

BIBLIOGRAPHY ON CARBOHYDRATE POLYMERS

1. Books, Reviews and Symposia

Gacesa P//Dept Biochem, Univ Coll, POB 78, Cardiff CF1 1XL, Wales

CARBOHYD POLYM 1988 8 (3) 161

Alginates (Review)

HAEMOSTASIS 1988 18 SUPPL 3

Low-molecular-weight heparins: Pharmacology, in vitro and ex vivo effects and clinical results - 4th Congress on thrombosis and haemostasis research, Dusseldorf, October 1986

Papers

2. Cellulose

Kamide K, Yasuda K, Okajima K//Asahi Chem Ind Co Ltd, Fundamental Res Lab Fiber & Fiber Forming Polymers, 11-7 Hacchonawate, Takatsuki, Osaka 569, Japan

POLYM J 1988 20 (3) 259

¹³C NMR study on gelation of aqueous carboxyethylcellulose with total degree of substitution of 0.39 solution induced by metal cations

Koh GL, Tucker IG*//Univ Queensland, Dept Pharm, St Lucia, Qld 4067, Australia

J PHARM PHARMACOL 1988 40 (4) 233

Characterization of sodium carboxymethylcellulose-gelatin complex coacervation by viscosity, turbidity and coacervate wet weight and volume measurements

Koh GL, Tucker IG*//Univ Queensland, Dept Pharm, St Lucia, Qld 4067, Australia

J PHARM PHARMACOL 1988 40 (5) 309

Characterization of sodium carboxymethylcellulose-gelatin complex coacervate and equilibrium fluid phases

Converse AO, Matsuno R, Tanaka M, Taniguchi M//Kyoto Univ, Fac Agr, Dept Food Sci & Technol, Sakyo ku, Kyoto 606, Japan

BIOTECHNOL BIOENG 1988 32 (1) 38

A model of enzyme adsorption and hydrolysis of microcrystalline cellulose with slow deactivation of the adsorbed enzyme

Guzev VS, Ivanov PI, Levin SV//Moscow State Univ, Fac Soil Sci, Moscow, USSR

IZV AKAD NAUK SSSR SER BIOL 1988 (3) (MAY-JUN) 466

Alternative methods for cellulose preservation against microbial destruction (Russian, English Abstract)

Haigler CH, Chanzy H//Texas Tech Univ, Dept Biol Sci, Box 4149, Lubbock, Tx 79409, USA

J ULTRASTRUCT MOLEC STRUCT RES 1988 98 (3) 299

Electron diffraction analysis of the altered cellulose synthesized by *Acetobacter xylinum* in the presence of fluorescent brightening agents and direct dyes

Heng PWS, Staniforth JN*//Univ Bath, Sch Pharm & Pharmacol, Claverton Down, Bath BA2 7AY, Avon, England

J PHARM PHARMACOL 1988 40 (5) 360

The effect of moisture on the cohesive properties of microcrystalline celluloses

Ikeda I, Kurushima Y, Takashima H, Suzuki K//Fukui Univ, Dept Appl Chem, Bunkyo ku, Fukui 910, Japan

POLYM J 1988 20 (3) 243

Cationic graft polymerization of 2-oxazolines on cellulose derivatives

Kuhn AO, Lederer M*//Univ Lausanne, Inst Chim Minerale & Analyt, CH-1000 Lausanne 17, Switzerland

J CHROMATOGR 1988 440 (MAY) 165

Adsorption chromatography on cellulose. II. Separations of aromatic amino acids, biogenic amines, alkaloids, dyes and phenols and determination of hydrophobic constants

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 six sections: 1. Books, Reviews and Symposia; 2. Cellulose; 3. Lignin; 4. Polysaccharides; 5. Starch; 6. Others. 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.

Mchale AP//Univ Dublin Trinity Coll, Moyne Inst, Dept Microbiol, Dublin 2, Ireland
BIOTECHNOL LETT 1988 10 (5) 361

Cellulase production by *Talaromyces emersonii* CBS-814.70 co-immobilized with cellulose in calcium alginate

Wagberg L, Odberg L, Lindstrom T, Aksberg R//Skogssind Tekniska Forskningsinst, Dept Paper Technol, Box 5604, S-1111486 Stockholm, Sweden

COLLOID SURFACE 1988 31 (MAY) 119

Kinetics of adsorption and ion-exchange reactions during adsorption of cationic polyelectrolytes onto cellulosic fibers

Wagberg L, Odberg L, Lindstrom T, Aksberg R//Skogssind Tekniska Forskningsinst, Dept Paper Technol, Box 5604, S-1111486 Stockholm, Sweden

J COLLOID INTERFACE SCI 1988 123 (1) 287

Kinetics of adsorption and ion-exchange reactions during adsorption of cationic polyelectrolytes onto cellulosic fibers

Ahmad N, Baloch MK//Univ Peshawar, Nat Ctr Excellence Phys Chem, Peshawar, Pakistan

J CHEM SOC PAKISTAN 1988 10 (1) 1

Molecular weight distribution of cellulose acetate and its relations to different parameters

Spivak VA, Lutsenko IN//Cent Res Inst Hematoi & Blood Transfus, Novozikovski Pr 4, Moscow A167, USSR

