

BIBLIOGRAPHY ON CARBOHYDRATE POLYMERS

1 Books, Reviews and Symposia

Beguín P//Inst Pasteur, Dept Biotechnol, Unite Physiol Cellulaire, F-75724 Paris 15, France

ANN REV MICROBIOL 1990, 44 219

Molecular biology of cellulose degradation (Review)

Malik A, Jinno K//Toyoashi Univ Technol, Sch Mat Sci, Tempaku cho, Toyohashi 441, Japan
CHROMATOGRAPHIA 1990, 30 (3-4) 135

Determination of void/dead volume of liquid chromatographic columns containing beta-cyclodextrin as the stationary phase. Part I. Existing methods for the determination of LC column dead volume - A survey of literature

Coughlan MP (Ed)

Elsevier Appl Sci Publ Ltd (Essex), 1989, 408pp, \$100.75/£56.00 Hardbound, ISBN: 1-85166-411-4

Enzyme Systems for Lignocellulose Degradation Workshop on Production, Characterization and Applications of Cellulose-, Hemicellulose- and Lignin-Degrading Enzyme Systems, Galway, Ireland, April, 1989

Donnelly MJ, Stanford JL*, Still RH//UMIST, Wolfson Polym Res Unit, Polym Sci & Technol Grp, Manchester Mat Ctr, Manchester M1 7HS, England

CARBOHYD POLYM 1991, 14 (3) 221

The conversion of polysaccharides into polyurethanes: A review

Griffiths AJ, Davies DB//Univ London, Dept Chem, Birkbeck Coll, Gordon Hse, 29 Gordon Sq, London WC1H 0PP, England

CARBOHYD POLYM 1991, 14 (3) 241

Type-specific carbohydrate antigens of pathogenic bacteria. Part 1: Enterobacteriaceae (Review Paper)

Kuster BFM//Tech Univ Eindhoven, Chem Technol Lab, Postbus 513, 5600 MB Eindhoven, The Netherlands

STARCH 1990, 42 (8) 314

5-hydroxymethylfurfural (HMF) - A review focusing on its manufacture (Review)

Richter G//Address not available

STARCH 1990, 42 (9) 362

Report on the engine and apparatus exhibition during the starch convention 1990 at Detmold

Ross-Murphy SB//Univ Cambridge, Cavendish Lab, Madingley Rd, Cambridge CB3 0HE, England

CARBOHYD POLYM 1991, 14 (3) 281

The estimation of junction zone size from gel-time measurements

2 Cellulose

Kolosova TN, Korshak VA, Kosik S, Kosik M, Aseyeva RM//Acad Sci USSR, Inst Organoelement Cpd, Moscow V-71, USSR

J THERM ANAL 1989, 35 (7) 2393

Thermal analysis of acetylcellulose modified with bis(2-chloroethyl)1-bromovinyl phosphonate

Leza ML, Casinos I, Guzman GM//Univ Pais Vasco, Fac Ciencia Quim, Dept Ciencia & Tecnol Polimeros, POB 1072, E-20080 San Sebastian, Spain

J MACROMOLEC SCI-CHEM 1990, A27 (4) 423

Graft copolymerization of 4-vinylpyridine onto partially carboxymethylated cellulose - The degree of substitution effect

Aboul-Enein HY, Islam MR//King Faisal Specialist Hosp & Res Ctr, Dept Radionuclide & Cyclotron Operat, Drug Dev Lab, POB 3354, Riyadh 11211, Saudi Arabia

CHROMATOGRAPHIA 1990, 30 (3-4) 223

Direct chromatographic resolution of racemic aminogluthethimide and its acetylated metabolite using different cellulose based chiral stationary phases

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 ten sections: 1 Books, Reviews and Symposia; 2 Cellulose; 3 Cellulose-degrading Enzymes; 4 Cyclodextrins; 5 Lignin; 6 Polysaccharides - Named; 7 Polysaccharides - Other; 8 Lipopolysaccharides; 9 Starch; 10 Starch-degrading Enzymes. Within each section, articles are listed in alphabetical order with respect to the subject. When there are no publications to appear under one of these headings, that section will be omitted.

- Anbergen U, Oppermann W*//Tech Univ Clausthal, Inst Phys Chem, Arnold Sommerfeld Str 4, W-3392 Clausthal Zellerfe, FRG
POLYMER 1990, 31 (10) 1854
Elasticity and swelling behaviour of chemically crosslinked cellulose ethers in aqueous systems
- Asaka K//Kyoto Univ, Inst Chem Res, Uji, Kyoto 611, Japan
J MEMB SCI 1990, 52 (1) 57
Electrochemical properties of asymmetric cellulose acetate membranes
- Benrayana E, Seddas A, Ruelle P, Namtran H, Kesselring UW//Univ Lausanne, Inst Anal Pharmaceut, Ecole Pharm, 3 Pl Chateau, CH-1005 Lausanne, Switzerland
MOL CRYST LIQUID CRYST 1990, 187 357
Influence of water adsorbed on 'Avicel PH 101' on the thermal decomposition of para-aminosalicylic acid
- Ermolenko IN, Shulman ZP, Lazareva TG, Korobko EV//Acad Sci BESSR, Inst Gen & Inorgan Chem, Minsk, Belorussia, USSR
DOKL AKAD NAUK BSSR 1990, 34 (9) 812
Cellulose fillers for electrorheological composites (Russian)
- Fernandez MJ, Casinos I, Guzman GM//Univ Pais Vasco, Fac Ciencia Quim, Dept Ciencia & Tecnol Polimeros, POB 1072, E-20080 San Sebastian, Spain
J APPL POLYM SCI 1990, 41 (9-10) 2221
Grafting of vinyl acetate methyl acrylate mixture onto cellulose - Effect of ceric ion and nitric acid concentrations
- Fiedler S, Schnurra I, Sattler K//Acad Sci GDR, Inst Biotechnol, Permoserstr 15, O-7050 Leipzig, FRG
ZBL MIKROBIOL 1990, 145 (6) 427
Production and application of bacterial cellulose (German, English Abstract)
- Fukui Y, Ichida A, Shibata T, Mori K//Daicel Chem Ind Ltd, Dept Fine Cellulose Prod, Aboshi Plant, 1239 Shinzaike, Aboshi ku, Himeji 67112, Japan
J CHROMATOGR 1990, 515 (AUG) 85
Optical resolution of racemic compounds on chiral stationary phases of modified cellulose
- Kennedy JF, Melo EHM//Univ Birmingham, Dept Chem, Chem Bioact Carbohydrates & Proteins Res Lab, Birmingham B15 2TT, England
BRIT POLYM J 1990, 23 (3) 193
Bioconversions of cellulose - A major source of material for the biochemical industry
- Laszkiewicz B, Domasik B//Tech Univ Lodz, PL-90924 Lodz, Poland
J THERM ANAL 1989, 35 (7) 2235
Thermal properties of cellulose carbamate
- Lenz J, Esterbauer H, Sattler W, Schurz J, Wrentschur E//Lenzing Ag, A-4860 Lenzing, Austria
J APPL POLYM SCI 1990, 41 (5-6) 1315
Changes of structure and morphology of regenerated cellulose caused by acid and enzymatic hydrolysis
- Levin EG, Miller VT, Muesing RA, Stoy DB, Balm TK, Larosa JC*//George Washington Univ, Med Ctr, Lipid Res Clin, 901 23rd St NW, Washington, DC 20037, USA
ARCH INTERN MED 1990, 150 (9) 1822
Comparison of Psyllium hydrophilic mucilloid and cellulose as adjuncts to a prudent diet in the treatment of mild to moderate hypercholesterolemia
- Leza ML, Casinos I, Guzman GM//Univ Pais Vasco, Fac Ciencia Quim, Dept Ciencia & Tecnol Polimeros, POB 1072, E-20080 San Sebastian, Spain
J MACROMOLEC SCI-CHEM 1990, A27 (4) 413
Graft copolymerization of 4-vinylpyridine onto modified cellulosic fibers - The ceric ion concentration
- Lim SL, Fane AG, Fell CJD//Univ New S Wales, Sch Chem Engr & Ind Chem, POB 1, Kensington, NSW 2033, Australia
J APPL POLYM SCI 1990, 41 (7-8) 1609
Radiation-induced grafting of regenerated cellulose hollow-fiber membranes
- Morrison M, Mackie RI, Kistner A//Univ Illinois, Dept Anim Sci, Urbana, IL 61801, USA
APPL ENVIRON MICROBIOL 1990, 56 (10) 3220
3-phenylpropanoic acid improves the affinity of Ruminococcus albus for cellulose in continuous culture

Nekhaenko EA, Gembitskii LS, Prozorova MY, Verkhotina LN//NG Chernyshevskii State Univ, Saratov, USSR

IZV VYSSH UCH ZAV KHIM KHIM T 1990, 33 (3) 99

Characteristics of rheological behavior of secondary cellulose acetate solutions in nitromethane (Russian)

Petropavlovskii GA, Kotelnikova NE, Arslanov SS//Address not available

J APPLE CHEM-ENGL TR 1989, 62 (12) PT2, 2599

Preparation and properties of microcrystalline cellulose and pyromellitic acid esters

