

BIBLIOGRAPHY ON CARBOHYDRATE POLYMERS

1 Books, Reviews and Symposia

Schnabelrauch M, Heinze T, Klemm D//Univ Jena, Sekt Chem, DDR-6900 Jena, Ger Dem Rep

ACTA POLYM 1990, 41 (2) 112

Introduction of reactive functional groups into cellulose by chemical modification under heterogeneous conditions - Review (German, English Abstract)

J BIOTECHNOL 1990, 13 (2-3)

Special Issue: Biodegradation of lignin

Christensen BE, Indergaard M, Smidsrod O//Inst Biotechnol, Norwegian Inst Technol, Univ Trondheim, N-7034 Trondheim, Norway
CARBOHYD POLYM 1990, 13 (3) 239

Polysaccharide research in Trondheim (Review Paper)

Kempf W//Address not available

STARCH 1990, 42 (2) 41

Starch Convention 1990 at Detmold (Preliminary Program)

Lisinska G, Leszczynski W (Eds)

Potato Science and Technology

Elsevier Appl Sci, 1989, 380pp, £58.00/US \$104.50, ISBN: 1-85166-307-X

Contains the chapter: Potato starch processing

Ginsburg V (Ed)

Complex Carbohydrates, Pt F

Methods in Enzymology, Vol. 179

Acad Press Inc (San Diego), 1989, 639 pp, \$80.00
Hardbound, ISBN: 0-12-182080-7

2 Cellulose

Akopova TA, Vikhoreva GA, Rogovina SZ, Zhorin VA, Galbraith LS, Yenikolopyan NS//Acad Sci USSR, Inst Chem Phys, Moscow V-71 USSR

VYSOKOMOL SOEDIN SER B SSSR 1990, 32 (3) 182

Formation of carboxymethylcellulose from the solid components blend in conditions of plastic flow under pressure (Russian)

Matsumoto T, Ito D//Kyoto Univ, Dept Polymer Chem, Tokyo 606, Japan

J CHEM SOC FARADAY TRANS 1990, 86 (5) 829

Viscoelastic and nuclear magnetic resonance studies on molecular mobility of carboxymethylcellulose-calcium complex in concentrated aqueous systems

Okatova OV, Lavrenko PN, Dautzenberg H, Filipp B, Tsvetkov VN//Acad Sci USSR, Inst Macromolec Cpds, Leningrad, USSR

VYSOKOMOL SOEDIN SER A SSSR 1990, 32 (3) 591

Polyelectrolyte effects in diffusion and viscosity phenomena of water-cadoxen solutions of carboxymethylcellulose (Russian, English Abstract)

Ajiboye SI, Brown DR*//Leeds Polytech, Dept Appl Sci, Catalysis Res Unit, Calverley St, Leeds LS1 3HE, W Yorkshire, England

J CHEM SOC FARADAY TRANS 1990, 86 (1) 65

Electron spin resonance study of soluble copper (II)-cellulose complexes

Berger W, Kabrelian V, Keck M, Kressler J, Herzog K, Scheller D, Mun SU, Philipp B//Tech Univ Dresden, Sekt Chem, DDR-8027 Dresden, Ger Dem Rep

ACTA POLYM 1990, 41 (1) 25

Investigation of the solution of cellulose in binary aprotic systems. 3. Study of the interaction between the individual solvent components and discussion of the solution mechanism (German, English Abstract)

Berger W, Kabrelian V, Keck M//Tech Univ Dresden, Sekt Chem, DDR-8027 Dresden, Ger Dem Rep

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.

ACTA POLYM 1990, 41 (2) 81

Investigation of the solution of cellulose in binary aprotic systems. 4. Synthesis of new amine oxides and the solubility of textile pulp in amine oxides and in binary systems with amine oxide as the one components (German, English Abstract)

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

VYSOKOMOL SOEDIN SER A SSSR 1990, 32 (3) 502

Equilibrium in the cellulose nitrates-nitric acid system (Russian, English Abstract)

Deng S, Shiyao B, Sourirajan S, Matsuura T*// *Natl Res Council Canada, Div Chem, Ottawa, Ontario, Canada K1A 0R6

J COLLOID INTERFACE SCI 1990, 136 (1) 283

A study of the pervaporation of isopropyl alcohol/water mixtures by cellulose acetate membranes

Fink HP, Hofmann D, Purz HJ//Acad Sci GDR, Inst Polymerenchem Erich Correns, DDR-1530 Teltow, Ger Dem Rep

ACTA POLYM 1990, 41 (2) 131

On the fibrillar structure of native cellulose (German, English Abstract)

Francotte E, Wolf RM//Ciba Geigy AG, Cent Res Labs, R-1060240, CH-4002 Basel, Switzerland

CHIRALITY 1990, 2 (1) 16

Preparation of chiral building blocks and auxiliaries by chromatography on cellulose triacetate (CTA I) - Indications for the presence of multiple interaction sites in CTA I

Gert EV, Shishonok MV, Torgashov VI, Kaputskii FN//VI Lenin State Univ, Physicochem Problems Res Inst, Minsk 220080, Belorussia, USSR

J POLYM SCI C-POLYM LETT 1990, 28 (5) 163

Crystallization of amorphous cellulose in the form of inclusion compounds

Gumerov FM, Silaev VA, Sopin VF, Marchenko GN//Address not available

VYSOKOMOL SOEDIN SER B SSSR 1990, 32 (2) 139

Study of the rotational mobility of a spin probe in natural celluloses (Russian)

Heinze T, Winkelmann H, Klemm D//Univ Jena, Sect Chem, DDR-6900 Jena, Ger Dem Rep

ACTA POLYM 1990, 41 (2) 76

Spherical ionotropic gels of carboxy groups containing derivatives of cellulose as carriers of bioactive compounds. 3. Investigations on the influence of polymers on the structure and the possible formation of xerogels of carboxymethyl cellulose and aluminium ions (German, English Abstract)

