transfer of 6-modified D-galactosyl residues: Synthesis of biantennary penta- and hepta-saccharides having two 6-deoxy-D-galactose residues at the nonreducing end and evaluation of 6-deoxy-D-galactosyl transfer to glycoprotein using bovine β -(1 $\rightarrow$ 4)-galactosyltransferase and UDP-6-deoxy-D-galactose

Khomutov LI, Ptichkina NM, Sheenson VA, Lashek NA, Panina NI// NG Chernyshevskii Saratov State Univ, Saratov, Russia
Russ J Appl Chem-Eng Tr 1994 **67** (4 Pt 2) 574

Thermal degradation of polysaccharides

Malmsten M, Siegel G// Inst Surface Chem, Box 5607, S-11486 Stockholm, Sweden
J Colloid Interface Sci 1995 **170** (1) 120

Electrostatic and ion-binding effects on the adsorption of proteoglycans

Samama MM// Univ Paris 06, Hotel Dieu Paris, Serv Hematol Biol, F-75005 Paris, France
Clin Lab Med 1995 **15** (1) 109

Laboratory monitoring of unfractionated heparin treatment

Samama MM// Univ Paris 06, Hotel Dieu Paris, Serv Hematol Biol, F-75005 Paris, France
Clin Lab Med 1995 **15** (1) 119

Contemporary laboratory monitoring of low molecular weight heparins

Sintov A, Di Capua N, Rubinstein A// *Hebrew Univ Jerusalem, Fac Med, Sch Pharm, POB 12065, IL-91120 Jerusalem, Israel
Biomaterials 1995 **16** (6) 473

Cross-linked chondroitin sulphate: Characterization for drug delivery purposes

Takigami S, Takigami M, Phillips GO// *NE Wales Inst, Newtech Innovat Ctr, Deeside, Clwyd, Wales
Carbohydr Polym 1995 **26** (1) 11

Effect of preparation method on the hydration characteristics of hylan and comparison with another highly cross-linked polysaccharide, gum arabic

Van Amsterdam RGM, Vogel GMT, Visser A, Kop WJ, Buiting MT, Meuleman DG// NV Organon, Dept Vasc Pharmacol, Sci Dev Grp, POB 20, 5340 BH Oss, The Netherlands
Arterioscler Thromb Vasc Biol 1995 **15** (4) 495

Synthetic analogues of the antithrombin III-binding pentasaccharide sequence of heparin: Prediction of *in vivo* residence times