Reddy SS//Indian Council Agr Res, Jute Technol Res Labs, 12 Regent Pk, Calcutta 700040, India
J APPL POLYM SCI 1990, 41 (9-10) 2363

Structural features of cellulosic change in alkali-treated jute stick - An infrared absorption study

Roger V, Fonty G*, Komisarczuk-Bony S, Gouet P//*Ctr Rech Clermont Ferrand Theix, INRA, Microbiol Lab, F-63122 Ceyrat, France

APPL ENVIRON MICROBIOL 1990, 56 (10) 3081

Effects of physicochemical factors on the adhesion to cellulose avicel of the ruminal bacteria Ruminococcus flavefaciens and Fibrobacter succinogenes subsp succinogenes

Sangsari FH, Chastrette F, Chastrette M, Blanc A, Matioda G//Univ Lyon 1, 43 Blvd 11 Novembre 1918, F-69622 Villeurbanne, France

REC TRAV CHIM-J ROY NETH CHEM 1990, 109 (7-8) 419

Competitive hemiacetalization and acetalization - Cross-linking of cellulose by glyoxal

Sapieha S, Allard P, Zang YH//Ecole Polytech, Pulp & Paper Res Inst Canada, POB 6079, Stn A, Montreal, Quebec, Canada H3C 3A7

J APPL POLYM SCI 1990, 41 (9-10) 2039

Dicumyl peroxide-modified cellulose LLDPE composites

Siekmeier M, Zugenmaier P//*Tech Univ Clausthal, Inst Phys Chem, W-3392 Clausthal Zellere, FRG

MAKROMOL CHEM-MACRO CHEM PHYS 1990, 191 (5) 1177

Solvent dependence of lyotropic liquid-crystalline phases of cellulose tricarbonyl

Silaev VA, Shuravleva IL, Sopin VF//Kazan Chem Prod Res Inst, Kazan, USSR

VYSOKOMOL SOEDIN SER B SSSR 1990, 32 (8) 627

Spin probe study of the effect of temperature treatments in liquid media on amorphous structure of cellulose nitrate (Russian)

Siman'kova MV, Nozhevnikova AN//Acad Sci USSR, Inst Microbiol, Moscow V-71, USSR

MICROBIOLOGY-ENGL TR 1989, 58 (6) 723

Thermophilic homoacetate fermentation of cellulose by a combined culture of Clostridium thermocellum and Clostridium thermoautotrophicum

Straka RJ, Johnson KA, Marshall PS, Rimmel RP//Univ Minnesota, Coll Pharm, Dept Pharm Practice, 308 Harvard St SE, Minneapolis, Mn 55455, USA

J CHROMATOGR-BIOMED APPL 1990, 530 (1) 83

Analysis of metoprolol enantiomers in human serum by liquid chromatography on a cellulose-based chiral stationary phase

Tsvetkov VN, Lezov AV, Tsvetkov NV, Andreeva LN//Acad Sci USSR, Inst Macromolec Cpd, Bolshoi Prospekt 31, Leningrad 199004, USSR
EUR POLYM J 1103

Kerr effect in solutions of cellulose carbanilate in polar solvents

Uehara T, Sakata I//Shimane Univ, Fac Agr, 1060 Nishikawatsu cho, Matsue, Shimane 690, Japan

J APPL POLYM SCI 1990, 41 (7-8) 1695

Effect of corona discharge treatment on cellulose prepared from beech wood

Vetrov OD, Gladkii AM, Daragan VA, Ilina EE, Moskalev DA, Myasoedova VV, Prizment AE//NN Semenov Chem Phys Inst, Moscow, USSR
BULL ACAD SCI USSR D CHEM SCI 1990, 39 (2) PT 2, 408

Dependence of the mobility of molecular probes in cellulose acetate solutions on complexation and the solution structure

Shukry N, Girgis BS, Sefain MZ//Nat Res Ctr, Dept Cellulose & Paper, Cairo, Egypt

BULL SOC CHIM FRANCE 1990, 4 (SEP-OCT) 515

Pyrolysis stages of hemicellulose determined by thermogravimetry (French, English Abstract)

Hagenmaier RD, Shaw PE//USDA ARS, US Citrus & Subtrop Prod Lab, S Atlantic Area, POB 1909, Winter Haven, FL 3383, USA
J AGR FOOD CHEM 1990, 38 (9) 1799

Moisture permeability of edible films made with fatty acid and (hydroxypropyl)methylcellulose

Simkovic I, Pastyr J, Csomorova K, Balog K, Micko MM//Slovak Acad Sci, Inst Exptl Phys, CS-04353 Kosice, Czechoslovakia
J APPL POLYM SCI 1990, 41 (5-6) 1333

Flame retardancy effect of crosslinking of ligno-cellulose materials

Bell DA//Dow Chem Co USA, Premium Cellulose Grp, Midland, MI 48674, USA
CEREAL FOOD WORLD 1990, 35 (1) 1001
Methylcellulose as a structure enhancer in bread baking

Ricopena DC, Torres JA//Univ El Salvador, Escuela Ingn Quim, San Salvador, El Salvador
J FOOD SCI 1990, 55 (5) 1468

Edible methylcellulose-based films as moisture-impermeable barriers in sundae ice cream cones

Jordan P, Vilter H*//Univ Bonn, Inst Pharmazeut Biol, Nussallee 6, W-5300 Bonn 1, FRG
ELECTROPHORESIS 1990, 11 (8) 653

Native bromoperoxidases do not bind to nitro-cellulose: Use of DEAE-cellulose as an alternative in blotting

Vorobev IB, Gromov AV, Nikolaev VA, Pautov VP, Salina AG//Address not available
SOV RADIOCHEM-ENGL TR 1988, 30 (5) 649
Influence of polymeric molecular-weight parameters on recording characteristics of a nitro-cellulose detector

3 Cellulose-degrading Enzymes

Forwood JR, Slepner DA, Henning JA//USDA ARS, Great Plains Syst Res Unit, 1701 Ctr Ave, Ft Collins, CO 80526, USA
AGRON J 1990, 82 (5) 909

Topical cellulase application effects on tall fescue digestibility

Gusakov AV, Protas OV, Chernoglazov VM, Sinitsyn AP, Kovalysheva GV, Shpanchenko OV, Ermolova OV//MV Lomonosov State Univ, Dept Chem, Moscow 117234, USSR
BIOORG KHIM 1990, 16 (7) 898

Transglycosylation reactions catalyzed by cellobiohydrolase-I from *Trichoderma longibrachiatum* in the hydrolysis of synthetic and natural substrates (Russian, English Abstract)

Kobayashi T, Romaniec MPM, Fauth U, Demain AL*//MIT, Dept Biol, Fermentat Microbiol Lab, Cambridge, MA 02139, USA
APPL ENVIRON MICROBIOL 1990, 56 (10) 3040

Subcellulosome preparation with high cellulase activity from *Clostridium thermocellum*

Marcet AZ, Monzo M, Berbegal L, Gimenez A//Hosp Comarcal Denia, Serv Med Interna, Unidad Aparato Digest, Alicante, Spain
REV ESPAN ENFERM DIG 1990, 78 (2) 105
Treatment of phytobezoar with cellulase

Tischler M, Hirte WF, Schulz G//Ind Forschungszentrum Biotechnol Berlin, Bereich Forsch & Entwicklung, Enzymapplikat Abt, O-1017 Berlin, FRG

ZBL MIKROBIOL 1990, 145 (6) 411
Development of a cellulase complex for distillery purposes by optimization of cultivation conditions from selected *Penicillium* strains (German, English Abstract)

Hudson JA, Morgan HW, Daniel RM//Univ Waikato, Dept Biol Sci, Microbial Biochem & Biotechnol Unit, Hamilton, New Zealand
APPL MICROBIOL BIOTECHNOL 1990, 33 (6) 687

Cellulolytic properties of an extremely thermophilic anaerobe

4 Cyclodextrins

Coates JH, Easton CJ*, van Eyk SJ, Lincoln SF, May BL, Whalland CB, Williams ML*//Univ Adelaide, Dept Chem, GPO Box 498, Adelaide, SA 5001, Australia
J CHEM SOC PERKIN TRANS I 1990, (9) 2619
A new synthesis of cyclodextrin dimers

Fujita Y, Tsubouchi H, Inagi Y, Tomita K, Ozaki A, Nakanishi K*//Okayama Univ, Fac Engn, Dept Biotechnol, Okayama 700, Japan
J FERMENT BIOENG 1990, 70 (3) 150

Purification and properties of cyclodextrin glycosyltransferase from *Bacillus* sp A1-6

Giordano F, Gazzaniga A, Bettinetti GP, Lammanna A*//Univ Pavia, Dipartimento Chim