ANAL BIOCHEM 1988 171 (1) 108

Micropreparative electrophoresis of globin chains on cellulose acetate film in structural identification of abnormal human hemoglobins

Ritcey AM, Gray DG**//Pulp & Paper Res Inst Canada, 3420 Univ St, Montreal, Quebec, Canada H3A 2A7

MACROMOLECULES 1988 21 (5) 1251

Circular reflectivity from the cholesteric liquid crystalline phase of (2-ethoxypropyl)cellulose

Azoury R, Elkayam R, Friedman M//Soreq Nucl Res Ctr, Dept Radiopharmaceut, IL-70600 Yavne, Israel

J PHARM SCI 1988 77 (5) 425

Nuclear magnetic resonance study of an ethyl cellulose sustained-release delivery system I: Effect of casting solvent on hydration properties

Azoury R, Elkayam R, Friedman M//Soreq Nucl Res Ctr, Dept Radiopharmaceut, IL-70600 Yavne, Israel

J PHARM SCI 1988 77 (5) 428

Nuclear magnetic resonance study of an ethyl cellulose sustained-release delivery system II: Release rate behaviour of tetracycline

Buchert J, Puls J, Poutanen K//VTT, Biotech Lab, Tietotie 2, SF-02150 Espoo, Finland

APPL MICROBIOL BIOTECHNOL 1988 28 (4-5) 367

Comparison of *Pseudomonas fragi* and *Gluconobacter oxydans* for production of xylonic acid from hemicellulose hydrolyzates

Lindberg B, Lindquist U, Stenberg O//Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden

CARBOHYD RES 1988 176 (1) 137

Distribution of substituents in O-ethyl-O-(2-hydroxyethyl)cellulose

Marsano E, Carpaneto L, Ciferri A//Univ Genoa, Ist Chim Ind, I-16132 Genoa, Italy

MOL CRYST LIQUID CRYST 1988 158 PT B 267

Formation of a banded texture in solutions of liquid crystalline polymers: 1. Hydroxypropylcellulose in H₂O

Jardine I, Scanlan GF, Tsarbopoulos A, Liberato DJ//Mayo Clin & Mayo Fdn, Dept Pharmacol, Rochester, Mn 55905, USA

ANAL CHEM 1988 60 (10) 1086

Plasma desorption mass spectrometry of peptides adsorbed on nitrocellulose from a glutathione matrix

Lamb JR, O'Hehir RE, Young DB//Hammersmith Hosp, Royal Postgrad Med Sch, MRC, TB & Related Infect Unit, Ducane Rd, London W12 0HS, England

J IMMUNOL METHOD 1988 110 (1) 1

The use of nitrocellulose immunoblots for the analysis of antigen recognition by T lymphocytes

3. Lignin

Botto RE//Argonne Natl Lab, Div Chem, 9700 S Cass Ave, Argonne, IL60439, USA

MACROMOLECULES 1988 21 (5) 1246

Synthesis and characterization of [¹³C]lignins

Calve LR, Shields JA, Blanchette L, Frechet JMJ//Forintek Canada Corp, Res Staff, 800 Montreal Rd, Ottawa, Ontario, Canada K1G 3Z5

FOREST PROD J 1988 38 (5) 15

A practical lignin-based adhesive for wafer-board/OSB

Ciemniecki SL, Glasser WG//Virginia Polytech Inst & State Univ, Dept Forest Prod, Blacksburg, Va 24061, USA

POLYMER 1988 29 (6) 1021

Multiphase materials with lignin: 1. Blends of hydroxypropyl lignin with poly(methyl methacrylate)

Ciemniecki SL, Glasser WG//Virginia Polytech Inst & State Univ, Dept Forest Prod, Blacksburg, Va 24061, USA

POLYMER 1988 29 (6) 1030

Multiphase materials with lignin: 2. Blends of hydroxypropyl lignin with poly(vinyl alcohol)

Mukhamedova S, Smirnova LS, Abduazimov KA//Acad Sci, UzSSR, Inst Bot Chem, Tashkent, Uzbekistan, USSR

KHIM PRIR SOEDIN SSSR 1988 (1) 141

Nitrobenzene oxidation and sodium cleavage of cotton plant Bayaut-2 lignins in liquid ammonia (Russian)

Strelskii VA, Chupka EI//Siberian Cellulose & Cardboard Res Inst, Bratsk, USSR

KHIM PRIR SOEDIN SSSR 1988 (1) 139

Fermentative oxidation of lignin and its model compounds. 4. Characteristics of chemoluminescence under the peroxidase alpha-guaiacylpropanone oxidation (Russian)

Strelskii VA, Chupka EI//Siberian Cellulose & Cardboard Res Inst, Bratsk, USSR

KHIM PRIR SOEDIN SSSR 1988 (1) 111

Fermentative oxidation of lignin and its model compounds. 5. Study of products of peroxidase oxidation of alpha-guaiacylpropanone (Russian)

Strelskii VA, Chupka EI//Siberian Cellulose & Cardboard Res Inst, Bratsk, USSR

KHIM PRIR SOEDIN SSSR 1988 (1) 115

Fermentative oxidation of lignin and its model compounds. 6. Analysis of products of laccase oxidation of lignins (Russian)

4. Polysaccharides

Carlson RW, Hollinsworth RL, Dazzo FB//Eastern Illinois Univ, Dept Chem, Charleston, Il 61920, USA

