

BIBLIOGRAPHY ON CARBOHYDRATE POLYMERS

1 Books, Reviews and Symposia

Asp EH//Univ Minnesota, Dept Food Sci & Nutr, St Paul, Mn 55108, USA

CEREAL FOOD WORLD 1990, 35 (9) 941

Laboratory methods for alpha-amylase analysis (Review)

Sandstedt RM, Kneen E, Blish MJ//Univ Nebraska, Dept Agr Chem, Lincoln, Ne 68588, USA

CEREAL FOOD WORLD 1990, 35 (9) 712

A standardized Wohlgemuth procedure for alpha-amylase activity (Cereal Chemistry Classic)

Knirel YA//Hosp Sick Children, Div Cell Biol, 555 Univ Ave, Toronto, Ontario, Canada M5G 1X8

CRIT REV MICROBIOL 1990, 17 (4) 273

Polysaccharide antigens of *Pseudomonas aeruginosa* (Review)

2 Cellulose

Kotz J, Philipp B, Nehls I, Heinze T, Klemm D//Acad Sci GDR, Inst Polymerenchem Erich Correns, O-1530 Teltow, FRG

ACTA POLYM 1990, 41 (6) 333

Polyelectrolyte behaviour of C-6 substituted carboxy cellulose in comparison to carboxy methyl cellulose (German, English Abstract)

Borsa J, Tanczos I, Rusznak I//Lagymanyosi 16 V 3, H-111 Budapest, Hungary

COLLOID POLYM SCI 1990, 268 (7) 649

Acid hydrolysis of carboxymethylcellulose of low degree of substitution

Ukai S, Honda A, Nagai K, Hiho T//Gifu Coll Pharm, 6-1 Mitahora Higashi 5 chome, Gifu 502, Japan

J CHROMATOGR 1990, 513 (JUL) 338

Gas-liquid chromatographic analysis of carboxymethylcellulose and carboxymethylstarch

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

ANAL LETT 1990, 23 (6) 973

Direct HPLC separation of carazolol enantiomers on a cellulose tris-3,5-dimethylphenyl carbamate column

Bilgin V, Guthrie JT**//Univ Leeds, Dept Colour Chem, Leeds LS2 9JT, England

RADIAT PHYS CHEM-INT J RAD AP 1990, 36 (4) 581

The preparation of highly absorbing cellulosic copolymers - The cellulose acetate/propionate-g.co-acrylic acid system

Chen YS, Yang KS, Cuculo JA**//N Carolina State Univ, Coll Text, Fiber & Polymer Sci Program, Raleigh, NC 27695, USA

J APPL POLYM SCI 41 (3-4) 587

Formation and characterization of cellulose films from a liquid crystalline solution of cellulose in ammonia ammonium thiocyanate

Jones KR, Pillsbury HC//Univ N Carolina Sch Med, Dept Surg, Div Otolaryngol Head & Neck Surg, 610 Burnett Womack Bldg, Chapel Hill, NC 27514, USA

ARCH OTOLAR-HEAD NECK SURGERY 1990, 116 (9) 1091

Cellulose fiber diet pills: A new cause of esophageal obstruction

Kararli TT, Hurlbut JB, Needham TE//Searle Res & Dev, 4901 Searle Pkwy, Skokie, IL 60077, USA

J PHARM SCI 1990, 79 (9) 845

Glass-rubber transitions of cellulosic polymers by dynamic mechanical analysis

Lushchik LG, Grinshpan DD, Voronkov VG//VI Lenin State Univ, Phys Chem Problems Res Inst, Minsk, Belorussia, USSR

VYSSOKOMOL SOEDIN SER B SSSR 1990,

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.

32 (7) 556

Formation of spherulite structures in cellulose aqueous solutions in zinc chloride (Russian)

Muralidharan S, Freiser H//Univ Arizona, Dept Chem, Strateg Met Recovery Res Facil, Tucson, Az 85721, USA

J CHROMATOGR 1990, 513 (JUL) 370

Separation of enantiomers using polymeric copolymer-amine-cellulose columns

Rizzi AM//Univ Vienna, Dept Analyt Chem, Wahingerstr 38, A-1090 Vienna, Austria

J CHROMATOGR 1990, 513 (JUL) 195

Coupled column chromatography in chiral separations. I. Enantiomeric separation on swollen microcrystalline cellulose triacetate columns after a pre-separation on a non-chiral alkylsilica column

Sanmiguel RI, Kunkel ME, Bridges WC, Dick RL, Acton JC//Coca Cola Foods Co, Ctr Citrus Res & Dev, POB 1268, Plymouth, Fl 32768, USA
J FOOD SCI 1990, 55 (4) 885

Protein quality of selected muscle foods as affected by the exchange of dietary wheat brain for cellulose

Soundar S, Chandra TS**//Indian Inst Technol, Dept Chem, Div Biochem, Madras 600036, Tamil Nadu, India

J IND MICROBIOL 1990, 5 (5) 269

Anaerobic digestion of cellulose by pure and mixed bacterial cultures

Tamas L, Laszity D, Laszity R//Lorand Eotvos Univ, Dept Plant Physiol, H-1364 Budapest 5, Hungary

ACTA BIOCHIM BIOPHYS HUNG 1990, 24 (3) 183

The effects of ethanol in the separation of wheat gliadins by CM- and DEAE-cellulose chromatography

Tretinnik VY, Parkhomenko VV, Timokhin IM, Afonin AL, Kudra LA//Acad Sci UkSSR, Inst Colloid Chem & Water Chem, Kiev, Ukraine, USSR