Kabin SP, Vatazhenko SM//MI Kalinin Polytech Inst, Leningrad 195251, USSR

VYSOKOMOL SOEDIN SER B SSSR 1990, 32 (2) 151

Electrical conductivity and 3-dimensional charge in cellulose triacetate in atmosphere conditions and in vacuum (Russian)

Kalasinsky KS, Lightsey GR, Short PH, Durig JR*//Univ S Carolina, Dept Chem, Columbia, SC 29208, USA

APPL SPECTROSC 1990, 44 (3) 404

Quantitative analysis of cellulosic fillers using infrared reflectance spectroscopy

Khudaiberdyev VN, Budnitskii GA, Bakunov VA, Valetov RR, Maiboroda LF, Uranskaya EM//Khimvolokno Sci Ind Assoc, Kursk, USSR

VYSOKOMOL SOEDIN SER B SSSR 1990, 32 (2) 85

Acoustic relaxation in cellulose diacetate solutions (Russian)

Kolov MY, Kynin AT, Nikolaev AF, Grebennikov SF//Lensovet Technol Inst, Leningrad, USSR

J APPL CHEM-ENGL TR 1989, 62 (7) PT2, 1553

Sorption of water vapor by highly hydrophilic films based on cellulose derivatives

Krause M, Galensa R*//Tech Univ Brunswick, Inst Lebensmittelchem, Pockelsstr 4, D-3300 Braunschweig, Fed Rep Ger

J CHROMATOGRAPHY 1990, 502 (2) 287

Improved chiral stationary phase based on cellulose triacetate supported on non-macroporous silica gel diol for the high-performance liquid chromatographic separation of racemic flavanones and diastereomeric flavanone glycosides

Michell AJ//CSIRO, Div Forestry & Forest Prod, Private Bag 10, Clayton, Vic 3168, Australia

CARBOHYD RES 1990, 197 (MAR) 53

Second-derivative F.t.i.r. spectra of native celluloses

Mislovicova D, Gemeiner P, Durisova V//Slovak Acad Sci, Inst Chem, CS-84238 Bratislava, Czechoslovakia

COLLECT CZECH CHEM COMMUN 1990, 55 (2) 581

Study of porous cellulose beads as a dye-ligand matrix. Effect of protein admixtures and concentration of immobilized dye in the quantitative analysis of lactate dehydrogenase: cibacron blue interaction

Morgenstern B, Keck M, Berger, W//Tech Univ Dresden, Sekt Chem, DDR-8027 Dresden, Ger Dem Rep

ACTA POLYM 1990, 41 (2) 86

Cellulose-poly(acrylonitrile) blends - Preparation, properties and processing of solution in LiCl/N,N-dimethyl acetamide (German, English Abstract)

Niemela K//Helsinki Univ Technol, Wood Chem Lab, SF-02150 Espoo, Finland

J CHEM TECHNOL BIOTECHNOL 1990, 48 (1) 17

The formation of hydroxy monocarboxylic acids and dicarboxylic acids by alkaline thermochemical degradation of cellulose

Okamoto Y, Aburatani R, Hatada K//Osaka Univ, Fac Engr Sci, Dept Chem, Toyonaka, Osaka 560, Japan

BULL CHEM SOC JPN 1990, 63 (3) 955

Chromatographic optical resolution on 3,5-disubstituted phenylcarbamates of cellulose and amylose

Paul D, Malsch G, Bossin E, Wiese F, Thomanek U, Brown GS, Werner H, Falkenhagen D//Acad Sci GDR, Inst Polymer Chem, Kantstr 55, DDR-1530 Teltow, Ger Dem Rep

ARTIF ORGANS 1990, 14 (2) 122

Chemical modification of cellulosic membranes and their blood compatibility

Pavlostathis SG, Miller TL, Wolin MJ*//New York State Dept Hlth, Wadsworth Ctr Labs & Res, Albany, NY 12201, USA

APPL MICROBIOL BIOTECHNOL 1990, 33 (1) 109

Cellulose fermentation by continuous cultures of *Ruminococcus albus* and *Methanobrevibacter*

smithii

Short RD, Munro HS//Sheffield Univ, Sch Mat Ceram Glasses & Polymers Div, Sheffield S10 2TZ, England

J APPL POLYM SCI 1990, 39 (9) 1973

Aspects of the surface and bulk nitration of cellulose in nitric acid, nitric acid/water, and nitric acid/dichloromethane mixes

Skacel F, Malmgren-Hansen B, Sorensen TS, Jensen JB//Tech Univ Denmark, Inst Fys Kem Bldg 206, DK-2800 Lyngby, Denmark

J CHEM SOC FARADAY TRANS 1990, 86 (2) 341

Electromotive force studies of cellulose acetate membranes. Binding of divalent cations and membrane potentials of KCl-KF mixtures

Stovbun SV, Kuzina SI, Salina AG, Kuzaev AI, Mikhailov AI//Acad Sci USSR, Inst Chem Phys, Moscow V-71, USSR

HIGH ENERG CHEM-ENGL TRANS 1989, 23 (4) 270

Change in molecular-weight distribution of the polymer base of cellulose nitrate composites in gamma-radiolysis

Tezuka Y, Imai K, Oshima M, Chiba T//Nagaoka Univ Technol, Dept Mat Sci & Technol, Nagaoka, Niigata 94201, Japan

MAKROMOL CHEM-MACRO CHEM PHYS 1990, 191 (3) 681

Determination of substituent distribution in cellulose ethers by means of a ^{13}C NMR study on their acetylated derivatives. 4. O-methyl-O-hydroxyalkylcelluloses

Verlhac C, Dedier J, Chanzy H//Univ Bordeaux 1, Inst Pin, Chim Polymeres Organ Lab, CNRS, UA 1192, F-33405 Talence, France