CARBOHYD RES 1988 176 (1) 127

A core oligosaccharide component from the lipopolysaccharide of *Rhizobium trifolii* ANU843

Galanos C, Jiao B, Komuro T, Freudenberg MA, Luderitz O*//Max Planck Inst Immunobiol, D-7800 Freiburg, Fed Rep Ger

J CHROMATOGR 1988 440 (MAY) 397

Large-scale fractionation of S-form lipopolysaccharide from *Salmonella abortus equi*. Chemical and serological characterization of the fractions

Imoto M, Kusunose N, Kusumoto S, Shiba T*//Osaka Univ, Fac Sci, Dept Chem, Toyonaka, Osaka 560, Japan

TETRAHEDRON LETT 1988 29 (18) 2227

Synthetic approach to bacterial lipopolysaccharide, preparation of trisaccharide part structures containing KDO and 1-dephospho lipid A

Kato N, Ohta M, Kido N, Ito H, Naito S//Nagoya Univ, Sch Med, Dept Bacteriol, Showa ku, Nagoya, Aichi 466, Japan

MICROBIOL IMMUNOL 1988 32 (5) 481

Formation of a hexagonal lattice structure by an R-form lipopolysaccharide of *Klebsiella*: Effect of various divalent cations on the lattice formation

Kumada H, Watanabe K, Umemoto T, Ilaishima Y, Kondo S, Hisatsune K//Kanagawa Dent Coll, Dept Oral Microbiol, Yokosuka, Kanagawa 238, Japan

FEMS MICROBIOL LETT 1988 51 (1) 77

Occurrence of O-phosphorylated 2-keto-3-deoxyoctonate in the lipopolysaccharide of *Bacteroides gingivalis*

Mikhieva MN, Gorbach VI, Zubkov VA, Brutko LI//All Union Pharmacol Res Inst, Moscow, USSR

KHIM PRIR SOEDIN SSSR 1988 (1) 32

Use of carbocyanine dyes in the analysis of bacterial lipopolysaccharides (endotoxins). 4. Lipopolysaccharides of *Yersinia pseudotuberculosis* (Russian)

Mikhieva MN, Gorshkova RP, Brutko LI//All Union Pharmacol Res Inst, Moscow, USSR

KHIM PRIR SOEDIN SSSR 1988 (1) 29

Use of carbocyanine dyes in the analysis of bacterial lipopolysaccharides (endotoxins). 3. Lipopolysaccharides of *Yersinia enterocolitica* (Russian)

Romanowska E, Gamian A, Lugowski C, Romanowska A, Dabrowski J, Hauck M, Opferkuch HJ, von der Lieth CW//Ludwik Hirsfeld Inst Immunol & Exptl Therapy, PL-53114 Wroclaw, Poland

BIOCHEMISTRY-USA 1988 27 (11) 4153

Structure elucidation of the core regions from *Citrobacter* O4 and O36 lipopolysaccharides by chemical and enzymatic methods, gas chromatography/mass spectrometry, and NMR spectroscopy at 500 MHz

Wilder JA, Cowdery JS, Ashman RF//Univ Iowa, Coll Med, Dept Microbiol, Iowa City, Io 52242, USA

J IMMUNOL METHOD 1988 110 (1) 63

The influence of lipopolysaccharide content on the B cell stimulating activity of anti-mu preparations

Yokota A, Yamada Y, Imai K//Inst Fermentat Osaka, 17-85 Juso Honmachi 2 chome, Yodogawa ku, Osaka 532, Japan

J GEN APPL MICROBIOL TOKYO 1988 34 (1) 27

Lipopolysaccharides of iron-oxidizing *Lep-tospirillum ferrooxidans* and *Thiobacillus ferrooxidans*

Elling H, Raake W//Luitpold Werkes, Chem Pharmazeut Fabrik, Pharmakol Lab, Zielstattstr 9-11, D-8000 Munchen 70, Fed Rep Ger
ARZNEIM-FORSCH-DRUG RES 1988 38-1 (5) 691

On the percutaneous penetration of mucopolysaccharide polysulfate from a combination drug (German, English Abstract)

Cherwonogrodzky JW, Nielsen KH//Agr Canada, Anim Dis Res Inst, POB 11300, Stn H, Nepean, Ontario, Canada K2H 8P9

J CLIN MICROBIOL 1988 26 (6) 1120

Brucella abortus 1119-3 O-chain polysaccharide to differentiate sera from *B. abortus* S-19-vaccinated and field-strain-infected cattle by agar gel immunodiffusion

Claesson BA, Trollfors B, Lagergard T, Taranger J, Bryla D, Otterman G, Cramton T,

Yang Y, Reimer CB, Robbins JB, Schneerson R*, et al//NICHHD, Dev Molec Immun Lab, Bldg 6, Rm 145, Bethesda, Md 20892, USA

J PEDIAT 1988 112 (5) 695

Clinical and immunologic responses to the capsular polysaccharide of *Haemophilus influenzae* type b alone or conjugated to tetanus toxoid in 18-month-old to 23-month-old children

Garegg PJ, Lindberg B, Konradsson P, Kvarnstrom I//Dept Organ Chem, Arrhenius Lab, Univ Stockholm, S-10691 Stockholm, Sweden