UKR KHIM ZH SSSR 1990, 56 (5) 462

The effect of electrolytes and temperature on the rheological behaviour of cellulose ester solution (Russian)

Tsurumi T, Osawa N, Hitaka H, Hirasaki T, Yamaguchi K, Manabe S, Yamashiki T//Asahi

Chem Ind Co Ltd, Fibers & Text Adm, BMM Project, Imperial Tower 18F, Tokyo 100, Japan
POLYM J 1990, 22 (8) 751

Structure of cuprammonium regenerated cellulose hollow fiber (BMM hollow fiber) for virus removal

Tsvetkov VN, Marchenko GN, Lezov AV, Tsvetkov NV//AA Zhdanov State Univ, Inst Phys, Leningrad B-1564, USSR

DOKL AKAD NAUK SSSR 1990, 312 (4) 925

Kerr effect in solutions of cellulose carbanilate in polar solvents (Russian)

Yokota H, Sei T, Horii F, Kitamaru R//Daicel Chem Ind Ltd, Filter Prod Res & Dev Lab, Sakai 590, Japan

J APPL POLYM SCI 41 (3-4) 783

¹³C CP MAS NMR study of alkali cellulose

Abdelrazik EA//Mansoura Univ, Fac Sci, Dept Chem, Mansoura, Egypt
POLYMER 1990, 31 (9) 1739

Homogeneous graft copolymerization of acrylamide onto ethylcellulose

Firkins JL, Weiss WP, Eastridge ML, Hull BL//Ohio State Univ, Ohio Agr Res & Dev Ctr, Dept Dairy Sci, Columbus, Oh 43210, USA

J DAIRY SCI 1990, 73 (7) 1812

Effects of feeding fungal culture extract and animal-vegetable fat on degradation of hemicellulose and on ruminal bacterial growth in heifers

Blazkova A, Hrivikova J, Lapcik L//Slovak Tech Univ, Fac Chem Technol, Dept Phys Chem, CS-81237 Bratislava, Czechoslovakia

CHEM PAP-CHEM ZVESTI 1990, 44 (3) 289

Viscosity properties of aqueous solutions of hydroxyethylcellulose

Bilbao R, Millera A, Arauzo J//Univ Zaragoza, Fac Sci, Dept Chem Engn, E-50009 Zaragoza, Spain

THERMOCHIM ACTA 1990, 165 (1) 103

Kinetics of weight loss by thermal decomposition of different lignocellulosic materials - Relation between the results obtained from isothermal and dynamic experiments

Pedersen OO//Buskerud Cent Hosp, Dept Ophthalmol, N-3004 Drammen, Norway

J CATARACT REFRACT SURG 1990, 16 (5) 594

Comparison of the protective effects of methylcellulose and sodium hyaluronate on corneal swelling following phacoemulsification of senile cataracts

Klochkov VV, Chichirov AA, Kuznetsov AV, Kargin YM, Aganov AV, Konkin AL, Garifzyanov GG, Marchenko GN//VI Lenin State Univ, Kazan, USSR

ZH OBSHCH KHIM SSSR 1990, 60 (6) 1382

Synthesis and structure O-nitrocompounds. 2. Distribution of monomer nitrocellulose fragments in a polymer chain based on the ^{13}C NMR spectroscopy data

3 Cellulose-degrading Enzymes

Heitz HJ, Witte K, Wartenberg A*//Univ Saarland, Fachrichtung Mikrobiol, Univ Bau 2, W-6600 Saarbrücken, FRG

ACTA BIOTECHNOL 1990, 10 (3) 277

Amorphous-cellulose dispersing activity of cellobiohydrolase-I of *Trichoderma reesei* - Suggestion for an interpretation of the C1 effect

Ito S, Kawai S, Okamoto K//Kao Corp, Tochigi Res Labs, 2606 Akabane, Haga, Tochigi 32134, Japan

NIPPON NOGEIKAGAKU KAISHI 1990, 64 (9) 1445

Alkaline cellulase for laundry detergents (Japanese, English Abstract)

Pitt RE//Cornell Univ, Dept Agr & Biol Engr, Ithaca, NY 14853, USA

J DAIRY SCI 1990, 73 (7) 1788

A model of cellulase and amylase additives in silage

Roy SK, Raha SK, Dey SK, Chakrabarty SL*//Bose Inst, Dept Microbiol, 93-1 Acharya Prafulla Chandra Rd, Calcutta 700009, W Bengal, India

ENZYME MICROB TECHNOL 1990, 12 (9) 710

Effect of temperature on the production and location of cellulase components in *Myceliophthora thermophila* D-14 (ATCC 48104)

Toussaint B, Vignon MR//CNRS, Ctr Rech Macromolec Vegetales, BP 53X, F-38401 Grenoble, France

BIOTECHNOL LETT 1990, 12 (8) 587

Reactions of reversion occurring with the *Tri-*

choderma reesei CL-847 cellulase system

Witte K, Heitz HJ, Wartenberg A*//Univ Saarland, Fachrichtung Mikrobiol, Univ Bau 2, W-6600 Saarbrücken, FRG

ACTA BIOTECHNOL 1990, 10 (1) 41

Isolation and purification of isoenzymes of cellobiohydrolase-I and cellobiohydrolase-II of *Trichoderma reesei* using HPLC methods

4 Cyclodextrins

Armstrong DW, Li WY, Stalcup AM, Secor HV, Izac RR, Seeman JI//Univ Missouri, Dept Chem, Rolla, Mo 65401, USA