- Farmaceut, Viale Taramelli 12, I-27100 Pavia, Italy
 INT J PHARM 1990, 62 (2-3) 153
 The influence of water content on the binding capacity of beta-cyclodextrin
- Harada A, Kamachi M//Osaka Univ, Fac Sci, Dept Macromolec Chem, Toyonaka, Osaka 560, Japan
 J CHEM SOC CHEM COMMUN 1990, (19) 1322
 Complex formation between cyclodextrin and poly(propylene glycol)
- Harata K//Res Inst Polymers & Text, 1-1-4 Higashi, Tsukuba, Ibaraki 305, Japan
 BULL CHEM SOC JPN 1990, 63 (9) 2481
 The structure of the cyclodextrin complex. 22. Crystal structures of hexakis(2,6-di-ortho-methyl)-alpha-cyclodextrin complexes with 1-propanol and iodine - Evidence for the formation of iodine-host charge-transfer complex
- Heindel ND, Egolf RA, Stefely JS//Lehigh Univ, Inst Hlth Sci, Bethlehem, Pa 18015, USA
 J PHARM SCI 1990, 79 (10) 862
 Effect of liposome and cyclodextrin entrapment on retardation of glutathione decomposition of nitroimidazolyl sulfones
- Ishizuka Y, Nagawa Y, Nakanishi H, Kuboyama A//Natl Chem Lab Ind, Tsukuba Res Ctr, Yatabe, Ibaraki 305, Japan
 J INCLUSION PHENOM MOL RECOGN 1990, 9 (3) 219
 Circular dichroism spectra of the inclusion complexes of phlorizin in cyclodextrins
- Kaneko T, Nakamura N, Horikoshi K//Kino-miyashataku 2-301, Imaizumi 2954, Japan
 STARCH 1990, 42 (9) 354
 Kinetic characterization of chimeric cyclomalto-dextrin glucanotransferase from genes of two alkalophilic Bacillus
- Malik A, Jinno K//Toyoashi Univ Technol, Sch Mat Sci, Tempaku cho, Toyoashi 441, Japan
 CHROMATOGRAPHIA 1990, 30 (3-4) 138
 Determination of void/dead volume of liquid chromatographic columns containing beta-cyclodextrin as the stationary phase. Part II. A new graphical method
- Moustakalimavridis I, Hadjoudis E, Tsoucaris G//NRCPS Demokritos, Inst Phys Chem, GR-15310 Athens, Greece
 MOL CRYST LIQUID CRYST 1990, 186 185
 Crystal structure of the inclusion complex of beta-cyclodextrin with 3,3-dimethylbutylamine
- Parrotlopez H, Galons H*, Dupas S, Miocque M, Tsoucaris G//Univ Paris 05, Chim Organ Lab 2, 4 Ave Observ, F-75270 Paris, France
 BULL SOC CHIM FRANCE 1990, 4 (SEP-OCT) 568
 Regioselective synthesis of 2,6-dimethyl-beta-cyclodextrin coupled with R-phenylalanine and S-phenylalanine (French, English Abstract)
- Saintaman E, Serve D*//Univ Joseph Fourier, UFR Chim, Photochim Lab, BP 53X, F-38041 Grenoble, France
 J COLLOID INTERFACE SCI 1990, 138 (2) 365
 A conductimetric study of the association between cyclodextrins and surfactants - Application to the electrochemical study of a mixed aqueous system - Substrate, cyclodextrin, surfactant
- Salminen L, Uosukainen M, Mattsson P, Korpe-la T*//Univ Turku, Dept Biochem, SF-20500 Turku 50, Finland
 STARCH 1990, 42 (9) 350
 Action of cyclodextrins on germinating seeds and on micropropagated plants
- Tee OS, Bozzi M//Concordia Univ, Dept Chem & Biochem, Montreal, Quebec, Canada H3G 1M8
 J AMER CHEM SOC 1990, 112 (21) 7815
 Spectator catalysis by alcohols in the cleavage of an aryl ester by beta-cyclodextrin. Ternary complexes and structural dependence
- Terabe S, Miyashita Y, Shibata O, Barnhart ER, Alexander LR, Patterson DG, Karger BL, Hoso-ya K, Tanaka N//Himeji Inst Technol, Fac Sci, Dept Mat Sci, 2167 Shosha, Himeji, Hyogo 67122, Japan
 J CHROMATOGR 1990, 516 (1) 23
 Separation of highly hydrophobic compounds by cyclodextrin-modified micellar electrokinetic chromatography
- Tomita K, Tanaka T, Fujita Y, Nakanishi K*//Okayama Univ, Fac Engn, Dept Biotechnol, Okayama 700, Japan
 J FERMENT BIOENG 1990, 70 (3) 190
 Some factors affecting the formation of gamma-

cyclodextrin using cyclodextrin glycosyltransferase from *Bacillus* sp A1-6

Yamaguchi H, Higashi M, Nakayama J, Hoshino M//Ibaraki Univ, Coll Technol, 4-12-1 Nakanarusawa, Hitachi 316, Japan

J INCLUSION PHENOM MOL RECOGN 1990, 9 (3) 253

Induced circular dichroism spectra of the cyclodextrin complexes with 2-thioxo-1,3-benzodithiole and 2-selenoxo-1,3-benzodithiole

5 Lignin

Akamatsu Y, Ma DB, Higuchi T, Shimada M*// *Arizona Canc Ctr, Tucson, Az, USA

FEBS LETT 1990, 269 (1) 261

A novel enzymatic decarboxylation of oxalic acid by the lignin peroxidase system of white-rot fungus *Phanerochaete chrysosporium*

Barclay CD, Moore DM, Lander SR, Legge RL*// *Univ Waterloo, Dept Chem Engr, Biochem Engr Grp, Waterloo, Ontario, Canada N2L 3G1

ENZYME MICROB TECHNOL 1990, 12 (10) 778

Heat-denaturation kinetics of lignin peroxidases from *Phanerochaete chrysosporium*

Espejo E, Agosin E, Vicuna R//Catholic Univ Chile, Dept Ingn Quim, Casilla 6177, Santiago, Chile

ARCH MICROBIOL 1990, 154 (4) 370

Catabolism of 1,2-diarylethane lignin model compounds by two brown-rot fungi

Funazukuri T, Cho JS, Wakao N//Yokohama Natl Univ, Dept Chem, Engr, Yokohama, Kanagawa 240, Japan

FUEL 1990, 69 (10) 1328

Effect of adding Na₂CO₃, HCl and or CO during liquefaction of lignin sulphonate with water

Kurek B, Monties M, Odier E//INRA, Ctr Biotechnol Agroind, Biochim Lab, F-78850 Thiverval Grignon, France

ENZYME MICROB TECHNOL 1990, 12 (10) 771

Influence of the physical state of lignin on its degradability by the lignin peroxidase of *Phanerochaete chrysosporium*

Labat G, Meunier B*// *CNRS, Chim Coordinat Lab, 205 Route Narbonne, F-31077 Toulouse,

France

BULL SOC CHIM FRANCE 1990, 4 (SEP-OCT) 553

Recent advances on the enzymatic degradation of lignin (French, English Abstract)

Liebeskind M, Hocker H, Wandrey C, Jager AG//Univ Aachen, Inst Text Chem & Macromolec Chem, W-5100 Aachen, FRG

FEMS MICROBIOL LETT 1990, 71 (3) 325

Strategies for improved lignin peroxidase production in agitated pellet cultures of *Phanerochaete chrysosporium* and the use of a novel inducer

Mylrajan M, Valli K, Wariishi H, Gold MH*, Loehr TM*// *Oregon Grad Inst Sci & Technol, Dept Chem & Biol Sci, 19600 NW von Neumann Dr, Beaverton, Or 97006, USA

BIOCHEMISTRY-USA 1990, 29 (41) 9617

Resonance Raman spectroscopic characterization of compound III of lignin peroxidase

Sandermann H, Arjmand M, Gennity I, Winkler R, Struble CB, Aschbacher PW//Gesell Strahlen & Umweltforsch MbH, Inst Biochem Pflanzenpathol, W-8042 Neuherberg, FRG

J AGR FOOD CHEM 1990, 38 (9) 1877

Animal bioavailability of defined xenobiotic lignin metabolites

Valli K, Wariishi H, Gold MH*// *Oregon Grad Inst Sci & Technol, Dept Chem & Biol Sci, 9600 NW von Neumann Dr, Beaverton, Or 97006, USA

BIOCHEMISTRY USA 1990, 29 (37) 8535

Oxidation of monomethoxylated aromatic compounds by lignin peroxidase: Role of veratryl alcohol in lignin biodegradation

6 Polysaccharides - Named

Cosby NC, Dukelow WR//Michigan State Univ, Endocrine Res Ctr, E Lansing, Mi 48824

J REPROD FERTIL 1990, 90 (1) 19

Microencapsulation of single, multiple, and zona pellucida-free mouse preimplantation embryos in sodium alginate and their development in vitro

Draget KI, Ostgaard K, Smidsrod O//Univ Trondheim, Lab Biotechnol, N-7034 Trondheim-NTH, Norway

CARBOHYD POLYM 1991, 14 (2) 159

Homogeneous alginate gels: A technical ap-

proach

Ghani F, Hobkirk JA, Wilson M//Khyber Med Coll, Dept Prosthet Dent, Peshawar, Pakistan
BRIT DENT J 1990, 169 (3-4) 81

Evaluation of a new antiseptic-containing alginate impression material

Kaneko Y, Yonemoto Y, Okayama K, Kimura A, Murata K*//Kyoto Univ, Food Sci Res Inst, Uji, Kyoto 611, Japan

J FERMENT BIOENG 1990, 70 (3) 147

Bacterial alginate lyase - Properties of the enzyme formed in a mixed culture of bacteria isolated from soil