CARBOHYD RES 1988 176 (1) 145

Hydrolysis of glycosides under reducing conditions

Ichikawa H, Kobayashi K*, Sumitomo H//Nagoya Univ, Fac Agr, Chikusa ku, Nagoya, Aichi 464, Japan

MAKROMOL CHEM-MACRO CHEM PHYS 1988 189 (5) 1019

Regioselectively modified stereoregular polysaccharides, 12. Synthesis of (1-6)-alpha-linked polysaccharides consisting of D-glucose and 2,3,4-tri-O-octadecyl-D-glucose units

Lepow ML, Cimma R, Larsen D, Schumacher J, Rogan M, Randolph M, Gaintner S, Samuelson J, Gordon L//Childrens Hosp, Dept Pediat, New Scotland Ave, Albany, NY 12208, USA

J PEDIAT 1988 112 (5) 741

Persistence of antibody to *Haemophilus influenzae* type b at 4-years-of-age in children previously immunized with polysaccharide antigen alone or conjugated with diphtheria toxoid

Lue C, Tarkowski A, Mestecky J//Univ Alabama, Dept Microbiol, Univ Stn, Birmingham, Al 35294, USA

J IMMUNOL 1988 140 (11) 3793

Systemic immunization with pneumococcal polysaccharide vaccine induces a predominant IgA2 response of peripheral blood lymphocytes and increases of both serum and secretory anti-pneumococcal antibodies

Mei QB, Tao JY, Zhang HD, Duan ZX, Chen YZ//Fourth Mil Med Coll, Dept Pharmacol, Xian 710015, Peoples R China

ACTA PHARMACOL SIN 1988 9 (3) 279

Effects of *Angelica sinensis* polysaccharides on hemopoietic stem cells in irradiated mice (Chinese, English Abstract)

Pelkonen S, Hayrinen J, Finne J//Natl Vet Inst, POB 368, SF-00101 Helsinki, Finland
J BACTERIOL 1988 170 (6) 2646

Polyacrylamide gel electrophoresis of the capsular polysaccharides of *Escherichia coli* K1 and other bacteria

Singh RB, Jindal VK//8-128 A Kaushalpur, Agra 282005, Uttar Pradesh, India
POLISH J CHEM 1987 61 (7-12) 805

Polysaccharide from *Cassia javanica* seeds. Isolation, purification and preliminary analysis of polysaccharide

5. Starch

Colonna P, Buleon A, Lemarie F//INRA, Ctr Rech Agro-Alimentaires, Rue Geraudiere, F-44072 Nantes 03, France

BIOTECHNOL BIOENG 1988 31 (9) 895

Action of *Bacillus subtilis* alpha-amylase on native wheat starch

Satomura S, Iwata T, Sakata Y, Omichi K, Ikenaka T//Wako Pure Chem Ind Ltd, Osaka Res Div, Takada cho, Amagasaki, Hyogo 661, Japan

CARBOHYD RES 1988 176 (1) 107

Synthesis of p-nitrophenyl 6'-O-benzyl-alpha-maltopentaoside, a substrate for alpha amylases

Gidley MJ, Bociek SM//Unilever Res Lab, Colworth Hse, Sharnbrook MK44 1LQ, Beds, England

J AMER CHEM SOC 1988 110 (12) 3820

¹³C CP/MAS NMR studies of amylose inclusion complexes, cyclodextrins, and the amorphous phase of starch granules: Relationships between glycosidic linkage conformation and solid-state ¹³C chemical shifts

Yamamoto M, Harada S, Nakatsuka T, Sano T//Kure Womens Jr Coll, Dept Life Sci, Kure 737, Japan

BULL CHEM SOC JPN 1988 61 (5) 1471

Hydrodynamic characterization of amylose-SDS complex by viscosity measurement

Hebeish A, Khalil MI//Natl Res Ctr, Text Res Div, Cairo, Egypt

STARCH 1988 40 (4) 147

Chemical factors affecting preparation of carboxymethyl starch

Matsumura M, Hirata J, Ishii S, Kobayashi J//Univ Tsukuba, Inst Appl Biochem, Sakura, Ibaraki 305, Japan

J CHEM TECHNOL BIOTECHNOL 1988 42 (1) 51

Kinetics of saccharification of raw starch by glucoamylase

Strauss RG, Stansfield C, Henriksen RA, Villhauer PJ//Univ Iowa Hosp & Clin, Elmer L Degowin Mem Blood Ctr, Dept Pathol, Iowa City, Ia 52242, USA

TRANSFUSION 1988 28 (3) 257

Pentastarch may cause fewer effects on coagulation than hetastarch

Castel D, Ricard A, Audebert R//Ecole Super Phys & Chim Ind, Physicochim Macromolec Lab, 10 Rue Vauquelin, F-75231 Paris 05, France
J MACROMOL SCI-CHEM 1988 A25 (3) 235

Preparation of starch graft copolymers: Influence of several parameters on structure and properties

Koch H, Roper H//Cerestar, Ferruzzi Res & Dev Grp, Havenstr 84, B-1800 Vilvoorde, Belgium

STARCH 1988 40 (4) 121

New industrial products from starch

Kume T, Rahman S, Ishigaki I//Japan Atom Energy Res Inst, Takasaki Radiat Chem Res Estab, Takasaki, Gunma 37012, Japan