ANAL CHIM ACTA 1990, 234 (2) 365

Capillary gas chromatographic separation of enantiomers with stable dipentyl- α -cyclodextrin-derivatized, β -cyclodextrin-derivatized and γ -cyclodextrin-derivatized stationary phases

Barron LD, Gargaro AR, Wen ZQ, MacNicol DD, Butters C//Univ Glasgow, Dept Chem, Glasgow G12 8QQ, Scotland

TETRAHEDRON-ASYMMETRY 1990, 1 (8) 513

Vibrational Raman optical activity of cyclodextrins

Beeby, Sodeau JR*//Univ E Anglia, Sch Chem Sci, Norwich NR4 7TJ, England

J PHOTOCHEM PHOTOBIOLOG A-CHEM 1990, 53 (3) 335

Photochemistry in cyclodextrins

Hattori K, Takahashi K, Uematsu M, Sakai N//Tokyo Inst Polytech, Fac Engr, Dept Ind Chem, Atsugi, Kanagawa 24302, Japan

CHEM LETT 1990, (8) 1463

Multiple interactions between host cyclodextrin and guest compound assisting asymmetrically selective reduction with NaBH_4 in aqueous media

Ikeda H, Nagano Y, Du Y, Ikeda T, Toda F*//Tokyo Inst Technol, Dept Bioengr, Meguro ku, Tokyo 152, Japan

TETRAHEDRON LETT 1990, 31 (35) 5045

Modifications of the secondary hydroxyl side of α -cyclodextrin and NMR studies of them

Kaneko T, Yoshida M, Yamamoto M, Nakamura N, Horikoshi K//Nihon Shokuhin Kako Co, Res Lab, 30 Tajima, Fuji, Shizuoka 417, Japan

STARCH 1990, 42 (7) 277

Production of cyclodextrins by simultaneous actions of 2 CGTases from three strains of *Bacillus*

Kijima T//Nat'l Inst Res Inorgan Mat, Tsukuba City, Ibaraki 305, Japan

J INCLUSION PHENOM MOL RECOGN 1990, 9 (2) 171

Inclusion behaviour of benzoic acid towards intercalates of alpha-zirconium and gamma-zirconium hydrogen phosphates with 2-aminopropylamino-substituted beta-cyclodextrin

Lamparczyk H, Zarzycki P, Ochocka RJ, Sybil-ska D//Med Acad Gdansk, Fac Pharm, K Mark-sa 107, PL-80416 Gdansk, Poland

CHROMATOGRAPHIA 1990, 30 (1-2) 91

Structure-retention studies on the inclusion complex formation of some polycyclic aromatic hydrocarbons with beta-cyclodextrin

Lawson CL, Bergsma J, Bruinenberg PM, de Vries G, Dijkhuizen L, Dijkstra BW//State Univ Groningen, Chem Phys Lab, Nijenborgh 16, 9747 AG Groningen, The Netherlands

J MOL BIOL 1990, 214 (4) 807

Maltodextrin-dependent crystallization of cyclomaltodextrin glucanotransferase from *Bacillus circulans*

Lindstrom M, Norin T, Roeraade J*//Royal Inst Technol, Dept Analyt Chem, S-10044 Stockholm 70, Sweden

J CHROMATOGR 1990, 513 (JUL) 315

Gas chromatographic separation of monoterpene hydrocarbon enantiomers on alpha-cyclodextrin

Liu F-Y, Kildsig DO, Mitra AK*//Purdue Univ, Sch Pharm & Pharmacol Sci, Dept Ind & Phys Pharm, W Lafayette, IN 47907, USA

PHARMACEUT RES 1990, 7 (8) 869

Beta-cyclodextrin/steroid complexation: Effect of steroid structure on association equilibria

MacPherson YE, Palepu R, Reinsborough VC*//Mt Allison Univ, Dept Chem, Sackville, NB, Canada E0A 3C0

J INCLUSION PHENOM MOL RECOGN 1990, 9 (2) 137

Counterion binding by surfactant beta-cyclodextrin inclusion complexes

Matsumoto Y, Komiyama M*//Univ Tsukuba, Inst Mat Sci, Sakura, Ibaraki 305, Japan

J MOL CATAL 1990, 61 (1) 129

Beta-cyclodextrin attached with metal complex as catalyst for the cleavage of ribonucleoside cyclic phosphates and ribonucleotide dimers

Mohseni RM, Hurtubise RJ*//Univ Wyoming, Dept Chem, Laramie, WY 82071, USA

J CHROMATOGR 1990, 514 (1) 19

Reversed-phase chromatographic separation of selected hydroxyl aromatics with beta-cyclodextrin as a mobile phase additive

Paduano L, Sartorio R, Vitagliano V*, Albright JG, Miller DG, Mitchell J//Naples Univ, Dipartimento Chim, Via Mezzocannone 4, I-80134 Naples, Italy

J PHYS CHEM 1990, 94 (1) 6885

Diffusion coefficients in systems with inclusion compounds. 1. Alpha-cyclodextrin-L-phenylalanine water at 25 degrees C

Paduano L, Sartorio R, Vitagliano V, Costantino L//Naples Univ, Dipartimento Chim, Via Mezzocannone 4, I-80134 Naples, Italy

BER BUNSEN GES PHYS CHEM 1990, 94 (7) 741

Diffusion coefficients in systems with inclusion compounds. 2. Alpha-cyclodextrin-(DL)norleucine-water at 25 degrees C