J POLYM SCI A-POLYM CHEM 1990, 28 (5) 1171

Availability of surface hydroxyl groups in Valonia and bacterial cellulose

Zugenmaier P, Aust N//Tech Univ Clausthal, Inst Phys Chem, D-3392 Clausthal Zellerfe, Fed Rep Ger

MAKROMOL CHEM-RAP COMM 1990, 11 (2) 95

Rheological investigations on the interaction of cellulose derivatives with sodium dodecyl sulfate in aqueous solution

Tong X, Smith LH, McCarty PL//Stanford Univ, Dept Civil Engr, Stanford, Ca 94305, USA
BIOMASS 1990, 21 (4) 239

Methane fermentation of selected lignocellulosic materials

Rashidova SS, Brestkin YV, Agranova SA, Kholmuminov AA, Ruban LN, Dyakonova NY, Voropaeva NL, Frenkel SY//Acad Sci USSR, Inst Macromolec Cpds, Leningrad, USSR
VYSOKOMOL SOEDIN SER B SSSR 1990, 32 (3) 208

Features of behaviour of methylcellulose macromolecules in the presence of polyvinyl pyrrolidone under longitudinal flow of solutions (Russian)

Shibusawa T, Tanaka A, Yamaguchi Y//Gunma Univ, Fac Engr, 1-5-1 Tenjin cho, Kuryu, Gunma 376, Japan
J APPL POLYM SCI 1990, 39 (9) 1859
Binding of chrysophenine G by methyl cellulose and poly(vinyl alcohol)

Wan LSC, Prasad KPP//Univ Kansas, Dept Psychol, Lawrence, Ks 66045, USA
DRUG DEVELOP IND PHARM 1990, 16 (6) 945
Relationship between temperature and swelling of methylcellulose in tablets

Kulichikhin VG, Mirdzhanov MK, Vasileva OV, Zabugina MP, Borisenkova YK, Yekaeva IV//AV Topchiev Petrochem Synth Inst, Moscow, USSR
VYSOKOMOL SOEDIN SER A SSSR 1990, 32 (3) 566

Viscous and rubber-like properties of isotropic and liquid-crystalline solutions of oxypropylcellulose in water (Russian, English Abstract)

3 Cellulose-degrading Enzymes

Christakopoulos P, Macris BJ*, Kekos D//Natl Tech Univ Athens, Dept Chem Engr, 9 Iroon Polytechn Ave, GR-15773 Zografos, Greece
APPL MICROBIOL BIOTECHNOL 1990, 33 (1) 18

On the mechanism of direct conversion of cellulose to ethanol by *Fusarium oxysporum* - Effect of cellulase and beta-glucosidase

Ganju RK, Murthy SK, Vithayathil PJ//Harvard Univ, Sch Med, Dana Farber Canc Inst, Immu-

nobiol Lab, 44 Binney St, Boston, Ma 02115, USA

CARBOHYD RES 1990, 197 (MAR) 245

Purification and functional characteristics of an endocellulase from *Chaetomium thermophile* var. *coprophile*

Hudson JA, Morgan HW, Daniel RM//Univ Waikato, Microbial Biochem & Biotechnol Unit, Hamilton, New Zealand
SYST APPL MICROBIOL 1990, 13 (1) 72

A survey of cellulolytic anaerobic thermophiles from hot springs

Jakhmola RC, Weddell JR, Greenhalgh JFD//Univ Aberdeen Sch Agr, 581 King St, Aberdeen AB9 1UD, Scotland

ANIM FEED SCI TECH 1990, 28 (1-2) 39
Ensiling grass with straw. I. Effect of straw, cellulase enzyme and urea on chemical composition of grass and grass/legume silages

Kubicek-Pranz EM, Steiner M, Kubicek CP//*Vienna Tech Univ, Inst Biochem Technol & Mikrobiol, Mikrobielle Biochem Abt, A-1060 Vienna, Austria

FEMS MICROBIOL LETT 1990, 68 (3) 273
Stimulatory effect of oxidized cellulose on cellulase formation by *Trichoderma reesei*

Mori Y//Natl Food Res Inst, Tsukuba, Ibaraki 305, Japan

AGR BIOL CHEM TOKYO 1990, 54 (3) 825
Isolation of mutants of *Clostridium thermocellum* with enhanced cellulase production

Simionescu CI, Popa VI, Popa M, Maxim S//Inst Polytech Gheorghe Asachi, R-6600 Iasi, Romania

J APPL POLYM SCI 1990, 39 (9) 1837
On the possibilities of immobilization and utilization of some cellulase enzymes

Walker LP, Wilson DB, Irwin DC//Cornell Univ, Dept Agr & Biol Engr, Ithaca, NY 14853, USA
ENZYME MICROB TECHNOL 1990, 12 (5) 378

Measuring fragmentation of cellulose by *Thermomonospora fusca* cellulase

Zubriggen B, Bailey MJ*, Penttila ME, Poutanen K, Linko M//*Valt Teknillinen Tutkimuskeskus, Biotech Lab, Tietotie 2, SF-02150 Espoo, Finland

J BIOTECHNOL 1990, 13 (4) 267

Pilot scale production of a heterologous *Trichoderma reesei* cellulase by *Saccharomyces cerevisiae*

Bisaria VS et al//Indian Inst Technol, Dept Chem Engr, Div Biochem Engr, Madras 600036, Tamil Nadu, India

BIOPROCESS ENG 1990, 5 (3) 119

Endoglucanase from the mixed culture of *Trichoderma reesei* and *Aspergillus wentii*

Nogi Y, Horikoshi K//Riken Inst Phys & Chem Res, Res Dev Corp Japan, Superbugs Project, 2-1 Hirosawa, Wako, Saitama 35101, Japan