Martins LO, Brito LC, Sa-Correia I*//Inst Super Tecn, Engn Bioquim Lab, P-1096 Lisbon, Portugal

ENZYME MICROB TECHNOL 1990, 12 (10) 794

Roles of Mn^{2+} , Mg^{2+} and Ca^{2+} on alginate biosynthesis by *Pseudomonas aeruginosa*

Mouecoucou J, Villaume C, Bau HM, Nicolas JP, Mejean L//INSERM, U308, Unite Rech Mechanismes Regulat Comportement Alimentaire, 38 Rue Lionnois, F-54000 Nancy, France

REPROD NUTR DEVELOP 1990, 30 (4) 541

Effects of sodium alginate or sodium carrageenan added to soybean meal on the protein efficiency ratio (PER) (French, English Abstract)

Hase A, Kawabata T, Terada K//Kanazawa Univ, Fac Sci, Dept Chem, Kanazawa, Ishikawa 920, Japan

ANAL SCI 1990, 6 (5) 747

Preconcentration of trace metals with dithiocarbamate-chitin

Hegedus DD, Bidochka MJ, Khachatourians GG*//Univ Saskatchewan, Dept Appl Microbiol & Food Sci, Bioinsecticide Res Lab, Saskatoon, Saskatchewan, Canada S7N 0W0

APPL MICROBIOL BIOTECHNOL 1990, 33 (6) 641

Beauveria bassiana submerged conidia production in a defined medium containing chitin, 2 hexosamines or glucose

Hendy L, Gallagher J, Winters A, Hacket TJ, McHale L, McHale AP*//Univ Dublin Trinity Coll, Moyne Inst, Dept Microbiol, Dublin 2, Ireland

BIOTECHNOL LETT 1990, 12 (9) 673

Production of an extracellular chitinolytic system by *Talaromyces emersonii* CBS 814.70

Egashira N, Iwata D, Ohga K//Oita Univ, Fac Engn, Dept Environm Chem & Engn, Oita 87011, Japan

ANAL SCI 1990, 6 (5) 781

Glassy carbon electrode modified with phosphorylated chitosan for voltammetric determination of copper and lead ions

Fujita Y, Mori I, Toyoda M//Osaka Univ Pharmaceut Sci, Matsubara, Osaka 580, Japan

ANAL SCI 1990, 6 (4) 607

Effectiveness of chitosan on spectrophotometric determination of zinc(II) with orthohydroxyhydroquinonephthalein

Ichikawa T, Yoshikawa E, Kubota H, Nakayama H, Nakajima T//Otsuma Womens Univ, Fac Home Econ, Chiyoda ku, Tokyo 102, Japan

KOBUNSHI RONBUNSHU 1990, 47 (9) 709

Water sorption behavior of chitosan carboxymethyl cellulose complex films

Muzzarelli R, Tarsi R, Filippini O, Giovanetti E, Biagini G, Varaldo PE//Univ Ancona, Fac Med, Inst Biochem, I-60100 Ancona, Italy

ANTIMICROB AGENTS CHEMOTHER 1990, 34 (10) 2019

Antimicrobial properties of N-carboxybutyl chitosan

Struszczyk H, Kivekas O//Inst Chem Fibres, 19 C Sklodowska Str, PL-90570 Lodz, Poland

BRIT POLYM J 1990, 23 (3) 261

Microcrystalline chitosan - Some areas of application

Comper WD, Williams RPW//Monash Univ, Dept Biochem, Clayton, Vic 3168, Australia

BIOPHYS CHEM 1990, 36 (3) 215

Osmotic flow caused by chondroitin sulfate proteoglycan across well-defined Nuclepore membranes

Yamamoto I, Takayama K, Gonda T, Matsuzaki K*, Hatanaka K, Yoshida T, Uryu T, Yoshida O, Nakashima H, Yamamoto N//Shinshu Univ, Fac Text Sci & Technol, Ueda 386, Japan

BRIT POLYM J 1990, 23 (3) 245

Synthesis, structure and antiviral activity of sulfates of curdlan and its branched derivatives

Maimone MM, Tollefsen DM*//Washington Univ, Sch Med, Div Hematol Oncol, Box 8125, 660 S Euclid Ave, St Louis, Mo 63110, USA
J BIOL CHEM 1990, 265 (30) 18263

Structure of a dermatan sulfate hexasaccharide that binds to heparin cofactor II with high affinity

Baudin I, Ricard A, Audebert R//Univ Paris 06, Physicochim Macromolec Lab, CNRS, UA 278, Ecole Super Phys Chim Ind, F-75231 Paris 05, France

J COLLOID INTERFACE SCI 1990, 138 (2) 324

Adsorption of dextrans and pullulans at the silica-water interface - Hydrodynamic layer thickness measurements - Role in the fouling of ultrafiltration membranes

Busso ME, Resnick L*//Mt Sinai Med Ctr, Dept Retrovirol Res, Miami Beach, Fl 33140, USA

ANTIMICROB AGENTS CHEMOTHER 1990, 34 (10) 1991

Anti-human immunodeficiency virus effects of dextran sulfate are strain dependent and synergistic or antagonistic when dextran sulfate is given in combination with dideoxynucleosides

Cheetham NWH, Fiala-Beer E, Walker GJ//Univ NSW, Sch Chem, POB 1, Kensington 2033, Australia

CARBOHYD POLYM 1991, 14 (2) 149

Dextran structural details from high-field proton NMR spectroscopy

Corrette E, Nigretto J-M*//Univ Tours, Chim Bioanalyt Lab, F-37000 Tours, France

THROMB RES 1990, 59 (3) 463

Molecular weight-dependent contact activation of plasma induced by soluble polystyrene and dextran derivatives

Fu D, Robyt JF*//Iowa State Univ Sci & Technol, Dept Biochem & Biophys, Ames, Ia 50011, USA

PREP BIOCHEM 1990, 20 (2) 93

A facile purification of *Leuconostoc mesenteroides* B-512FM dextranucrase

Gesualdo L, Ricanati S, Hassan MO, Emancipator SN, Lamm ME*//Case Western Reserve Univ, Inst Pathol, 2085 Adelbert Rd, Cleveland, Oh 44106, USA

J CLIN INVEST 1990, 86 (3) 715

Enzymolysis of glomerular immune deposits in vivo with dextranase/protease ameliorates proteinuria, hematuria, and mesangial proliferation in murine experimental IgA nephropathy

Hampel J, Matzkies F*//Kurhausstr 31, W-8740 Bad Neustadt Saale, FRG

INFUSIONSTHERAPIE 1990, 17 (4) 197

Maltose-dextran - A new solution for starting diuresis in man (German, English Abstract)

Meadow WL, Rudinsky BF//Univ Chicago, Wyler Childrens Hosp, Dept Pediat, Box 325, 5825 S Maryland Ave, Chicago, Il 60637, USA

CRIT CARE MED 1990, 18 (9) 980

Effects of dextran infusion on cardiac output, oxygen delivery, and oxygen utilization in piglets during the first month of life

Mora M, Pato J//Hungarian Acad Sci, Cent Res Inst Chem, POB 17, H-1525 Budapest, Hungary
MAKROMOL CHEM-MACRO CHEM PHYS 1990, 191 (5) 1051

Polymeric prodrugs. 8. Synthesis and hydrolytic behaviour of dextran-bound anticancer agents

Wade CE, Hannon JP, Bossone CA, Hunt MM//Letterman Army Med Ctr, Div Mil Trauma Res, San Francisco, Ca 94129, USA

RESUSCITATION 1990, 20 (1) 49

Superiority of hypertonic saline/dextran over hypertonic saline during the first 30 min of resuscitation following hemorrhagic hypotension in conscious swine

Mehrhoth R, Kuhbauch W//Univ Bonn, Lehrstuhl Allgemeinen Pflanzenbau, Katzenburgweg 5, W-5300 Bonn 1, FRG

J AGRON CROP SCI 1990, 165 (1) 47

Yield components in old and new German winter wheat varieties with respect to the storage and remobilization of fructan in the wheat stem (German, English Abstract)

Rumessen JJ, Bode S, Hamberg O, Gudmand-Hoyer E//Univ Copenhagen, Panum Inst, Dept Med Anat C, Blegdamsvej 3, DK-2200 Copenhagen, Denmark

AMER J CLIN NUTR 1990, 52 (4) 675

Fructans of Jerusalem artichokes: Intestinal transport, absorption, fermentation, and influence on blood glucose, insulin, and C-peptide response in healthy subjects