Saha BC, Zeikus JG//Michigan Biotechnol Inst, POB 27609, Lansing, MI 48909, USA

APPL ENVIRON MICROBIOL 1990, 56 (9) 2941

Characterization of thermostable cyclodextrinase from *Clostridium thermohydrosulfuricum* 39E

Stalcup AM, Chang S-C, Armstrong DW*, Pitha J//Univ Missouri, Dept Chem, Rolla, MO 65401, USA

J CHROMATOGR 1990, 513 (JUL) 181

(S)-2-hydroxypropyl-beta-cyclodextrin, a new chiral stationary phase for reversed-phase liquid chromatography

5 Lignin

Bono J-J, Goulas P*, Boe J-F, Portet N, Seris J-L//Groupement Rech Lacq, Dept Chim Fine & Bioconverts, BP 34 Lacq, F-64170 Artix, France

EUR J BIOCHEM 1990, 192 (1) 189

Effect of Mn(II) on reactions catalyzed by lignin peroxidase from *Phanerochaete chrysosporium*

Chiang VL, Funaoka M//Michigan Technol Univ, Sch Forestry & Wood Prod, Houghton, MI 49931, USA

HOLZFORSCHUNG 1990, 44 (4) 309

The difference between guaiacyl and guaiacyl-syringyl lignins in their responses to Kraft delignification

Cui F, Dolphin D//Univ British Columbia, Dept Chem, 2036 Main Mall, Vancouver, BC, Canada V6T 1W5

HOLZFORSCHUNG 1990, 44 (4) 279

The role of manganese in model systems related to lignin biodegradation

Doimo L, Frost RL//Queensland Forestry Dept, Chem & Wood Preservat Sect, POB 631, Indooroopilly, Qld 4068, Australia

HOLZFORSCHUNG 1990, 44 (4) 305

Detection by solid state ^{13}C NMR of possible hindered methoxyl groups in Klason lignins

Gabriel J, Homolka L, Krejci R//Charles Univ, Inst Biotechnol, CS-12844 Prague 2, Czechoslovakia

COLLECT CZECH CHEM COMMUN 1990, 55 (7) 1866

A spectrophotometric assay of indulin-C - A potential new substrate for determination of lignin-degrading abilities of microorganisms

Hartig C, Meyer D, Fischer K//Acad Sci GDR, Inst Biotechnol, O-7050 Leipzig, FRG

Z CHEM 1990, 30 (7) 233

Lignin - Biosynthesis, structure, and biodegradation

Kern HW//KFA Julich GmbH, Forschungszentrum, Inst Biotechnol, Postfach 1913, W-5170 Julich 1, FRG

APPL MICROBIOL BIOTECHNOL 1990, 33 (5) 582

Production and stability of lignin peroxidases of *Phanerochaete chrysosporium* cultivated on glycerol in the presence of solid manganese(IV) oxide

Kosikova B, Mlynar J, Zakutna L, Joniak D//Slovak Acad Sci, Ctr Chem Res, Inst Chem, Dubravská Cesta 9, CS-84238 Bratislava, Czechoslovakia

HOLZFORSCHUNG 1990, 44 (4) 249

The relationship between ultrastructure and lignin extractability of steamed hardwoods

Kuroda KI, Inoue Y, Sakai K//Univ Tsukuba, Inst Agr & Forest Engn, Sakura, Ibaraki 30031, Japan

J ANAL APPL PYROL 1990, 18 (1) 59

Analysis of lignin by pyrolysis-gas chromatography. 1. Effect of inorganic substances on guaiacol-derivative yield from softwoods and their lignins

Ljunggren S, Johansson E//Swedish Pulp & Paper Res Inst, STFI, Box 5604, S-11486 Stockholm, Sweden

HOLZFORSCHUNG 1990, 44 (4) 291

The kinetics of lignin reactions during oxygen bleaching. 3. The reactivity of 4-n-propylguaiacol and 4,4'-di-n-propyl-6,6'-biguaiacol

Lundell T, Leonowicz A, Rogalski J, Hatakka A**//Univ Helsinki, Dept Microbiol, SF-00710 Helsinki, Finland

APPL ENVIRON MICROBIOL 1990, 56 (9) 2623

Formation and action of lignin-modifying enzymes in cultures of *Phlebia radiata* supplemented with veratric acid

Sjostrom J, Reunanen M//Swedish Univ Abo, Forest Prod Chem Lab, Prthansgatan 3, SF-20500 Turku, Finland

J ANAL APPL PYROL 1990, 17 (4) 305

Characterization of lignin and carbohydrates dissolved in groundwood pulping by pyrolysis-gas chromatography/mass spectrometry

Tai D, Terazawa M, Chen CL, Chang H//Nanjing Forestry Univ, Nanjing, Peoples R China

HOLZFORSCHUNG 1990, 44 (4) 257

Lignin biodegradation products from birch wood decayed by *Phanerochaete chrysosporium*. 2. The constituents of ether-soluble low-molecular-weight fractions

Thring RW, Chornet E*, Overend RP**//Univ Sherbrooke, Dept Chem Engn, Sherbrooke, Quebec, Canada J1K 2R1

BIOMASS 1990, 23 (4) 289

Recovery of a solvolytic lignin - Effects of spent liquor acid volume ratio, acid concentration and temperature

Tonon F, de Castro CP, Odier E//INRA, Ctr Biotechnol Agroind, Microbiol Lab, F-78850 Thiverval Grignon, France