STARCH 1988 40 (4) 155

Change in digestibility of gamma-irradiated starch by low temperature cooking

Larsson M, Mattiasson B//Univ Lund, Dept Biotechnol, Box 124, S-22100 Lund, Sweden
BIOTECHNOL BIOENG 1988 31 (9) 979

Characterization of aqueous two-phase systems based on polydisperse phase forming polymers: Enzymatic hydrolysis of starch in a PEG-starch aqueous two-phase system

Lorenz K, Meredith P//Colorado State Univ, Dept Food Sci & Human Nutr, Ft Collins, Co 80523, USA

STARCH 1988 40 (4) 136

Insect-damaged wheat - Effects on starch characteristics

Lukaszewska AJ, Gorin N**//Sprenger Inst, POB 17, 6700 AA Wageningen, The Netherlands

GARTENBAUWISSENSCHAFT 1988 53 (2) 49
Simplification of the Boehringer Mannheim enzymatic analysis of starch in the methanol-insoluble residue of freeze-dried corollas from cut 'Sonia' roses

MacDonald AML, Stark JR//Heriot Watt Univ, Dept Brewing & Biol Sci, Chambers St, Edinburgh EH1 1HX, Midlothian, Scotland
J INST BREW 1988 94 (3) 125

A critical examination of procedures for the isolation of barley starch

Nedelcheva MP, Sokolova JS//Higher Chemotechnol Inst, Dept Pulp & Paper Chem, 8 Kliment Ohridski Str, BU-1756 Sofia, Bulgaria
STARCH 1988 40 (4) 151

Investigating the kinetics of the process of adsorption of phosphate starch on cellulose

Ononokpono OE, Spring MS//Univ Manchester, Dept Pharm, Oxford Rd, Manchester M13 9PL, Lancs, England
J PHARM PHARMACOL 1988 40 (5) 313

The effects of inclusions and conditions of storage on the mechanical properties of maize starch and methylcellulose films

Paplogo ZP, Harmati I//Cereals Res Inst, Al-sokikotosor 9, H-6701 Szeged, Hungary
NOVENYTERMELES 1988 37 (1) 17

Starch, protein and oil content of maize hybrids (Hungarian, English Abstract)

Ravelo G, Loerch SC*, Dehority BA//Ohio Agr Res & Dev Ctr, Dept Anim Sci, Wooster, Oh 44691, USA
NUTR REP INT 1988 37 (4) 857

Effects of formaldehyde treatment on the digestibility of corn starch or corn by rumen microorganisms

Shamala TR, Sreekantiah KR//Cent Food Technol Res Inst, Dept Microbiol & Sanit, Mysore 570013, Karnataka, India
J IND MICROBIOL 1988 3 (3) 175

Fermentation of starch hydrolysates by *Lactobacillus plantarum*

Slade L, Levine H//Nabisco Brands, Inc, Corporate Technol-Fundamental Sci Grp, PO 1943, East Hanover, NJ 07936-1943, USA
CARBOHYD POLYM 1988 8 (3) 183
Non-equilibrium melting of native granular

starch: Part I. Temperature location of the glass transition associated with gelatinization of A-type cereal starches

Takeda Y, Suzuki A, Hizukuri S//Kagoshima Univ, Dept Agr Chem, Korimoto 1, Kagoshima 890, Japan

STARCH 1988 40 (4) 132

Influence of steeping conditions for kernels on some properties of corn starch

Witt W, Kroner H//Firma Hermann Kroner, Weizenstarkefabrik, Postfach 1354, D-4530 Ibbenburen, Fed Rep Ger
STARCH 1988 40 (4) 139

Removal of waste water from wheat starch industry - An economic comparison (German, English Abstract)

6. Others

Hjerten S, Kunquan Y, Liao JL//Univ Uppsala, Ctr Biomed, Inst Biochem, POB 576, S-75123 Uppsala, Sweden

MAKROMOL CHEM-MACROMOL SYMP 1988 17 (APR) 349

The design of agarose beds for high-performance hydrophobic-interaction chromatography and ion-exchange chromatography which show increasing resolution with increasing flow rate

Watanabe S, Sasaki J, Wada T, Tanaka Y, Otsuka N//Okayama Univ, Sch Med, Dept Anat, Okayama 700, Japan

J ELECTRON MICROSC 1988 37 (2) 89

Low gel temperature agarose encapsulation of small specimens for electron microscopy

Fujikawa S, Yokota T, Koga K//Suntory Ltd, Inst Fundamental Res, Shimamoto, Osaka 618, Japan

APPL MICROBIOL BIOTECHNOL 1988 28 (4-5) 440

Immobilization of beta-glucosidase in calcium alginate gel using genipin as a new type of cross-linking reagent of natural origin

Viohl J, Lehmer P//Free Univ Berlin, Fachbereich Zahn Mund Kieferheilkunde, Werkstoffkunde Abt, D-1000 Berlin 33, Fed Rep Ger
DEUTZAHNARZTL Z 1988 43 (4) 477

The dimensional stability of alginate impressions. Dimensional stability of alginate impressions and hardness of gypsum models and dies after disinfection (German, English Abstract)