APPL MICROBIOL BIOTECHNOL 1990, 32 (6) 704

A thermostable alkaline beta-1,3-glucanase produced by alkalophilic *Bacillus* sp AG-430

Pham TTT, Maaroufi A, Odier E*//INRA, Ctr Biotechnol Agro Ind, Microbiol Lab, F-78850 Thiverval Grignon, France

APPL MICROBIOL BIOTECHNOL 1990, 33 (1) 99

Inheritance of cellulose-degrading and lignin-degrading ability as well as endoglucanase isozyme pattern in *Dichomitus squalens*

Araujo A, Ward OP*//Univ Waterloo, Dept Biol Waterloo, Ontario, Canada N2L 3G1

J APPL BACTERIOL 1990, 68 (3) 253

Hemicellulases of *Bacillus* species: Preliminary comparative studies on production and properties of mannanases and galactanases

4 Cyclodextrins

Arvis M, Rousseau C, Hickel B//CENS, CEA, DPLC, SCM, CNRS, URA 331, F-91191 Gif sur Yvette, France

J PHOTOCHEM PHOTOBIOLOG A-CHEM 1990, 51 (2) 197

Etude de la fluorescence de l'ion uranyle en fonction du pH et en presence de beta-cyclodextrine

Baeyens WRG, Ling BL, Stragier K//State Univ Ghent, Fac Pharmaceut Sci, Pharmaceut Chem & Drug Anal Lab, Harelbekestr 72, B-9000 Ghent, Belgium

CHROMATOGRAPHIA 1990, 29 (5-6) 243

HPTLC fluorescence, enhancement of glutathione-SBD: Effect of cyclodextrins, Triton and alkanes

Buvari A, Barcza L*//L Eotvos Univ, Inst Inorgan & Analyt Chem, Muzeum Krt 4-B, H-1088 Budapest, Hungary

ACTA CHIM HUNG 1989, 126 (4) 455

The effect of hydrogen bonds on the inclusion complex formation of beta-cyclodextrin

Darcy R, Harten B//Natl Univ Ireland, Univ Coll Dublin, Dept Chem, Dublin 4, Ireland

PROC ROY IRISH ACAD SECT B 1989, 89 (6-52) 135

Electron spin resonance of solid complexes of a long-chain nitroxide with cyclodextrin and amylose

Darrington RT, Xiang TX, Anderson BD*//*Univ Utah, Coll Pharm, Dept Pharmaceut, Salt Lake City, Ut 84112, USA

INT J PHARM 1990, 59 (1) 35

Inclusion complexes of purine nucleosides with cyclodextrins. 1. Complexation and stabilization of a dideoxypurine nucleoside with 2-hydroxypropyl-beta-cyclodextrin

Fregnan CB, Berte F//Edmond Pharma, Res Ctr, Via Gradisca 8, I-20151 Milan, Italy

PHARMACOLOGY 1990, 40 (2) 96

Enhancement of specific biological activity of dipyrindamole by complexation with beta-cyclodextrin

Hamai S//Miyazaki Med Coll, Dept Phys, Miyazaki 88916, Japan

J PHYS CHEM 1990, 94 (6) 2595

Association modes of a 1:1 inclusion compound of beta-cyclodextrin with 1-cyanonaphthalene in aqueous solutions: Self-association, association with alcohols, and association with a 1:1 beta-cyclodextrin-anisole inclusion compound

Italia A, Schiavi M, Ventura P//Camillo Corvi Spa, Dept Analyt Chem, Stradone Farnese 118, I-29100 Piacenza, Italy

J CHROMATOGR 1990, 503

Direct liquid chromatographic separation of enantiomeric diastereomeric terpenic alcohols as beta-cyclodextrin inclusion complexes

Kedzierewicz F, Hoffman M, Maincent P//Univ Nancy 1, Fac Sci Pharmaceut & Biol, Pharm Galenique Biopharm & Pharm Hosp Lab, 5 Rue A Lebrun, F-54001 Nancy, France

INT J PHARM 1990, 58 (3) 221

Comparison of tolbutamide beta-cyclodextrin inclusion compounds and solid dispersions - Physi-

cochemical characteristics and dissolution studies

Klingert B, Rihs G//Ciba Geigy Ag, Cent Res Labs, CH-4002 Basel, Switzerland
ORGANOMETALLICS 1990, 9 (4) 1135

Molecular encapsulation of transition-metal complexes in cyclodextrins. 1. Synthesis and x-ray crystal structure of $[(n^5\text{-C}_5\text{H}_5)\text{Fe}(n^6\text{-C}_6\text{H}_6)]\text{PF}_6\cdot 2\alpha\text{-CD}\cdot 8\text{H}_2\text{O}$

Kobayashi N, Opallo M//Tohoku Univ, Inst Pharmaceut, Sendai, Miyagi 980, Japan
J CHEM SOC CHEM COMMUN 1990, (6) 477
Disposition of ferrocenes in beta- or gamma-cyclodextrin

Lee J-T, Alper H*//Univ Ottawa, Dept Chem, Ottawa, Ontario, Canada K1N 6N5
TETRAHEDRON LETT 1990, 31 (14) 1941
Beta-cyclodextrin and hydridopentacyanocobaltate catalyzed selective hydrogenation of alpha, beta-unsaturated acids and their derivatives

Makela MJ, Paavilainen SK, Korpela TK//Univ Turku, Dept Biochem, SF-20500 Turku 50, Finland
CAN J MICROBIOL 1990, 36 (3) 176
Growth dynamics of cyclomaltoextrin glucanotransferase producing *Bacillus circulans* var. *alkalophilus*

Matsumoto Y, Komiyama M*//Univ Tsukuba, Inst Mat Sci, Sakura, Ibaraki 305, Japan
CHEM LETT 1990, (3) 469
Beta-cyclodextrin bearing diethylenetriamine as highly active phosphodiester hydrolyzing agent