EXP MYCOL 1990, 14 (3) 243

Nitrogen and carbon regulation of lignin peroxi-

dase and enzymes of nitrogen metabolism in *Phanerochaete chrysosporium*

Venkatadri R, Irvine RL//Univ Notre Dame, Ctr Bioengn & Pollut Control, Notre Dame, IN 46556, USA

APPL ENVIRON MICROBIOL 1990, 56 (9) 2684

Effect of agitation on ligninase activity and ligninase production by *Phanerochaete chrysosporium*

Wang N, Low MJD*//NYU, Dept Chem, New York, NY 10003, USA

MATER CHEM PHYS 1990, 26 (1) 67

Spectroscopic studies of carbons. 15. The pyrolysis of a lignin

Yokata S, Umezawa T, Higuchi T, Kawai S//Utsunomiya Univ, Fac Agr, Utsunomiya, Tochigi 321, Japan

HOLZFORSCHUNG 1990, 44 (4) 271

Degradation of phenolic beta-1 lignin substructure model dimer by *Phanerochaete chrysosporium* and its lignin peroxidase

6 Polysaccharides - Named

Parola AL, MacKenzie NE, Laird HE//Univ Arizona Coll Pharm, Dept Pharmacol & Toxicol, Tucson, AZ 85721, USA

ANAL BIOCHEM 1990, 189 (1) 107

Photochemical derivatization of agarose: Synthesis of an affinity agarose using a photoaffinity ligand specific for the peripheral-type benzodiazepine receptor

Ensor SA, Sofos JN, Schmidt GR//Colorado State Univ, Dept Anim Sci, Ft Collins, CO 80523, USA

J FOOD SCI 1990, 55 (4) 911

Effects of connective tissue on algin restructured beef

Johnson RC, Muller TS, Romans JR, Costello WJ, Jones KW//De Kalb Swine Breeders Inc, De Kalb, IL 60115, USA

J FOOD SCI 1990, 55 (4) 906

Effects of algin/calcium and adipic acid concentration on muscle-juncture formation

Nussinovitch A, Peleg M//Univ Massachusetts, Dept Food Engn, Agr Engn Bldg, Amherst, MA 01003, USA

J FOOD PROCESS PRESERV 1990, 14 (4) 267
Mechanical properties of a raspberry product texturized with alginate

Veliky IA, Kalab M//Natl Res Council Canada, Div Biol, Ottawa, Ontario, Canada K1A 0R6

FOOD STRUCT 1990, 9 (2) 151

Encapsulation of viscous high-fat foods in calcium alginate gel tubes at ambient temperature

Pettersson D, Graham H, Aman P//Swedish Univ Agr Sci, Dept Anim Nutr & Management, S-75007 Uppsala, Sweden

ANIM PROD 1990, 51 (AUG) PT 1, 201

Enzyme supplementation of broiler chicken diets based on cereals with endosperm cell walls rich in arabinoxylans or mixed-linked beta-glucans

Koll P, Borchers G, Metzger JO//Univ Oldenburg, Fachbereich Chem Organ Chem, Postfach 2503, W-2900 Oldenburg, FRG

J ANAL APPL PYROL 1990, 17 (4) 319

Preparative isolation of oligomers with a terminal anhydrosugar unit by thermal degradation of chitin and cellulose

Kono M, Matsui T, Shimizu C, Koga D//Univ Tokyo, Fac Agr, Fisheries Res Lab, Shizuoka 43102, Japan

AGR BIOL CHEM TOKYO 1990, 54 (8) 2145

Purifications and some properties of chitinase from the liver of a prawn, *Penaeus japonicus*

Gladyshev DY, Bazt MR, Viknoreva GA, Galbraikh LS, Ovsepyan AN, Lavut YE, Panov VP//AN Kosygin Text Inst, Moscow, USSR

VYSOKOMOL SOEDIN SER B SSSR 1990, 32 (7) 503

Structure and fractional composition of chitosan carboxymethyl ester (Russian)

Mansour EME, Kandil SH, Hassan HHAM, Shaban MAE*//Univ Alexandria, Fac Sci, Dept Chem, POB 32, Alexandria, Egypt

EUR POLYM J 1990, 26 (9) 951

Synthesis and characterization of carbohydrate-containing copolyhydrazides and copolyoxadiazoles

Endo H, Sode K, Karube I*, Muramatsu H//Univ Tokyo, Adv Sci & Technol Res Ctr, Tokyo 153, Japan

BIOTECHNOL BIOENG 1990, 36 (6) 636

On-line monitoring of the viscosity in dextran

fermentation using piezoelectric quartz crystal

Hashida M, Atsumi R, Nishida K, Nakane S, Takakura Y, Sezaki H//Kyoto Univ, Fac Pharmaceut Sci, Yoshidashimoadachi cho, Sakyo ku, Kyoto 606, Japan

J PHARMACOBIO-DYNAM 1990, 13 (7) 441

Biliary excretion of mitomycin C dextran conjugates in relation to physicochemical characteristics of carrier dextran

Mazzoni MC, Borgstrom P, Intaglietta M, Arfors KE//Pharmacia Exptl Med, 11099 N Torrey Pines Rd, La Jolla, Ca 92037, USA

CIRC SHOCK 1990, 31 (4) 407

Capillary narrowing in hemorrhagic shock is rectified by hyperosmotic saline-dextran reinfusion

Parsson H, Jonsson BA, Norgren I, Thorne J//Univ Lund, Dept Surg, S-22185 Lund, Sweden

VASA-J VASC DIS 1990, 19 (3) 242

The effect of dextran-40 and Dazmegrel on early platelet deposition onto vascular grafts