Nakano H, Takenishi S, Kitahata S, Kinugasa H,

- Watanabe Y//Osaka Municipal Tech Inst, 6-50 Morinomiya 1-chome, Jyoto ku, Osaka 536, Japan
 EUR J BIOCHEM 1990, 193 (1) 61
 Purification and characterization of an α -1,4-beta-galactanase from a strain of *Bacillus subtilis*
- Anderson DMW, Brydon WG, Eastwood MA, Sedgwick DM//Univ Edinburgh, Dept Chem, Edinburgh EH9 3JJ, Midlothian, Scotland
 FOOD ADDIT CONTAM 1990, 7 (5) 583
 A follow-up study of the ingestion of gellan gum by humans, with special reference to the absence of eosinophilia
- Milas M, Shi X, Rinaudo M//CNRS, Ctr Rech Macromolec Vegetales, BP 53X, F-38041 Grenoble, France
 BIOPOLYMERS 1990, 30 (3-4) 451
 On the physicochemical properties of gellan gum
- Bengtsson S, Aman P, Graham H, Newmann CW, Newmann RK//Swedish Univ Agr Sci, Dept Anim Nutr & Management, Box 7024, S-75007 Uppsala, Sweden
 J SCI FOOD AGR 1990, 52 (4) 435
 Chemical studies on mixed-linked beta-glucans in hull-less barley cultivars giving different hypocholesterolaemic responses in chickens
- Henry RJ//Queensland Wheat Res Inst, POB 2282, Toowoomba, Qld 4350, Australia
 J CEREAL SCI 1990, 12 (2) 187
 Quantitative analysis of barley (1-3), (1-4)-beta-glucanase isoenzymes by high-performance liquid chromatography
- Ohno N, Suzuki T, Saito K, Yadomae T//Tokyo Coll Pharm, Hachioji, Tokyo 19203, Japan
 J PHARMACOBIO-DYNAM 1990, 13 (9) 525
 Enhancement of clot formation of human plasma by beta-glucans
- Patchen ML, MacVittie TJ, Solberg BD, Souza LM//Armed Forces Radiobiol Res Inst, Dept Exptl Hematol, Bldg 42 NMMC, Bethesda, Md 20814, USA
 EXP HEMATOL 1990, 18 (9) 1042
 Survival enhancement and hemopoietic regeneration following radiation exposure - Therapeutic approach using glucan and granulocyte colony-stimulating factor
- Suzuki I, Tanaka H, Kinoshita A, Oikawa S, Osawa M, Yadomae T//Tokyo Coll Pharm, Immunopharmacol Microbial Prod Lab, Horinouchi 1432-1, Hachioji, Tokyo 19203, Japan
 INT J IMMUNOPHARMACOL 1990, 12 (6) 675
 Effect of orally administered beta-glucan on macrophage function in mice
- Venter CS, Vorster HH, van der Nest DG//Potchefstroom Univ Christian Higher Educ, Dept Dietet, Potchefstroom 2520, South Africa
 J NUTR 1990, 120 (9) 1046
 Comparison between physiological effects of konjac-glucomannan and propionate in baboons fed "western" diets
- Debnath MK, Ghosh R, Das A*//Jadavpur Univ, Dept Chem, Calcutta 700032, W Bengal, India
 INDIAN J CHEM SECT B 1990, 29 (10) 923
 Structure of the glycan part of a pure glycopeptide isolated from the skin of the native fish magur (*Clarius batrachus*)
- Tomoda M, Gonda R, Shimizu N, Kanari M//Kyoritsu Coll Pharmaceut Sci, Minato ku, Tokyo 105, Japan
 PHYTOCHEMISTRY 1990, 29 (1) 3091
 A reticuloendothelial system-activating glycan from the barks of *Eucommia ulmoides*
- Yang X, Miller MA, Yang R, Evans DF, Edstrom RD*//Univ Minnesota, Sch Med, Dept Biochem, 4225 Millard Hall, Minneapolis, Mn 55455, USA
 FASEB J 1990, 4 (13) 3140
 Scanning tunneling microscopic images show a laminated structure for glycogen molecules
- Khurana AL, Ho C-T//Whatman Lab Prod Inc, 9 Bridewell Pl, Clifton, NJ 07014, USA
 J LIQ CHROMATOGR 1990, 13 (8) 1559
 Determination of interaction of food components with modified guar gum by HPLC
- Glushka JN, Perlin AS//McGill Univ, Dept Chem, Montreal, Quebec, Canada H3A 2A7
 CARBOHYD RES 1990, 205 (SEP) 305
 Formation of disaccharides related to heparin and heparan sulfate by chemical modification of maltose
- Harenberg J, Kallenbach B, Martin U, Dempfle CE, Zimmermann R, Kubler W, Heene DL//

Univ Heidelberg, Fac Clin Med Mannheim,
Dept Med 1, Theodor Kutzer Ufer, W-6000
Mannheim, FRG

THROMB RES 1990, 59 (3) 639

Randomized controlled study of heparin and low
molecular weight heparin for prevention of
deep-vein thrombosis in medical patients

Labarre DJ//Univ Paris 13, Rech Macromolec
Lab, CNRS, URA 502, Ave JB Clement, F-93430
Villetaneuse, France

INT J ARTIF ORGANS 1990, 13 (10) 651

Heparin-like polymer surfaces: Control of coagu-
lation and complement activation by insoluble
functionalized polymers

Nakanishi E, Sato H, Nakajima A//Nagoya Inst
Technol, Dept Mat Sci & Engn, Showa ku, Na-
goya, Aichi 466, Japan

POLYM BULL 1990, 24 (4) 429

Sedimentation study on the binding of fibrin-
ogen or of antithrombin-III with acidic polysac-
charides including heparin

Ogamo A, Metori A, Uchiyama H, Nagasawa
K//Kitasato Univ, Sch Pharmaceut Sci, Minato
ku, Tokyo 108, Japan

J BIOCHEM TOKYO 1990, 108 (4) 588

Generation of affinity for antithrombin III by
supplemental sulfation of heparin species with
low affinity for the protein

Palm M, Wu H, Mattsson C, Ansari A//Kabi
Cardiovasc, S-11287 Stockholm, Sweden

THROMB RES 1990, 59 (4) 799

Pharmacokinetic properties of size-homogene-
ous heparin oligosaccharides

Sinitsyn VV, Mamontova AG, Konovalov GA,
Kukharchuk VV//Moscow Exptl Cardiol, Cardiol
Res Ctr, 3rd Cherepkovskaya St 15A, Moscow
121552, USSR

ARTHEROSCLEROSIS 1990, 84 (1) 55

Apheresis of low density lipoproteins using a he-
parin-based sorbent with low antithrombin III
binding capacity

Sylvester DM, Liu S-Y, Meadows GG//Washing-
ton State Univ, Coll Pharm, Grad Program
Pharmacol Toxicol, Pullman, Wa 99164, USA

IMMUNOPHARMACOL IMMUNOTOXI-
COL 1990, 12 (2) 161

Augmentation of antimetastatic activity of inter-
feron and tumor necrosis factor by heparin

Tachibana S, Nishiura S, Ishida S, Kakehi K,
Honda S//Kinki Univ Hosp, 377-2 Ohono higashi,
Osaka 589, Japan

CHEM PHARM BULL TOKYO 1990, 38 (9)
2503

Quality check of heparin injections by ^1H -nu-
clear magnetic resonance spectroscopy

Garegg PJ, Oscarson S, Szonyi M//Univ Stock-
holm, Arrhenius Lab, Dept Organ Chem, S-
10691 Stockholm, Sweden

CARBOHYD RES 1990, 205 (SEP) 125

Synthesis of methyl 3-O-(alpha-D-glucopyrano-
syl)-7-O-(L-glycero-alpha-D-manno-heptopyrano-
syl)-L-glycero-alpha-D-manno-heptopyranoside

Chabreck P, Soltes L*, Kallay Z, Novak I//Slo-
vak Acad Sci, Inst Exptl Pharmacol, CS-84216
Bratislava, Czechoslovakia

CHROMATOGRAPHIA 1990, 30 (3-4) 201

Gel permeation chromatographic charac-
terization of sodium hyaluronate and its frac-
tions prepared by ultrasonic degradation

Chabreck P, Soltes L, Kallay Z, Fugedi A//Slo-
vak Tech Univ, Inst Biotechnol, CS-81243 Bratis-
lava, Czechoslovakia

J LABEL COMPOUND RADIOPHARM 1990,
28 (10) 1121

Isolation and characterisation of high molecular
weight [^3H]hyaluronic acid

Lam LS, Bert JL//Univ British Columbia, Dept
Chem Engn, Vancouver, BC, Canada V6T 1W5
BIORHEOLOGY 1990, 27 (5) 789

Hydraulic flow conductivity of hyaluronic acid
solutions: Effects of concentration and molecu-
lar weight

Songer MN, Ghosh L, Spencer DL*//Univ Illi-
nois, Dept Orthopaed Surg, 840 S Wood St, Chi-
cago, Il 60680, USA

SPINE 1990, 15 (6) 550

Effects of sodium hyaluronate on peridural fi-
brosis after lumbar laminotomy and discectomy

Yanaki T, Yamaguchi T//Shiseido Basic Res
Labs, Nippacho, Kohoku ku, Yokohama 223,
Japan

BIOPOLYMERS 1990, 30 (3-4) 415

Temporary network formation of hyaluronate
under a physiological condition. 1. Molecular-
weight dependence