Nakai Y, Aboutaleb AE-S, Yamamoto K, Saleh SI, Ahmed MO//Chiba Univ, Fac Pharmaceut Sci, 1-33 Yayoicho, Chiba 260, Japan
CHEM PHARM BULL TOKYO 1990, 38 (3) 728
Study of the interaction of Clobazam with cyclodextrins in solution and in the solid state

Odagaki Y, Hirotsu K*, Higuchi T, Harada A, Takahashi S//Osaka City Univ, Fac Sci, Dept Chem, Sumiyoshi ku, Osaka 558, Japan
J CHEM SOC PERKIN TRANS I 1990, (4) 1230
X-ray structure of the alpha-cyclodextrin-ferrocene (2:1) inclusion compound

Parrot-Lopez H, Djedaini F, Perly B*, Coleman

AW, Galons H, Miocque M//CENS, Serv Chim Molec, F-91191 Gif sur Yvette, France
TETRAHEDRON LETT 1990, 31 (14) 1999

An approach to vectorisation of pharmacologically active molecules: The covalent binding of Leu-enkephalin to a modified beta-cyclodextrin

Simone C, Oliani C//Bari Univ, Dept Pathol Locomotor Apparatus, Chair Pathol Locomotor Apparatus, Piazza Giulio Cesare, I-70100 Bari, Italy

CURR THER RES 1990, 47 (3) 541

Beta-cyclodextrin-piroxicam: Efficacy and tolerability in the treatment of pain after bone and joint surgery

Suenaga A, Bekers O, Beijnen JH, Underberg WJM, Tanimoto T, Koizumi K, Otagiri M*//Kumamoto Univ, Fac Pharmaceut Sci, Dept Pharmaceut, 5-1 OE Honmachi, Kumamoto 862, Japan

INT J PHARM 1990, 59 (2) 121

The effect of heptakis (2,6-di-O-methyl)-gamma-cyclodextrin on mitomycin-C stability in aqueous solution

Takeoka G, Flath RA, Mon TR, Buttery RG, Teranishi R, Guntert M, Lautamo R, Szejtli J//USDA ARS, W Reg Res Ctr, 800 Buchanan St, Albany, Ca 94710, USA

HRC-J HIGH RES CHROMATOGR 1990, 13 (3) 202

Further applications of permethylated beta-cyclodextrin capillary gas chromatographic columns

Thuaud N, Sebillé B, Deratani A, Lelievre G//Univ Paris Val Marne, CNRS, Unite Mixte 27, Phys Chim Biopolymer Lab, 2-8 Rue Henri Dunant, F-94320 Thiais, France
J CHROMATOGR 1990, 503 (2) 453

Determination by high-performance liquid chromatography of the binding properties of charged beta-cyclodextrin derivatives with drugs

Vaitus R, Kacinskiene A, Jasinskiene E, Dienys G//V Kapsukas State Univ, Dept Chem, Vilnius, Lithuania, USSR
ORG REACT-ENGL TRANS 1989, 26 (1-2) 55

Mechanism of hydrolysis of maltose and beta-cyclodextrin in aqueous solution of acetic acid

Xiang TX, Anderson BD*//Univ Utah, Coll Pharm, Dept Pharmaceut, Salt Lake City, Ut 84112, USA

INT J PHARM 1990, 59 (1) 45

Inclusion complexes of purine nucleosides with cyclodextrins. 2. Investigation of inclusion complex geometry and cavity microenvironment

5 Lignin

Abe M, Okamoto K, Konno K, Sakagami H// Dept Med Biol, Sch Med, Showa Univ, 1-5-8 Hatanodai, Shinagawa ku, Tokyo 142, Japan

IN VIVO 1989, 3 (6) 359

Induction of antiparasite activity by pine cone lignin-related substances

Iiyama K, Wallis AFA**/CSIRO, Div Forestry & Forest Prod, Private Bag 10, Clayton, Vic 3168, Australia

J SCI FOOD AGR 1990, 51 (2) 145

Determination of lignin in herbaceous plants by an improved acetyl bromide procedure

Kivaisi AK, Dencamp HJMO*, Lubberding HJ, Boon JJ, Vogels GD//Univ Nijmegen, Fac Sci, Dept Microbiol, 6525 ED Nijmegen, The Netherlands

APPL MICROBIOL BIOTECHNOL 1990, 33 (1) 93

Generation of soluble lignin-derived compounds during degradation of barley straw in an artificial rumen reactor

6 Polysaccharides - Named

Gogoll A, Oscarsson S//Univ Uppsala, Dept Organ Chem, Box 531, S-75121 Uppsala, Sweden

TETRAHEDRON 1990, 46 (7) 2539

Reaction of pyridine derivatives with butyl glycidyl ether as a model system for glycidyl ether modified agarose: Structural assignment by selective INEPT spectra

Anzai H, Uchida N, Nishide E//Nihon Univ, Coll Agr & Vet Med, Dept Fisheries, Sertagaya ku, Tokyo 154, Japan

NIPPON SUISAN GAKKAISHI 1990, 56 (1) 73

Determination of D-mannuronic to L-guluronic acids ratio in acid hydrolysis of alginate under improved conditions

Bystricky S, Malovikova A, Sticzay T//Inst Chem, Ctr Chem Res, Slovak Acad Sci, 842 38 Bratislava, Czechoslovakia

CARBOHYD POLYM 1990, 13 (3) 283

Interaction of alginates and pectins with cationic polypeptides

Dereuddre J, Scottez C, Arnaud Y, Duron M//CNR, Physiol Organ Vegetaux Apres Recolte Lab, 4ter, Route Gardes, F-92190 Meudon, France

C R ACAD SCI SER III-VIE 1990, 310 (7) 317

Resistance of alginate-coated axillary shoot tips of pear tree (*Pyrus communis* L. cv Beurre Hardy) in vitro plantlets to dehydration and subsequent freezing in liquid nitrogen: Effects of previous cold hardening