Pearce BJ, Walker GJ*, Slodki ME, Schuerch C//Inst Dent Res, 2 Chalmers St, Sydney, NSW 2010, Australia

CARBOHYD RES 1990, 203 (2) 229

Enzymic and methylation analysis of dextrans and (1-3)-alpha-D-glucans

Schenk WG, Aldridge SC, Farley PC//Univ Virginia, Hlth Sci Ctr, Dept Surg, Trauma Serv, Box 181, Charlottesville, Va 22908, USA

J TRAUMA 1990, 30 (7) 813

Experimental inhalation injury with concomitant surface burn: Dextran resuscitation improves lung water and oxygenation

Takai S, Yokoyama Y, Tsubaki S//Kitasato Univ, Sch Vet Med & Anim Sci, Dept Anim Hyg, Towada, Aomori 034, Japan

MICROBIOL IMMUNO 1990, 34 (8) 697

Enhancement of natural resistance of mice to *Rhodococcus equi* infection by dextran sulfate 500

Alabdullah IH, Kumar MSA, Abouna GM//Kuwait Univ, Fac Med, Dept Organ Transplantat, POB 24923, Safat 13110, Kuwait

TRANSPLANT PROC 1990, 22 (4) 2046

Preservation of the functional integrity of islets for transplantation - Ficoll versus dextran gradients for purification

Ptitchkina NM, Chalykh AY//Saratov State Univ, Dept Chem, 83 Astrakhanskaya Str, Saratov 4100600, USSR

CARBOHYD RES 1990, 204 (SEP) 161

Structural aspects of phase separation in the furcellaran-water system

Gomez-Miranda B, Prieto A, Leal JA**//CSIC, Ctr Invest Biol, Velazquez 144, E-28006 Madrid, Spain

FEMS MICROBIOL LETT 1990, 70 (3) 331

Chemical composition and characterization of a galactomannoglucan from *Gliocladium viride* wall material

Ziegler T, Pavliak V, Lin T-H, Kovac P, Glaudemans CPJ**//NIDDK, Bethesda, Md 20892, USA

CARBOHYD RES 1990, 204 (SEP) 167

Synthesis of specifically deoxygenated ligands related to (1-6)-beta-D-galacto-oligosaccharides, and studies on their binding to monoclonal anti-galactan antibodies

Anderson IW//Univ Granada, Fac Farm, Dept Fisiol, Rector Lopez Argueta S-N, E-18071 Granada, Spain

J INST BREW 1990, 96 (5) 323

The effect of beta-glucan molecular weight on the sensitivity of dye binding assay procedures for beta-glucan estimation

Hashimoto K, Suzuki I, Ohsawa M, Oikawa S, Yadomae T//Tokyo Coll Pharm, Hachioji, Tokyo 19203, Japan

J PHARMACOBIO-DYNAM 1990, 13 (8) 512

Enhancement of hematopoietic response of mice by intraperitoneal administration of a beta-glucan, SSG, obtained from *Sclerotinia sclerotiorum*

Hazlewood GP, Davidson K, Clarke JH, Durrant AJ, Hall J, Gilbert HJ//AFRC, Inst Anim Physiol & Genet Res, Dept Biochem, Cambridge CB2 4AT, England

ENZYME MICROB TECHNOL 1990, 12 (9) 656

Endoglucan E, produced at high level in *Escherichia coli* as a lacZ' fusion protein, is part of the *Clostridium thermocellum* cellulosome

Mabusela WT, Stephen AM, Rodgers AL, Gerneke DA//Univ Cape Town, Dept Chem, Rondebosch 7700, South Africa

CARBOHYD RES 1990, 203 (2) 336

A highly substituted glucan that coats the seeds of *Helipterum eximum*

Nagata S, Sawatani M, Kuriyama M, Misono H, Nagasaki S//Kochi Univ, Dept Agr Chem, Appl Microbiol Lab, Nankoku, Kochi 783, Japan
AGR BIOL CHEM TOKYO 1990, 54 (8) 2107
Purification and characterization of nonlytic endo-beta-1,3-glucanase I from *Flavobacterium dormitor* var *glucanolutiae*

Rodriguez EB, Scally GD, Stick RV**Univ Western Australia, Dept Organ Chem, Nedlands, WA 6009, Australia
AUST J CHEM 1990, 43 (8) 1391

The synthesis of optically pure epoxy-alkyl beta-D-glucosides and beta-cellobiosides as active-site directed inhibitors of some beta-glucan hydrolases

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Kaiser B, Kuhnemuth G, Markwardt F//Med Acad Erfurt, Inst Pharmacol & Toxicol, Nordhauser Str 74, O-5010 Erfurt, FRG
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Downs CG, Brady CJ//CSIRO, Div Hort, Sydney Labs, POB 52, N Ryde, NSW 2113, Australia

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Pagel W, Heitefuss R//Univ Gottingen, Inst Pflanzenpathol & Pflanzenschutz, W-3400 Gottingen, FRG

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APPL MICROBIOL BIOTECHNOL 1990, 33 (5) 511

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Tabata K, Itoh W, Hirata A, Sugawara I, Mori S//Taito Co Ltd, Res Lab, 1-26 Higashishiraike

shinmachi, Nagata ku, Kobe 653, Japan

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Tsujibo H, Sakamoto T, Nishino H, Hasegawa T, Inamori Y*// *Osaka Univ Pharmaceut Sci, Matsubara, Osaka 580, Japan