Doshi YA, Parekh RG, Chauhan VD//Cent Salt & Marine Chem Res Inst, Bhavnagar 364002, Gujarat, India

PHYTOCHEMISTRY 1988 27 (6) 1854

Sebdenia polydactyla - a novel source of carrageenan

Slootmaekers D, de Jonghe C, Reynaers H*, Varkevisser FA, van Treslong CJB//Catholic Univ Leuven, Macromolec Struct Chem Lab, Celestijnenlaan 200F, B-3030 Heverle, Belgium

INT J BIOL MACROMOL 1988 10 (3) 160

Static light scattering from kappa-carrageenan solutions

Knorr D, Daly M//Tech Univ Berlin, Dept Food Technol, Konigin Luise Str 22, D-1000 Berlin 33, Fed Rep Ger

PROCESS BIOCHEM 1988 23 (2) 48

Mechanics and diffusional changes observed in multi-layer chitosan/alginate coacervate capsules

Lemainque A, Braun J*, Le Goffic F//Ecole Natl Super Chim Paris, Bioorgan & Biotechnol Lab, 11 Rue Pierre & Marie Curie, F-75005 Paris, France

EUR J BIOCHEM 1988 174 (1) 171

Influence of polymerization of the D-amino-acid oxidase on the behaviour of the enzyme covalently immobilized on chitosan

Muzarelli R, Baldassarre V, Conti F, Gazzanelli G, Vasi V, Ferrara P, Biagini G//Univ Ancona, Fac Med, Odontoiatr Clin, I-60100 Ancona, Italy

BIOMATERIALS 1988 9 (3) 247

Biological activity of chitosan: ultrastructural study

Uragami T, Saito M, Takigawa K//Kansai Univ, Fac Engn, Chem Branch, Suita, Osaka 564, Japan

MAKROMOL CHEM-RAP COMM 1988 9 (5) 361

Studies on syntheses and permeabilities of special polymer membranes. 69. Comparison of permeation and separation characteristics for aqueous alcoholic solutions by pervaporation and new evapomeation methods through chitosan membranes

Abelt CJ, Pleier JM//Coll William & Mary, Dept Chem, Williamsburg, Va 23185, USA

J ORG CHEM 1988 53 (10) 2159

Beta-cyclodextrin as a molecular reaction vessel: Reactions of included phenylmethyldiazirine

Borkowska Z//Polish Acad Sci, Inst Phys Chem, Kasprzaka 44-52, PL-01224 Warsaw, Poland

J ELECTROANAL CHEM INTERFAC 1988 246 (2) 423

The adsorption of beta-cyclodextrin on a dropping mercury electrode from aqueous solutions

Komiyama M//Univ Tsukuba, Inst Mat Sci, Tsukuba, Ibaraki 305, Japan

J CHEM SOC CHEM COMMUN 1988 (10) (MAY) 651

Selective synthesis of 4-hydroxymethylphenol catalysed by cyclodextrins having hydroxypropyl residues

Kotake Y, Janzen EG*//Univ Guelph, Guelph Waterloo Ctr Grad Work Chem, Dept Chem & Biochem, Guelph, Ontario, Canada N1G 2W1

J AMER CHEM SOC 1988 110 (11) 3699

Bimodal inclusion of nitroxide radicals by beta-cyclodextrin in water as detected by electron spin resonance

Krstulovic AM, Gianviti JM, Burke JT, Mompon B//Synthelabo, LERS, 58 Rue Glaciere, F-75621 Paris 13, France

J CHROMATOGR-BIOMED APPL 1988 426 (2) 417

Enantiometric analysis of a new anti-inflammatory agent in rat plasma using a chiral beta-cyclodextrin stationary phase

Kuroda Y, Sasaki Y, Shirowa Y, Tabushi I//Kyoto Univ, Dept Synthet Chem, Sakyo ku, Kyoto 606, Japan

J AMER CHEM SOC 1988 110 (12) 4049

Cyclodextrin sandwiched Fe₄S₄ cluster

Lin SY, Kao YH//Vet Gen Hosp, Dept Med Res, Biopharmaceut Lab, Taipei, Taiwan

J CHIN CHEM SOC 1988 35 (2) 173

Drug interaction in pharmaceutical formulations. 10. Physico-chemical stability of warfarin in ground mixtures with beta-cyclodextrin or microcrystalline cellulose under storage conditions

Sanchez FG, Lopez MH, Villodres EDG//Univ Malaga, Fac Sci, Dept Analyt Chem, E-29071 Malaga, Spain

MIKROCHIM ACTA 1987 2 (4-6) 217

Photometric determination of palladium with the inclusion complex 1,2-diaminoanthraquinone-beta-cyclodextrin as ligand

Snopek J, Jelinek I, Smolkova-Keulemansova E//Charles Univ, Dept Analyt Chem, Albertov 2030, CS-12840 Prague 2, Czechoslovakia
J CHROMATOGR 1988 438 (2) 211

Use of cyclodextrins in isotachopheresis. IV. The influence of cyclodextrins on the chiral resolution of ephedrine alkaloid enantiomers

Tarr MA, Nelson G, Patonay G, Warner IM*//Emory Univ, Dept Chem, Atlanta, Ga 30322, USA