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

J FERMENT BIOENG 1990, 69 (3) 192

Symbiotic formation of alginate lyase in mixed culture of bacteria isolated from soil

Lee YZ, Wang RM, Nakai S//Univ British Columbia, Dept Food Sci, Vancouver, BC, Canada V6T 1W5

J FOOD SCI 1990, 55 (2) 577

Preparation of colorless globin from bovine hemoglobin using sodium alginate

Leo WJ, McLoughlin AJ, Malone DM//Nat'l Univ Ireland, Univ Coll Dublin, Dept Ind Microbiol, Dublin 4, Ireland

BIOTECHNOL PROGR 1990, 6 (1) 51

Effects of sterilization treatments on some properties of alginate solutions and gels

Brillouet JM, Bosso C, Moutounet M//INRA, Inst Prod Vigne, Polym & Tec Phys Chim, 2 Pl Viala, F-34060 Montpellier, France

AMER J ENOL VITICULT 1990, 41 (1) 29

Isolation, purification, and characterization of an arabinogalactan from a red wine

Daffe M, Brennan PJ, McNeil M**//Colorado State Univ, Dept Microbiol, Ft Collins, Co 80523, USA

J BIOL CHEM 1990, 265 (12) 6734

Predominant structural features of the cell wall arabinogalactan of *Mycobacterium tuberculosis* as revealed through characterization of oligoglycosyl alditol fragments by gas chromatography/mass spectrometry and by ¹H and ¹³C NMR analyses

Audet P, Paquin C, Lacroix C//Univ Laval, Dept Sci & Technol Aliments, Rech Stela Grp, Quebec City, Quebec, Canada G1K 7P4

APPL MICROBIOL BIOTECHNOL 1990, 32 (6) 662

Batch fermentations with a mixed culture of lactic acid bacteria immobilized separately in kappa-carrageenan locust bean gum gel beads

Deslandes E, Bodeau-Bellion C, Floc'h J-Y, Penot M*//^{*}Fac Sci Brest, Physiol Vegetale Lab, 6 Ave le Gorgeu, F-29287 Brest, France

PLANT PHYSIOL BIOCHEM 1990, 28 (1) 65
¹³C-NMR spectroscopy and chemical analysis of the carrageenans of four red algae (Gigartinales)

Gencer G//Middle E Tech Univ, Dept Food Engr, Inonu Bulvari, Ankara 06531, Turkey
J TEXTURE STUD 1990, 20 (4) 473

Effect of selected additives on the flow parameters of 1:1 mixtures of carrageenan-guar and CMC-locust bean gum

Zhang J, Rochas C//Ctr Rech Macromolecules Vegetales, Cermav-CNRS BP 53 X, F-38041 Grenoble Cedex, France

CARBOHYD POLYM 1990, 13 (3) 257

Interactions between agarose and K-carrageenans in aqueous solutions

Balicki R, Kaczmarek L, Sobotka W, Ejmowski Z//Polish Acad Sci, Inst Organ Chem, Kasprzaka 44-52, PL-01224 Warsaw, Poland

J PRAKT CHEM 1989, 331 (6) 995

Insect chitin formation inhibitors. 3. Synthesis and activity of some bis[3-(2,6-dihalogenobenzoyl)-1-ureido]-bipyridines

Batista I, Roberts GAF*//^{*}Trent Polytech, Dept Phys Sci, Burton St, Nottingham NG1 4BU, England

MAKROMOL CHEM-MACRO CHEM PHYS 1990, 191 (2) 429

A novel, facile technique for deacetylating chitin

Cody RM, David ND, Lin J, Shaw D//Auburn Univ, Coll Sci & Math, Dept Bot & Microbial, Auburn, AL 36849, USA

BIOMASS 1990, 21 (4) 285

Screening microorganisms for chitin hydrolysis and production of ethanol from amino sugars

Gonzalezdávila M, Millero FJ//Univ Politecn Canarias, Fac Ciencias Mar, POB 550, Las Palmas, Spain

GEOCHIM COSMOCHIM ACTA 1990, 54 (3) 761

The adsorption of copper to chitin in seawater

Kobelke DN//Chitin Technol Dev Pty Ltd, Unit 2, 1 Sarich Way, Technol Pk, Bentley, WA 6102, Australia

FOOD AUST 1990, 42 (1) 18

By-products from crustacean wastes - Chitin production

Spindler K-D, Spindler-Barth M, Londershausen M//Heinrich Heine Univ Dusseldorf, Lehrstuhl Hormon & Entwicklungsphysiol, Inst Zool, D-4000 Dusseldorf 1, Fed Rep Ger

PARASITOL RES 1990, 76 (4) 283

Chitin metabolism: A target for drugs against parasites

Tokura S, Baba S, Uraki Y, Miura Y, Nishi N, Hasegawa O//Dept Polymer Sci, Fac Sci, Hokkaido Univ, Sapporo 060, Japan

CARBOHYD POLYM 1990, 13 (3) 273

Carboxymethyl-chitin as a drug carrier of sustained release

Arguelles-Monal W, Garciga M, Peniche-Covas C//Univ Hacana, IMRE, Havana 10400, Cuba

POLYM BULL 1990, 23 (3) 307

Study of the stoichiometric polyelectrolyte complex between chitosan and carboxymethyl cellulose

Chandy T, Sharma CP*//^{*}Sree Chitra Tirunal Inst Med Sci & Technol, Div Biosurface Technol, Biomed Technol Wing, Trivandrum 695012, India

BIOMATER ARTIF CELL ARTIF ORG 1990, 18 (1) 1

Chitosan - As a biomaterial

Chavasit V, Torres JA//Oregon State Univ, Dept Food Sci & Technol, Corvallis, OR 97331, USA