- Douglas JA, Sefton MV*//^{*}Univ Toronto, Dept Chem Engrn & Appl Chem, Toronto, Ontario, Canada M5S 1A4
 BIOTECHNOL BIOENG 1990, 36 (7) 653
 The permeability of EUDRAGIT RL and HEMA-MMA microcapsules to glucose and inulin
- Suzuki M, Higuchi S, Taki Y, Taki S, Miwa K, Hamuro J//Ajinomoto Co Inc, Cent Res Labs, Basic Res Labs, 1-1 Suzuki cho, Kawasaki ku, Kawasaki, Kanagawa 210, Japan
 INT J IMMUNOPHARMACOL 1990, 12 (6) 613
 Induction of endogenous lymphokine-activated killer activity by combined administration lentinan and interleukin 2
- Murakami H, Muroi H, Kuramoto T, Tamura Y, Mizutani K, Nakano H, Kitahata S//Osaka Municipal Tech Res Inst, 6-50 Morinomiya 1-chome, Jyoto ku, Osaka 536, Japan
 AGR BIOL CHEM TOKYO 1990, 54 (9) 2247
 Purification and some properties of a levanase from *Streptomyces* sp No 7-3
- Ogawa Y, Fujishima Y, Ishida H, Kiso M, Hasegawa A//Gifu Univ, Dept Appl Bioorgan Chem, Gifu 50111, Japan
 J CARBOHYD CHEM 1990, 9 (5) 643
 Synthesis of 2-deoxy-2-[(3R)-3-hydroxyacyl]-amino-4-O-phosphono-3-O[(3R)-3-tetradecanoyloxytetradecanoyl]-D-glucopyranose derivatives related to bacterial lipid A
- Tvaroska I, Imberty A, Perez //Slovak Acad Sci, Ctr Chem Res Inst Chem, CS-84238 Bratislava, Czechoslovakia
 BIOPOLYMERS 1990, 30 (3-4) 369
 Solvent effect on the stability of isomaltose conformers
- Yamaura I, Matsumoto T, Funatsu M, Funatsu Y//Kumamoto Inst Technol, Dept Appl Microbial Technol, Kumamoto 860, Japan
 AGR BIOL CHEM TOKYO 1990, 54 (9) 2425
 Purification and some properties of endo-1,4-beta-D-mannanase from *Pseudomonas* sp PT-5
- Aguilar G, Huitron C//Natl Autonomous Univ Mexico, Inst Biomed Res, Dept Biotechnol, AP 70228, Mexico City 04510, DF, Mexico
 BIOTECHNOL LETT 1990, 12 (9) 655
 Constitutive exo-pectinase produced by *Aspergillus* sp CH-Y-1043 on different carbon source
- Balestriere C, Castaldo D, Giovane A, Quagliuolo L, Servillo L*//^{*}Naples Univ, Dept Biochem & Biophys, Via Costantinopoli 16, I-80138 Naples, Italy
 EUR J BIOCHEM 1990, 193 (1) 183
 A glycoprotein inhibitor of pectin methylesterase in kiwi fruit (*Actinidia chinensis*)
- Jiang J, Paterson A, Piggott JR//Univ Strathclyde, Dept Biosci & Biotechnol, Food Sci Lab, 131 Albion St, Glasgow G1 1SD, Scotland
 INT J FOOD SCI TECHNOL 1990, 25 (5) 596
 Effects of pectolytic enzyme treatments on anthocyanins in raspberry juice
- Renard CMGC, Searle van Leeuwen MJF, Voragen AGJ, Thibault JF, Pilnik W//Inst Natl Rech Agron, Lab Biochim & Technol Glucides, Rue Geraudiere, BP 527, 44026 Nantes Cedex 03, France
 CARBOHYD POLYM 1991, 14 (3) 295
 Studies on apple protopectin. II: Apple cell wall degradation by pure polysaccharidases and their combinations
- Uzogara SG, Morton ID, Daniel JW//Univ Port Harcourt, Dept Biochem, Port Harcourt, Nigeria
 J FOOD BIOCHEM 1990, 14 (4) 283
 Influence of various salts in the cooking water on pectin losses and cooked texture of cowpeas (*Vigna unguiculata*)
- Westerlund E, Aman P, Andersson RE, Andersson R//Swed Univ Agric Sci, Dept Chem, S-750 07 Uppsala, Sweden
 CARBOHYD POLYM 1991, 14 (2) 179
 Investigation of the distribution of methyl ester groups in pectin by high-field ¹³C NMR
- Wu A, Chang WH*//^{*}Natl Taiwan Univ, grad Inst Food Sci & Grad Inst Food Sci & Technol, Taipei, Taiwan
 INT J FOOD SCI TECHNOL 1990, 25 (5) 558
 Influence of precooking on the firmness and pectic substances of three stem vegetables
- Pawlik JR, Fengler AI, Marquardt RR//Univ Manitoba, Dept Anim Sci, Winnipeg, Manitoba, Canada R3T 2N2
 BRIT POULTRY SCI 1990, 31 (3) 525
 Improvement of the nutritional value of rye by the partial hydrolysis of the viscous water-soluble pentosans following water-soaking or fungal enzyme treatment

- Michniewicz J, Biliaderis CG, Bushuk W//Univ Manitoba, Dept Food Sci, Winnipeg, Manitoba, Canada R3T 2N2
CEREAL CHEM 1990, 67 (5) 434
Water-insoluble pentosans of wheat - Composition and some physical properties
- Barnby FM, Morpeth FF, Pyle DL//Leatherhead Food Res Assoc, Biotechnol Lab, Randalls Rd, Leatherhead KT22 7RY, England
ENZYMIC MICROB TECHNOL 1990, 12 (11) 891
Endopolygalacturonase production from *Kluyveromyces marxianus*. I. Resolution, purification, and partial characterisation of the enzyme
- Smith AB, Pyle DL//Univ Kent, Biol Lab, Canterbury CT2 7NJ, England
J FOOD BIOCHEM 1990, 14 (4) 273
Two-dimensional electrophoretic analysis of endopolygalacturonases produced by *Kluyveromyces marxianus*
- Hirose K, Zachariae COC, Oppenheim JJ, Matsushima K*//*NCI, Frederick Canc Res & Dev Ctr, Biol Response Modifiers Program, Molec Immunoregulat Lab, Frederick, Md 21702, USA
LYMPHOKINE RES 1990, 9 (4) 475
Induction of gene expression and production of immunomodulating cytokines by PSK in human peripheral blood mononuclear cells
- Yokota S-I, Kaya S*, Araki Y, Ito E, Kawamura T, Sawada S//*Hokkaido Univ, Fac Sci, Dept Chem, Sapporo, Hokkaido 060, Japan
J BACTERIOL 1990, 172 (10) 6162
Occurrence of D-rhamnan as the common antigen reactive against monoclonal antibody E87 in *Pseudomonas aeruginosa* IFO 3080 and other strains
- Kurachi K, Ohno N, Yadomae T*//*Tokyo Coll Pharm, Immunopharmacol Microbial Prod Lab, 1432-1, Horinouchi, Hachioji, Tokyo 19203, Japan
CHEM PHARM BULL TOKYO 1990, 38 (9) 2527
Preparation and antitumor activity of hydroxyethylated derivatives of 6-branched (1-3)-beta-D-glucan, SSG, obtained from the culture filtrate of *Sclerotinia sclerotiorum* IFO 9395
- Weiler BE, Schroder HC, Stefanovich V, Stewart D, Forrest JMS, Allen LB, Bowden BJ, Kreuter MH, Voth R, Muller WEG*//*Univ Mainz, Inst Physiol Chem, Angew Molek Biol Abt, Duesbergweg 6, W-6500 Mainz FRG
J GEN VIROL 1990, 71 (SEP) PT9, 1957
Sulphoevernan, a polyanionic polysaccharide, and the narcissus lectin potentially inhibit human immunodeficiency virus infection by binding to viral envelope protein
- Berge LI, Feder J, Jossang T//Univ Oslo, Dept Phys, POB 1048 Blindern, N-0316 Oslo 3, Norway
J COLLOID INTERFACE SCI 1990, 139 (1) 295
Rheology of particles in xanthan solutions flowing through a single pore
- Kawakami K, Okabe Y, Norisuye T//Osaka Univ, Dept Macromolec Sci, Toyonaka, Osaka 560, Japan
CARBOHYD POLYM 1991, 14 (2) 189
Dissociation dimerized xanthan in aqueous solution
- Shatwell KP, Sutherland IW, Ross-Murphy SB, Dea ICM//Univ Cambridge, Dept Biochem, Tennis Court Rd, Cambridge CB2 1QW, England
CARBOHYD POLYM 1991, 14 (2) 115
Influence of the acetyl substituent on the interaction of xanthan with plant polysaccharides - II. Xanthan-guar gum systems
- Shatwell KP, Sutherland IW, Ross-Murphy SB, Dea ICM//Univ Cambridge, Dept Biochem, Tennis Court Rd, Cambridge CB2 1QW, England
CARBOHYD POLYM 1991, 14 (2) 131
Influence of the acetyl substituent on the interaction of xanthan with plant polysaccharides - III. Xanthan-konjac mannan systems
- Morag E, Bayer EA*, Lamed R//*Weizmann Inst Sci, Dept Biophys, IL-76100 Rehovot, Israel
J BACTERIOL 1990, 172 (10) 6098
Relationship of cellulosomal and noncellulosomal xylanases of *Clostridium thermocellum* to cellulose-degrading enzymes

7 Polysaccharides-Other

- Beynon LM, Dutton GGS*, Richards JC//*Univ British Columbia, Dept Chem, 2036 Main Mall, Vancouver, BC, Canada V6T 1Y6
CARBOHYD RES 1990, 205 (SEP) 347