ANAL LETT 1988 21 (5) 843

The influence of mobile phase alcohol modifiers on hplc of polycyclic aromatics using bonded phase cyclodextrin columns

Yasuda A, Seto J//Sony Corp, 174 Fujitsuka cho, Yokohama, Kanagawa 240, Japan

J APPL ELECTROCHEM 1988 18 (3) 333

Electrochemical behaviour of viologen-cyclodextrin inclusion complexes. The case of non-alkyl group substituted viologen

Yu EKC, Aoki H, Misawa M//Stake Technol Ltd, 208 Wyecroft Rd, Oakville, Ontario, Canada L6K 3T8

APPL MICROBIOL BIOTECHNOL 1988 28 (4-5) 377

Specific alpha-cyclodextrin production by a novel thermostable cyclodextrin glycosyltransferase

Abe J, Hizukuri S*, Koizumi K, Kubota Y, Utamura T//Kagoshima Univ, Fac Agr, 21-24 Korimoto 1, Kagoshima 890, Japan

CARBOHYD RES 1988 176 (1) 87

Enzymic syntheses of doubly branched cyclomaltoheptaoses through the reverse action of Pseudomonas isoamylase

Orstan A, Wojcik JF//Univ Michigan, Inst Gerontol, 300 N Ingham, Ann Arbor, Mi 48109, USA

CARBOHYD RES 1988 176 (1) 149

The effect of dimethyl sulfoxide on the kinetics of azodye-cyclomaltohexaose (alpha-cyclodextrin) inclusion complex formation

Callant D, Vandoorne F, Schacht E*//State Univ Ghent, Div Polymer, Organ Chem Lab, Krijgslaan 281, S-4, B-9000 Ghent, Belgium
REACT POLYM ION EXCH SORBENTS 1988 8 (2) 129

A new approach to dextran derivatives with pendant aldehyde groups

Harrison P, Saundry RH, Savidge GF//United Med & Dent Sch, Div Haematol, St Thomas Campus, London SE1 7EH, England
THROMB RES 1988 50 (2) 295

Chromatography of the VIII/vWF complex on dextran sulphate sepharose

French AD//So Reg Res Ctr, POB 19687, New Orleans, La 70179, USA

CARBOHYD RES 1988 176 (1) 17

Accessible conformations of the beta-D-(2-1)- and -(2-6)-linked D-fructans inulin and levan

Cartier N, Chambat G, Joseleau JP//CNRS, Ctr Rech Macromolec Vegetales, BP 68, F-38402 St Martin d'Heres, France

PHYTOCHEMISTRY 1988 27 (5) 1361

Cell wall and extracellular galactoglucomannans from suspension-cultured *Rubus fruticosus* cells

Henry RJ, Blakeney AB//Queensland Wheat Res Inst, POB 5282, Toowoomba, Qld 4350, Australia

J SCI FOOD AGR 1988 44 (1) 75

Evaluation of a general method for measurement of (1-3),(1-4)-beta-glucans

Iacomini M, Gorin PAJ*, Baron M, Tulloch AP, Mazurek M//Univ Fed Parana, Dept Bioquim, Caixa Postal 19046, BR-81504 Curitiba, Parana, Brazil

CARBOHYD RES 1988 176 (1) 117

Novel D-glucans obtained by dimethyl sulfoxide extraction of the lichens *Letharia vulpina*, *Acetinyra muchlenbergii*, and an *Usnea* sp.

Mikheiskaya LV, Molchanova VI, Ovodova RG, Santana VF//Acad Sci USSR, Far E Sci Ctr, Pacific Oceanol Inst, Inst Bioorgan Chem, Vladivostok, USSR

KHIM PRIR SOEDIN SSSR 1988 (1) 36

Branched alpha 1,4-glucan from univalve molluscs of *Stombus gigas* (Russian)

Narui T, Takahashi K, Shibata S//Meiji Coll Pharm, Nozawa 1-35-23, Setagaya ku, Tokyo 154, Japan

CHEM PHARM BULL TOKYO 1988 36 (4) 1540

Nuclear magnetic resonance spectra of alpha-D-glucans in the presence of 1,1,3,3-tetramethylurea

Wood PJ, Jorgensen KG//Agr Canada, Food

Res Ctr, Ottawa, Ontario, Canada K1A 0C6

J CEREAL SCI 1988 7 (3) 295

Assay of (1-3)(1-4)-beta-D-glucanase using the insoluble complex between cereal (1-3)(1-4)-beta-D-glucan and congo red

White BA, Rasmussen MA, Gardner RM//Univ Illinois, Dept Anim Sci, 315 Anim Sci Lab, 1207 W Gregory Dr, Urbana, IL 61801, USA

APPL ENVIRON MICROBIOL 1988 54 (6) 1634

Methylcellulose inhibition of exo-beta-1,4-glucanase A from *Ruminococcus flavefaciens* FD-1

Christian R, Messner P*, Weiner C, Sleytr UB, Schultz G//Agr Univ Vienna, Zentrum Ultrastrukt Forsch, A-1180 Vienna, Austria

CARBOHYD RES 1988 176 (1) 160

Structure of a glycan from the surface-layer glycoprotein of *Clostridium thermohydrosulfuricum* strain L111-69

Templeton DM//Univ Toronto, Dept Clin Biochem, 100 Coll St, Toronto, Ontario, Canada M5G 1L5