BIOTECHNOL PROGR 1990, 6 (1) 2

Chitosan-poly(acrylic acid) - Mechanism of complex formation and potential industrial applications

Pelletier A, Sygusch J*//^{*}Univ Sherbrooke, Fac Med, Dept Biochim, Sherbrooke, Quebec, Canada J1H 5N4

APPL ENVIRON MICROBIOL 1990, 56 (4) 844

Purification and characterization of three chitinase activities from *Bacillus megaterium* P1

Sanzgiri YD, Blanton CD, Gallo JM*//^{*}Univ Georgia, Coll Pharm, Dept Pharmaceut, Athens,

Ga 30602, USA

PHARMACEUT RES 1990, 7 (4) 418

Synthesis, characterization, and in vitro stability of chitosan-methotrexate conjugates

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

POLYMER 1990, 31 (4) 668

Permeation and separation characteristics of ethanol-water mixtures through chitosan derivative membranes by pervaporation and evaporation

Fialkova MA, Smirnova TY, Ivanova GI, Aboyants RK, Golubeva VF, Tsarevskaya IY, Kuznetsova SY, Belai VE, Khlyabich GN//All Union Blood Substitute & Hormonal Preparat Technol Res Inst, Moscow, USSR

BULL EXP BIOL MED-ENGL TR 1989, 108 (9) 1327

Effect of chondroitin sulfate preparations on wound healing and strength of the surgical scar

Garg HG, Siebert EP, Swann DA//Harvard Univ, Shriners Burns Inst, Sch Med, Dept Biol Chem & Molec Pharmacol, Boston, Ma 02114, USA

CARBOHYD RES 1990, 197 (MAR) 159

Isolation and some structure analyses of a copolymeric chondroitin sulfate-dermatan sulfate proteoglycan from post-burn, human hypertrophic scar

Kariya Y, Watabe S*, Hashimoto K, Yoshida K//Univ Tokyo, Fac Agr, Marine Biochem Lab, Bunkyo ku, Tokyo 113, Japan

J BIOL CHEM 1990, 265 (9) 5081

Occurrence of chondroitin sulfate E in glycosaminoglycan isolated from the body wall of sea cucumber *Stichopus japonicus*

Kato F, Iwata H, Mimatsu K, Miura T//Nagoya Univ, Sch Med, Dept Orthopaed Surg, 65 Tsurumai cho, Showa ku, Nagoya, Aichi 466, Japan

CLIN ORTHOP RELATED RES 1990, (253) 301

Experimental chemonucleolysis with chondroitinase ABC

Bandini S, Comparini L, Mancini G, Salvadori M, Tosi PL, Sodi A//c/o Spignoli G, L Manetti H Roberts & C, Via Antonio Noli 4, I-50127 Florence, Italy

CLIN TRIALS J 1990, 27 (1) 30

Treatment of hyperlipoproteinaemia secondary

to chronic renal failure in dialysis patients - A study of DEAE-dextran (Rationale^(R))

Fotiadis C, Cotsianos G, Baramily B, Sechas M, Skalkeas G//Univ Athens, Propedeut Surg Clin 2, Athens, Greece

LYON CHIR 1990, 86 (1) 45

Use of dextranomer (Debrisan) in wound healing (French, English, Abstract)

Hirai A, Ito T, Horii F*, Kitamaru R, Kobayashi K, Sumitomo H//Kyoto Univ, Inst Chem Res, Uji, Kyoto 611, Japan

MACROMOLECULES 1990, 23 (6) 1837

Cross-polarization magic angle spinning carbon-13 nuclear magnetic resonance study of linear dextran crystallized from poly(ethylene glycol)-water solution at a high temperature

Itoh Y, Ono A, Yoshiyama M, Shimura S//Lotte Cent Lab Co Ltd, 3-1-1 Numakage, Urawa, Saitama 336, Japan

J JPN SOC FOOD SCI TECHNOL 1990, 37 (3) 171

Synthesis of leucrose by dextransucrase and some conditions for the reaction (Japanese, English Abstract)

Miller E, Sugier H//Tech Univ Lodz, Inst Gen Food Chem, PL-90924 Lodz, Poland

STARCH 1990, 42 (2) 71

Catalytic properties of a glucoamylase-oxidized dextran T40 conjugate

Monig H, Sedlmeier H, Oehlert W, Konermann G, Messerschmidt O//Univ Freiburg, Inst Biophys & Strahlenbiol, Albertstr 23, D-7800 Freiburg, Fed Rep Ger

STRAHLENTHER ONKOL 1990, 166 (3) 235

Prolonged radioprotective activity of WR-2721 linked to dextran

Okada T//Juntendo Univ, Sch Med, Dept Physiol, Bunkyo ku, Tokyo 113, Japan

JPN J PHYSIOL 1989, 39 (6) 943

Effect of dextran on the stability of isolated, perfused rat heart

Schols D, Pauwels R, Desmyter J, de Clercq E//Catholic Univ Leuven, Rega Inst Med Res, B-3000 Louvain, Belgium

VIROLOGY 1990, 175 (2) 556

Dextran sulfate and other polyanionic anti-HIV compounds specifically interact with the viral

gp120 glycoprotein expressed by T-cells persistently infected with HIV-1

Unlu M, Ercan MT, Alanyali H, Akham O, Bekdik CF//Hacettepe Univ, Fac Med, Dept Nucl Med, Ankara 6100, Turkey

NUKLEARMED 1990, 29 (1) 35

Internal mammary lymphoscintigraphy with SPECT after ultrasound-guided injection of Tc-99m-dextran

Witvrouw M, Baba M, Balzarini J, Pauwels R, de Clercq E**Catholic Univ Leuven, Rega Inst Med Res, Minderbroedersstr 10, B-3000 Louvain, Belgium