Structure of the amino acid-containing capsular polysaccharide from *Escherichia coli* O8:K49:H21

Duce SL, Carpenter TA, Hall LD//Univ Cambridge, Sch Med Chem, Herche Smith Lab Med Chem, Univ Forvie Site, Robinson Way, Cambridge CB2 2PZ, England

CARBOHYD RES 1990, 205 (SEP) C1

Use of nmr imaging to map the spatial distribution of structure in polysaccharide gels

Kenne L, Lindberg B, Rahman MM, Mosihuzzaman M//Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden

CARBOHYD RES 1990, 205 (SEP) 440

Structural studies of the O-antigen polysaccharide of *Vibrio fluvialis* AA-18239

Lapasin R, Pricl S, Paoletti S, Zanetti F//Univ Trieste, Ist Chim Appl & Ind, Via Valerio 2, I-34127 Trieste, Italy

J APPL POLYM SCI 1990, 41 (7-8) 1395

Novel rheological model for the gelation kinetics of ionic polysaccharides

Madej L, Raczynskabojanowska K, Rybka K//IHAR, Inst Plant Breeding & Acclimatizat, Radzikow, POB 1019, PL-00950 Warsaw, Poland

PLANT BREED 1990, 104 (4) 334

Variability of the content of soluble non-digestible polysaccharides in rye inbred lines

Nagaoka M, Muto M, Nomoto K, Matuzaki T, Watanabe T, Yokokura T//Yakult Cent Inst Microbiol Res, Tokyo 186, Japan

J BIOCHEM TOKYO 1990, 108 (4) 568

Structure of polysaccharide-peptidoglycan complex from the cell wall of *Lactobacillus casei* YIT9018

Parolis H, Parolis LAS, Stanley SMR, Dutton GGS//Rhodes Univ, Sch Pharmaceut Sci, Grahamstown 6140, South Africa

CARBOHYD RES 1990, 205 (SEP) 361

The structure of the capsular antigen from *Escherichia coli* O8:K87:H19

Pozsgay V, Brisson J-R, Jennings HJ//Natl Res Council Canada, Div Biol Sci, Ottawa, Ontario, Canada K1A 0R6

CARBOHYD RES 1990, 205 (SEP) 133

Synthesis of a tri- and a tetra-saccharide fragment of the capsular polysaccharide of type III

group B *Streptococcus*

Richard JC, Leitch RA//Natl Res Council Canada, Div Biol Sci, Ottawa, Ontario, Canada K1A 0R6

CAN J CHEM 1990, 68 (9) 1574

Determination of the structure and absolute configuration of the glycerolphosphate-containing capsular polysaccharide of *Pasteurella haemolytica* serotype T3 by high-resolution nuclear magnetic resonance spectroscopy

Stroffolini T, Angelini L, Galanti I, Occhionero M, Congiu ME, Mastrantonio P//Ist Super Sanita, Epidemiol Lab, I-00161 Rome, Italy

MICROBIOLOGICA 1990, 13 (3) 225

The effect of meningococcal group A and C polysaccharide vaccine on nasopharyngeal carrier state

Weinberg GA, Murphy TV, Granoff DM**//St Louis Childrens Hosp, Dept Pediat, Div Infect Dis, 400 Kingshighway Blvd, St Louis, Mo 63110, USA

PEDIATRICS 1990, 86 (4) 617

Haemophilus influenzae type-B polysaccharide-diphtheria toxoid conjugate vaccine in vaccinated children who developed *haemophilus* disease

Zuurmond HM, Van der Klein PAM, Veeneman GH, Van Boom JH//Gorelaeus Labs, POB 9502, 2300 RA Leiden, The Netherlands

REC TRAV CHIM-J ROY NETH CHEM 1990, 109 (7-8) 437

Iodonium promoted reactions at the anomeric centre. 4. A convenient iodonium-ion-assisted synthesis of an immunologically active tetrameric-beta (1-5)-linked D-galactofuranoside from the extracellular polysaccharide of *Aspergillus* and *Penicillium* species

8 Lipopolysaccharides

Brondz I, Olsen I//Norwegian Plant Protect Inst, Box 70, N-1432 As, Norway

INT J SYST BACT 1990, 40 (4) 405

Multivariate analyses of carbohydrate data from lipopolysaccharides of *Actinobacillus* (*Haemophilus*) *actinomycetemcomitans*, *Haemophilus aphrophilus*, and *Haemophilus paraphrophilus*

Flad H-D//Forschungsinstit Borstel, Dept Immunol & Cell Biol, Parkallee 22, W-2061 Borstel, FRG

LYMPHOKINE RES 1990, 9 (4) 557

Induction of IL-1 by lipopolysaccharide (LPS) and its modulation by synthetic lipid A precursor Ia

Koval'skaya NI, Maksimova GF, Akramov AR// NI Pirogov Med Inst 2, Moscow, USSR

BULL EXP BIOL MED-ENGL TR 1990, 109 (3) 361

Involution and regeneration of the mouse thymus after lipopolysaccharide injection

Paulsen H, Krogmann C//Univ Hamburg, Inst Organ Chem, Martin Luther King PL 6, W-2000 Hamburg 13, FRG

CARBOHYD RES 1990, 205 (SEP) 31

Synthese einer Kdo-haltigen Pentasaccharidesequenz der inneren Core- und Lipid A-Region von Lipopolysacchariden

Perry MB, Richards JC//Natl Res Council Canada, Div Biol Sci, Ottawa, Ontario, Canada K1A 0R6

CARBOHYD RES 1990, 205 (SEP) 371

Identification of the lipopolysaccharide O-chain of *Escherichia hermannii* (ATCC 33651) as a D-rhamnan

9 Starch

Takagi M, Daido Y, Kuriyama M, Morita N//Univ Osaka Prefecture, Coll Agr, Dept Agr Chem, Mozu umemachi, Sakai, Osaka 591, Japan

ANAL SCI 1990, 6 (4) 529

Determination of the degree of branching of amylopectin-like glucans evaluated by quinoxaline formation with O-phenylene-diamine under alkaline and deoxygenated conditions

Haase NU, Kempf W//Bundesforsch Anstalt Getreide & Kartoffelverarbeitung, Inst Starke & Kartoffeltech, W-4930 Detmold, FRG

STARCH 1990, 42 (8) 294

Investigations on the amylose determination in high protein starch source materials, especially peas (German, English Abstract)

Nishimura T, Yajima H, Kubota S, Ishii T, Endo R//Sci Univ Tokyo, Fac Surg, Dept Appl Chem, Shinjuku ku, Tokyo 162, Japan

KOBUNSHI RONBUNSHU 1990, 47 (9) 717

Polymer effect on the iodine coloring species responsible for the spectroscopic properties of amylose-iodine complexes

Yun SH, Matheson NK//Univ Sydney, Dept Agr

Chem, Sydney, NSW 2006, Australia

STARCH 1990, 42 (8) 302

Estimation of amylose content of starches after precipitation of amylopectin by concanavalin-A

Janderova B, Cvrckova F, Bendova O//Charles Univ, Fac Sci, Dept Microbiol, Vinicna 5, CS-12843 Prague 2, Czechoslovakia

J BASIC MICROB 1990, 30 (7) 499

Construction of the dextrin-degrading of brewing yeast by protoplast fusion

Fuchs M, Henkel P, Beckerscheid D, Schmitt J//St Elizabeth Hosp, W-5450 Neuwied, FRG

INFUSIONSTHERAPIE 1990, 17 (4) 205

Continuous hemodilution by low molecular hydroxyethyl starch in acute stroke (German, English Abstract)

Califano AN//Natl Univ La Plata, Fac Ciencias Exactas, Cidca, 47 & 115, RA-1900 La Plata, Argentina

INT J FOOD SCI TECHNOL 1990, 25 (5) 601

Starch gelatinization temperatures within potato during blanching

Chinnaswamy R, Hanna MA//Univ Nebraska, Dept Agr Engn, Lincoln, Ne 68583, USA

CEREAL CHEM 1990, 67 (5) 490

Macromolecular and functional properties of native and extrusion-cooked corn starch

Chrastil J//USDA ARS, South Reg Res Ctr, New Orleans, La 70179, USA

J AGR FOOD CHEM 1990, 38 (9) 1804

Protein-starch interactions in rice grains. Influence of storage on oryzenin and starch

Cone JW, Wolters MGE//State Univ Utrecht, Fac Vet, Dept Large Anim Med & Nutr, Yalelaan 16, 3584 CM Utrecht, The Netherlands

STARCH 1990, 42 (8) 298

Some properties and degradability of isolated starch granules

Gremse DA, Bucuvalas JC, Balistreri WF//Univ South Alabama, Med Ctr, Div Pediat Gastroenterol & Nutr, 2451 Fillingim St, Mobile, Al 36617, USA