INT J BIOL MACROMOL 1988 10 (3) 131

General occurrence of isosbestic points in the metachromic dye complexes of sulphated glycosaminoglycans

Ellis PR, Kamalanathan T, Dawoud FM, Strange RN, Coultate TP//Kings Coll London, Dept Food & Nutr Sci, Campden Hill Rd, London W8 7AH, England

EUR J CLIN NUTR 1988 42 (5) 425

Evaluation of guar biscuits for use in the management of diabetes: Tests of physiological effects and palatability in non-diabetic volunteers

Niemi MK, Keinänenkiukaanniemi SM, Salmela PI//Univ Oulu, Dept Publ Hlth Sci, Aapistie 3, SF-90220 Oulu, Finland

EUR J CLIN PHARMACOL 1988 34 (4) 427

Long-term effects of guar gum and microcrystalline cellulose on glycaemic control and serum lipids in type-2 diabetes

Patel SP, Patel RG, Patel VS//Sardar Patel Univ, Dept Chem, Vallabh Vidyanagar 388120, Gujarat, India

THERMOCHIM ACTA 1988 128 (JUN) 141

Kinetic study of thermal degradation of guar gum esters

Ofosu FA//Canadian Red Cross Soc, Blood Transfus Serv, 1200 Main St, Hamilton, Ontario, Canada L8N 3Z5

NOUV REV FR HEMATOL 1988 30 (3) 155

Mechanisms for the anticoagulant effect of heparin and related polysaccharides

Salcuni PF, Azzarone M, Palazzini E//Univ Parma, Cattedra Chirug 1, Cattedra Anat Chirug, Via A Gramsci 14, I-43100 Parma, Italy

CURR THER RES 1988 43 (5) 824

A new low molecular weight heparin for deep vein thrombosis prevention: Effectiveness in postoperative patients

Chun LE, Koob TJ, Eyre DR**//Univ Washington, Dept Orthopaed, Seattle, WA 98195, USA

ANAL BIOCHEM 1988 171 (1) 197

Quantitation of hyaluronic acid in tissues by ion-pair reverse-phase high-performance liquid chromatography of oligosaccharide cleavage products

Thibault JF//INRA, Lab Biochim & Technol Glucide, Rue Geraudiere, 44072 Nantes Cedex 03, France

CARBOHYD POLYM 1988 8 (3) 209

Characterisation and oxidative crosslinking of sugar-beet pectins extracted from cossettes and pulps under different conditions

Durrands PK, Cooper RM//Univ Bath, Sch Biol Sci, Dept Crop Protect, Bath BA2 7AY, Avon, England

APPL MICROBIOL BIOTECHNOL 1988 28 (4-5) 463

Development and analysis of pectic screening media for use in the detection of pectinase mutants

Crowe NL, Rasper VF**//Univ Guelph, Dept Food Sci, Guelph, Ontario, Canada N1G 2W1

J CEREAL SCI 1988 7 (3) 283

The ability of chlorine and chlorine-related oxidants to induce oxidative gelation in wheat flour pentosans

Shogren MD, Hashimoto S, Pomeranz Y//USDA ARS, N Cenr Reg, US Grain Mkt Res Lab, 1515 Coll Ave, Manhattan, KS 66502, USA

CEREAL CHEM 1988 65 (3) 182

Cereal pentosans: Their estimation and significance. IV. Pentosans in wheat flour varieties

and fractions

Rho D, Mulchandani A, Luong JHT, Leduy A*//Nat'l Res Council Canada, Biotechnol Res Inst, Montreal, Quebec, Canada H4P 2R2
APPL MICROBIOL BIOTECHNOL 1988 28 (4-5) 361

Oxygen requirement in pullulan fermentation

Ho CS, Ju LK//Invitron Corp, 4849 Lebourget Dr, St Louis, Mo 63134, USA
BIOTECHNOL BIOENG 1988 32 (1) 8

The anomaly of oxygen diffusion in aqueous xanthan solutions

Kalutskaya EP//Acad Sci BeSSR, Inst Phys, Mogilev, Belorussia, USSR
VYSOKOMOL SOEDIN SER A SSSR 1988 30 (4) 867

IR-spectroscopic study of interaction of sorbed water and xylan (Russian, English Abstract)

Moreno MR//Univ Seville, Fac Quim, Dept Quim Organ, Seville, Spain
AN QUIM C-ORG BIOQUIM 1988 84 (1) 70

Isolation of 4-O-methylglucurono-xylan from olive stones (hard woody layer) of gordal variety (Spanish, English Abstract)

Poutanen K, Puls J//Valt Teknillinen Tutkimuskeskus, Biotech Lab, Tietotie 2, SF-02150 Espoo, Finland
APPL MICROBIOL BIOTECHNOL 1988 28 (4-5) 425

Characteristics of *Trichoderma reesei* beta-xylosidase and its use in the hydrolysis of solubilized xylans

Poutanen K, Sundberg M//Valt Teknillinen Tutkimuskeskus, Biotech Lab, Tietotie 2, SF-02150 Espoo, Finland
APPL MICROBIOL BIOTECHNOL 1988 28 (4-5) 419

An acetyl esterase of *Trichoderma reesei* and its role in the hydrolysis of acetyl xylans