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BIOORG KHIM 1990, 16 (6) 854

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nova SS//ND Zelinskii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1990, 16 (6) 816

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Jain S, Parriche M, Durand H, Tiraby G*// *Univ Toulouse 3, CRBGC, CNRS, Microbiol & Genet Appl Lab, 118 Route Narbonne, F-31062 Toulouse, France

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CARBOHYD RES 1990, 204 (SEP) 227

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Nikolaev AV, Ivanova IA, Shibaev VN, Kochetkov NK*//ND Zelinskii Organ Chem Inst, Moscow, USSR

CARBOHYD RES 1990, 204 (SEP) 65

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CARBOHYD RES 1990, 204 (SEP) 85

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J APPL BACTERIOL 1990, 69 (3) 311

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J DAIRY SCI 1990, 73 (7) 1684

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Ziegler T, Kovac P, Glaudemans CPJ*//NIDDK, Bethesda, Md 20892, USA

CARBOHYD RES 1990, 203 (2) 253

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ACTA BIOTECHNOL 1990, 10 (1) 13

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CARBOHYD RES 1990, 204 (SEP) 93

Isolation and characterisation of 3-deoxy-D-manno-2-octulopyranosonate 7-(2-aminoethyl phosphate) from the inner core region of *Escherichia coli* K-12 and *Salmonella minnesota* lipopolysaccharides

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ACTA BIOTECHNOL 1990, 10 (2) 163

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CARBOHYD RES 1990, 203 (2) 219

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Oxley D, Wilkinson SG//Univ Hull, Sch Chem, Hull HU6 7RX, England

CARBOHYD RES 1990, 203 (2) 247

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ACTA BIOTECHNOL 1990, 10 (2) 133

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9 Starch

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CEREAL CHEM 1990, 67 (4) 327

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CARBOHYD RES 1990, 203 (2) 265

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Pereira AN, Kohlmann KL, Ladisch MR**//Purdue Univ, Dept Agr Engn, Renewable Resources Engn Lab, W Lafayette, In 47907, USA

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J ANIM PHYSIOL ANIM NUTR 1990, 64 (2) 62

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Annisson G//Univ Sydney Farms, Dept Anim Husbandry, Camden, NSW 2570, Australia

AUST J EXP AGR 1990, 30 (2) 183

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STARCH 1990, 42 (7) 271

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Cortella AR, Pochettino ML//Fac Ciecias Nat & Museo, Etnobot & Bot Aplicada Lab, Paseo Bosque S-N, RA-1900 La Plata, Argentina

STARCH 1990, 42 (7) 251

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CEREAL CHEM 1990, 67 (4) 366

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El Sisi F, Hafiz SAA, El Rafie MH, Hebeish A//Natl Res Ctr, Div Text Res, Cairo, Egypt

ACTA POLYM 1990, 41 (6) 324

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J JPN SOC FOOD SCI TECHNOL 1990, 37 (8) 619

Rheological properties of sponge cakes made with wheat starch (Japanese, English Abstract)

Golan M, Nitsan Z*, Nir I//Agr Res Org, Volcani Ctr, POB 6, Il-50250 Bet Dagan, Israel
SMALL RUMINANT RES 1990, 3 (4) 341

Utilization of raw or heat-treated starch fed in liquid diet to preruminants. 2. Lambs

Horton SD, Lauer GN, White JS//AE Staley MFG Co, Comp Stat Res & Dev, 2200 E Eldorado St, Decatur, IL 62525, USA

CEREAL FOOD WORLD 1990, 35 (8) 734

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Huang J, Hess WM*, Weber DJ, Purcell AE, Huber CS//Brigham Young Univ, Electron Opt Lab, 129 WIDB, Provo, Ut 84602, USA

FOOD STRUCT 1990, 9 (2) 113

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Juliano BO, Perez CM, Kaushik R, Khush GS//Int Rice Res Inst, Dept Cereal Chem, POB 933, Manila 1099, Philippines

STARCH 1990, 42 (7) 256

Some grain properties of IR-36-based starch mutants

Kaur D, Kapoor AC*//Haryana Agr Univ, Dept Food & Nutr, Hissar 125004, Haryana, India

FOOD CHEM 1990, 38 (4) 263

Starch and protein digestibility of rice bean (*Vigna umbellata*) - Effects of domestic processing and cooking methods

Knutson CA//USDA ARS, No Reg Res Ctr, Seed Biosynth Res, 1815 N Univ St, Peoria, IL 61604, USA

CEREAL CHEM 1990, 67 (4) 376

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McIntyre DD, Ho C, Vogel HJ//Univ Calgary, Dept Biol Sci, Div Biochem, Calgary, Alberta, Canada T2N 1N4

STARCH 1990, 42 (7) 260

One-dimensional nuclear magnetic resonance studies of starch and starch products

Muck RE//USDA ARS, Dairy Forage Res Ctr, Madison, WI 53705, USA

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Nierle W, Elbaya AW//Bundesforschungsanstalt Getreide & Kartoffelverarbeitung, Schutzenberg 12, W-4930 Detmold, FRG

STARCH 1990, 42 (7) 268

Lipids and rheological properties of starch. 1. Effect of fatty acids, monoglycerides and monoglyceride ethers on pasting temperature and viscosity of wheat starch

Nitsan Z, Golan M, Nir I//Agr Res Org, Volcani Ctr, POB 6, Il-50250 Bet Dagan, Israel