AMER J CLIN NUTR 1990, 52 (4) 671

Efficacy of cornstarch therapy in type III glycogen-storage disease

Leszkowiat MJ, Yada RY, Coffin RH, Stanley

- DW//Protein Foods Grp Inc, POB 463, Stn B, Hamilton, Ontario, Canada L8L 7W9
J FOOD SCI 1990, 55 (5) 1338
Starch gelatinization in cold temperature sweetening resistant potatoes
- Marousis SN, Saravacos GD//Rutgers State Univ, Cook Coll, New Jersey Agr Exptl Stn, Dept Food Sci, New Brunswick, NJ 08903, USA
J FOOD SCI 1990, 55 (5) 1367
Density and porosity in drying starch materials
- Marshall WE, Normand FL, Goynes WR//USDA ARS, South Reg Res Ctr, POB 19687, New Orleans, La 70179, USA
CEREAL CHEM 1990, 67 (5) 458
Effect of lipid and protein removal on starch gelatinization in whole grain milled rice
- McGuire MR, Shasha BS//USDA ARS, North Reg Res Ctr, Plant Polymer Res, 1815 N Univ St, Peoria, IL-61604, USA
J ECON ENTOMOL 1990, 83 (5) 1813
Sprayable self-encapsulating starch formulations for *Bacillus thuringiensis*
- McIntyre DD, Vogel HJ//Univ Calgary, Dept Biol Sci, Div Biochem, 2500 Univ Dr NW, Calgary, Alberta, Canada T2N 1N4
STARCH 1990, 42 (8) 287
Two-dimensional nuclear magnetic resonance studies of starch and starch products
- Meuser F, Gimmler N, Oeding J//Tech Univ Berlin, Inst Lebensmitteltechnol & Garungstechnol Getreidetechnol, Seestr 11, W-1000 Berlin 65, FRG
STARCH 1990, 42 (9) 330
System analytical consideration of derivatization of starch with a cooking extruder as reactor (German, English Abstract)
- Nagai T, Yano T//Suntory Ltd, Res Ctr 1-1-1 Wakayamadai, Shimamoto, Osaka 618, Japan
J FOOD SCI 1990, 55 (5) 1334
Fractal structure of deformed potato starch and its sorption characteristics
- Nitsan Z, Ben-Asher A, Nir I, Zoref Z//Agr Res Org, Volcani Ctr, POB 6, IL-50250 Bet Dagan, Israel
REPROD NUTR DEVELOP 1990, 30 (4) 507
Utilization of raw or heat-treated starch fed in liquid diet to pre-ruminants. 1. Calves
- Oosten BJ//c/o Unie S, POB 3411, 4800 MG Breda, The Netherlands
STARCH 1990, 42 (9) 327
Interactions between starch and electrolytes
- Richter K//Cerestar Deutschland, Grp Ferruzzi, Dusseldorfer Str 191, W-4150 Krefeld 12, FRG
STARCH 1990, 42 (8) 305
Application of robots in the process control of starch hydrolysates production (German, English Abstract)
- Roper H//Cerestar Res & Dev, Grp Ferruzzi, Havenstr 84, B-Vilvoorde, Belgium
STARCH 1990, 42 (9) 342
Selective oxidation of D-glucose - Chiral intermediates for industrial utilization
- Sidhu JS, Seibel W, Meyer D//Punjab Agr Univ, Dept Food Sci & Technol, Ludhiana, 141004 Punjab, India
STARCH 1990, 42 (9) 336
Gelatinization of starch during preparation of Indian unleavened flat breads
- Tovar J, Bjorck IM, Asp N-G//Univ Lund, Ctr Chem, Dept Appl Nutr & Food Chem, S-22100 Lund, Sweden
J AGR FOOD CHEM 1990, 38 (9) 1818
Starch content and alpha-amylolysis rate in pre-cooked legume flours
- Trevino J, Centeno C, Brenes A, Yuste P, Rubio L//Fac Vet Madrid, Dept Prod Anim, Ciudad Univ, E-28040 Madrid, Spain
ANIM FEED SCI TECH 1990, 30 (3-4) 313
Effect of dietary oligosaccharides on the digestion of pea starch by growing chicks
- Vici CD, Bartuli A, Mazziotta MRM, Sabetta G//Inst Ricovero & Cura Carattre Sci, Bambino Gesu Childrens Hosp, Dept Metab, Salita S Onofrio 4, I-00165 Rome, Italy
ACTA PAEDIAT SCAND 1990, 79 (10) 978
Early introduction of uncooked cornstarch for the treatment of glycogen storage disease type I
- Warburton SC, Donald AM, Smith AC//Univ Cambridge, Cavendish Lab, Madingley Rd, Cambridge CB3 0HE, England
J MATER SCI 1990, 25 (9) 4001
The deformation of brittle starch foams
- Wolfsdorf JI, Keller RJ, Landy H, Crigler JF*//

*Childrens Hosp Med Ctr, Joslin Diabet Ctr,
Dept Med, Div Endocrinol, 300 Longwood Ave,
Boston, Ma 02115, USA

J PEDIAT 1990, 117 (3) 384

Glucose therapy for glycogenesis type-1 in infants - Comparison of intermittent uncooked cornstarch and continuous overnight glucose feedings

10 Starch-degrading Enzymes

Asther M, Meunier JC*//INRA, Ctr Biotechnol
Agroind, Chim Biol Lab, F-78850 Thiverval
Grignon, France

ENZYME MICROB TECHNOL 1990, 12 (11)
111

Increased thermal stability of *Bacillus licheniformis* alpha-amylase in the presence of various additives

Cheng CY, Yabe I, Toda K*//Univ Tokyo, Inst
Appl Microbiol, Yayoi 1-1-1, Bunkyo ku, Tokyo
113, Japan

HAKKOKOGAKU KAISHI 1990, 68 (5) 367

Alpha-amylase production by *Bacillus caldolyticus* in a cell-recycling fermentor with membrane filtration

Dexter JE, Matsuo RR, Kruger JE//Canadian
Grain Commiss, Grain Res Lab, 1404-303 Main
St, Winnipeg, Manitoba, Canada R3C 3G8

CEREAL CHEM 1990, 67 (5) 405

The spaghetti-making quality of commercial durum wheat samples with variable alpha-amylase activity

Jones S, Warner PJ//Cranfield Inst Technol, Ctr
Biotechnol, Cranfield MK43 0AL, England

LETT APPL MICROBIOL 1990, 11 (4) 214

Cloning and expression of alpha-amylase from *Bacillus amyloliquefaciens* in a stable plasmid vector in *Lactobacillus plantarum*

Lee YC, Kim KT//Univ Alberta, Dept Foods &
Nutr, Edmonton, Alberta, Canada T6G 2M8

J FOOD SCI 1990, 55 (5) 1365

Gelatinization and liquefaction of starch with a heat stable alpha-amylase

Padmanabhan S, Shastri NV*//Nagpur Univ,
Dept Biochem, Lit Campus, Amravati Rd, Nag-
pur 440010, Maharashtra, India

J SCI FOOD AGR 1990, 52 (4) 527

Studies on amylase inhibitors in *Dieffenbachia*

maculata

Sadhukhan RK, Manna S, Roy SK, Chakrabarty
SL*//Bose Inst, Dept Microbiol, Calcutta
700009, W Bengal, India

APPL MICROBIOL BIOTECHNOL 1990, 33
(6) 692

Thermostable amylolytic enzymes from a cellulolytic fungus *Myceliophthora thermophila* D14 (ATCC-48104)

Zhang ZJ, Seitz WR*, O'Connell K//Univ New
Hampshire, Dept Chem, Durham, NH 03824,
USA

ANAL CHIM ACTA 1990, 236 (2) 251

Amylase substrate based on fluorescence energy transfer

Belshaw NJ, Williamson G*//AFRC, Inst Food
Res, Colney Lane, Norwich NR4 7UA, Norfolk,
England

FEBS LETT 1990, 269 (2) 350

Production and purification of a granular-starch-binding domain of glucoamylase-1 from *Aspergillus niger*

Evans R, Ford C*, Sierks M, Nikolov Z, Svensson B//Iowa State Univ Sci & Technol, Dept
Genet, Ames, Ia 50011, USA

GENE 1990, 91 (1) 131

Activity and thermal stability of genetically truncated forms of *Aspergillus glucoamylase*

Federici RG, Federici F, Peruccioli M//Univ
Tuscia, Dipartimento Agrobiol & Agrochim, I-
01100 Viterbo, Italy

BIOTECHNOL LETT 1990, 12 (9) 661

Continuous production of glucoamylase by immobilized growing cells of *Aureobasidium pullulans*

Fiedurek J, Lobarzewski J//Marie Curie Sklodowska Univ, Inst Microbiol, PL-20033 Lublin,
Poland

STARCH 1990, 42 (9) 358

Glucoamylase biosynthesis by cells of *Aspergillus niger* C58-III immobilized in sintered glass and pumice stones

Ohnishi M//Kyoto Univ, Coll Agr, Dept Food
Sci & Technol, Sakyo Ward, Kyoto 606, Japan

STARCH 1990, 42 (8) 311

Subsite structure of *Rhizopus niveus* glucoamylase, estimated with the binding parameters for

maltooligosaccharides

Savelev AN, Sergeev VR, Firsov LM//MI Kalinin
Polytech Inst, Leningrad 195251, USSR

BIOCHEMISTRY-ENGL TR 1990, 55 (1) PT1,
39

Study of the supplementary substrate-binding
site of glucoamylase. II. Binding of ligands in the
supplementary adsorption site