SMALL RUMINANT RES 1990, 3 (4) 325

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Remillard RL, Johnson DE, Lewis LD, Nockels CF//Virginia Polytech Inst & State Univ, Blacksburg, Va 24061, USA

ANIM FEED SCI TECH 1990, 30 (1-2) 79

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Schanen PA, Pearce LE, Davis EA, Gordon J//Univ Minnesota, Dept Food Sci & Nutr, St Paul, Mn 55108, USA

CEREAL CHEM 1990, 67 (4) 317

Lipid binding in whey protein-wheat starch systems as measured by electron spin resonance

Tharanathan RN, Reddy GC, Murallikrishna G//Cent Food Technol Res Inst, Dept Food Chem, Mysore 570013, Karnataka, India

STARCH 1990, 42 (7) 247

Physico-chemical characteristics of starches from sal (*Shorea robusta*) and dhupa (*Vateria indica*) seeds

White DC, Lauer GN//AE Staley MFG Co, Comp Stat Res & Dev, 2200 E Eldorado St, Decatur, IL 62525, USA

CEREAL FOOD WORLD 1990, 35 (8) 728

Predicting gelatinization temperatures of starch/sweetener systems for cake formulation by differential scanning calorimetry. 1. Development of a model

10 Starch-degrading Enzymes

Ann YG, Yamamoto T, Minamiura N**/Osaka City Univ, Fac Sci, Sumiyoshi ku, Osaka 558, Japan

J FERMENT BIOENG 1990, 70 (2) 75

Active monomer of sweet potato beta-amylase - Stabilization and an improved preparation method using alpha-cyclodextrin

Hara Y, Honda M//Mitsui Norin Co Ltd, Food Res Labs, 2-1-17 Fujieda, Fujieda, Shizuoka 426, Japan

AGR BIOL CHEM TOKYO 1990, 54 (8) 1939

The inhibition of alpha-amylase by tea polyphenols

Kimura T, Horikoshi K//Inst Phys & Chem Res, Wako, Saitama 35101, Japan

J FERMENT BIOENG 1990, 70 (2) 134

Effects of temperature and pH on the production of maltotetraose by alpha-amylases of an alkalpsychrotrophic Micrococcus

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APPL MICROBIOL BIOTECHNOL 1990, 33 (5) 494

Immobilization of anaerobic thermophilic bacteria for the production of cell-free thermostable alpha-amylases and pullulanases

Koch R, Zablowski P, Spreinat A, Antranikian G**/Tech Univ Hamburg, Biotechnol Abt 1, Harburger Schlossstr 37-39, W-2100 Hamburg 90, FRG

FEMS MICROBIOL LETT 1990, 71 (1-2) 21

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Kondo H, Nakatani H, Hiromi K//Unitika Co Ltd, Ctr Res & Dev, 23 Kozakura, Uji 611, Japan

CARBOHYD RES 1990, 204 (SEP) 207

In vitro action of human and porcine alpha-amylases on cyclomalto-oligosaccharides

Kumar SU, Rehana F, Nand K//Cent Food Technol, Res Inst, Discipline Microbiol & Sanitat, Mysore 570013, Karnataka, India

ENZYME MICROB TECHNOL 1990, 12 (9) 714

Production of an extracellular thermostable calcium-inhibited alpha-amylase by Bacillus licheniformis MY 10

Matsui I, Matsui E, Ishikawa K, Miyairi S, Honda K//Natl Chem Lab Ind, Tsukuba, Ibaraki 305, Japan

AGR BIOL CHEM TOKYO 1990, 54 (8) 2009

The enzymatic and molecular characteristics of Saccharomycopsis alpha-amylase secreted from Saccharomyces cerevisiae

Ramesh MV, Lonsane BK**/Cent Food Technol Res Inst, Fermentat Technol & Bioengn Discipline, Mysore 570013, Karnataka, India

APPL MICROBIOL BIOTECHNOL 1990, 33 (5) 501

Critical importance of moisture content of the medium in alpha-amylase production by Bacillus licheniformis M27 in a solid-state fermentation system

Ranki H//Univ Helsinki, Dept Pathol, Haartmaninkatu 3, SF-00290 Helsinki 29, Finland

J INST BREW 1990, 96 (5) 307

Secretion of alpha-amylase by the epithelium of barley scutellum

Ranum P, Destefanis VA//Atochem N America, Dept Flour Serv, Buffalo, NY 14240, USA

CEREAL FOOD WORLD 1990, 35 (9) 931

Use of fungal alpha-amylase in milling and baking

Virolle MJ, Morris VJ, Bibb MJ**/John Innes Inst, Colney Lane, Norwich NR4 7UH, England

J IND MICROBIOL 1990, 5 (5) 295

A simple and reliable turbidimetric and kinetic assay for alpha-amylase that is readily applied to culture supernatants and cell extracts

Weber H, Schepers HJ, Trosch W**/Fraunhofer Inst Grenzflächen & Bioverfahrenstechnik, Nobelstr 12, W-7000 Stuttgart 80, FRG

APPL MICROBIOL BIOTECHNOL 1990, 33

(5) 602

Starch-degrading enzymes from anaerobic non-clostridial bacteria

Ohnishi M, Higuchi A, Todoriki S, Hiromi K, Ohgushi M, Wada A//Kyoto Univ, Coll Agr, Dept Food Sci & Technol, Sakyo ku, Kyoto 606, Japan

STARCH 1990, 42 (7) 273

Characterization on the conformation of glucoamylase from *Rhizopus niveus* and *Rhizopus delemar*

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Changes in glucoamylases with progress in a culture of *Aspergillus niger*