J ACQ IMMUN DEFIC SYNDROME 1990, 3 (4) 343

Establishment of a bioassay to determine serum levels of dextran sulfate and pentosan polysulfate, two potent inhibitors of human immunodeficiency virus

Shabtai Y, Wang DIC//Tel Aviv Univ, George S Wise Fac Life Sci, Dept Biotechnol, IL-69978 Tel Aviv, Israel

BIOTECHNOL BIOENG 1990, 35 (8) 753

Production of emulsan in a fermentation process using soybean oil (SBO) in a carbon-nitrogen coordinated feed

Gillespie A-M, Cook K, Coughlan MP**Natl Univ Ireland, Univ Coll Galway, Dept Biochem, Galway, Ireland

J BIOTECHNOL 1990, 13 (4) 279

Characterization of an endopolygalacturonase produced by solid-state cultures of the aerobic fungus *Penicillium capsulatum*

Morvan C, Jauneau A, Flaman A, Millet J, Demarty M//URA-CNRS D 0203, Equipe Parois & Polysaccharides Parietaux, Scueor, Fac Sci Rouen, BP 118, F-76134 Mont-Saint-Aignan, France

CARBOHYD POLYM 1990, 13 (2) 149

Degradation of flax polysaccharides with purified endo-polygalacturonase

Legaz ME, Martin L, Pedrosa MM, Vicente C, Dearmas R, Martinez M, Medina I, Rodriguez CW//Complutense Univ Madrid, Fac Biol, Plant Physiol Lab, E-28040 Madrid, Spain

PLANT PHYSIOL 1990, 92 (3) 679

Purification and partial characterization of a fructanase which hydrolyzes natural polysaccharides from sugarcane juice

Livingstone DP//US Reg Pasture Res Lab, University Pk, Pa 16802, USA

PLANT PHYSIOL 1990, 92 (3) 767

Fructan precipitation from a water/ethanol extract of oats and barley

Gupta AK, BeMiller JN//Purdue Univ, Whistler Ctr Carbohydrate Res, W Lafayette, In 47907, USA

PHYTOCHEMISTRY 1990, 29 (3) 853

A galactomannan from *Crotalaria medicaginea* seeds

Adachi Y, Ohno N, Ohsawa M, Oikawa S, Yodamae T**Tokyo Coll Pharm, Immunopharm Microbial Prod Lab, Horinouchi, Hachioji, Tokyo 19203, Japan

CHEM PHARM BULL TOKYO 1990, 38 (2) 477

Change of biological activities of (1-3)-beta-D-glucan from *Grifola frondosa* upon molecular weight reduction by heat treatment

Fujino T, Sasaki T, Ohmiya K, Shimizu S//Nagoya Seiraku Co Ltd, Div Res & Technol, Tempa ku, Nagoya 468, Japan

APPL ENVIRON MICROBIOL 1990, 56 (4) 1175

Purification and properties of an endo-1,4-beta-glucanase translated from a *Clostridium josui* gene in *Escherichia coli*

Jamas S, Chen Y-CJ, von der Osten CH, Sinskey AJ, Rha CK//Dept Biol, Massachusetts Inst Technol, Cambridge, Ma 02139, USA

CARBOHYD POLYM 1990, 13 (2) 207

Spectral analysis of glucan produced by wild-type and mutant *Saccharomyces cerevisiae*

Kato K, Yoshimura K, Yamamoto Y, Yamauchi R, Ueno Y, Sawada K//Gifu Univ, Dept Agr Chem, Gifu 50111, Japan

CARBOHYD RES 1990, 197 (MAR) 181

Inversion of the 2-hydroxyl groups of D-glucosyl units in (1-3)-beta-D-glucan

Messner R, Kubicek CP//Vienna Tech Univ, Inst Biochem Technol & Microbiol, Mikrobielle Biochem Abt, A-1060 Vienna, Austria

CAN J MICROBIOL 1990, 36 (3) 211

Synthesis of cell wall glucan, chitin, and protein by regenerating protoplasts and mycelia of *Trichoderma reesei*

Nieves RA, Himmel ME, Todd RJ, Ellis RP//
Colorado State Univ, Dept Microbiol, Ft Collins,
Co 80523, USA

APPL ENVIRON MICROBIOL 1990, 56 (4)
1103

Cross-reactive and specific monoclonal anti-
bodies against cellobiohydrolases I and II and
endoglucanases I and II of *Trichoderma reesei*

Pielken P, Stahmann P*, Sahm H//KFA Julich
GmbH, Inst Biotechnol, Postfach 1913, D-5170
Julich 1, Fed Rep Ger

APPL MICROBIOL BIOTECHNOL 1990, 33
(1) 1

Increase in glucan formation by *Botrytis cinerea*
and analysis of the adherent glucan

Sandula J, Ebringerova A, Pruzinec J//Slovak
Acad Sci, Inst Chem, CS-80936 Bratislava, Cze-
choslovakia

J RADIOANAL NUCL CHEM LETT 1990,
144 (4) 287

The effect of gamma-radiation on yeast cell wall
glucans

Ogawa K, Matsuda K, Tamari K, Kiyo-Oka S//
Nihon Shokuhin Kako Co Ltd, Res Lab, 30 Ta-
jima, Fuji, Shizuoka 417, Japan

AGR BIOL CHEM TOKYO 1990, 54 (3) 593

Immunochemical analysis of the glucomannan
from *Candida utilis*

Tomoda M, Gonda R, Shimizu N, Kanari M,
Kumura M//Kyoritsu Coll Pharmaceut Sci, Mina-
to ku, Tokyo 105, Japan

PHYTOCHEMISTRY 1990, 29 (4) 1083

A reticuloendothelial system activating glycan
from the rhizomes of *Curcuma longa*

Withers SG//Univ British Columbia, Dept
Chem, Vancouver, BC, Canada V6T 1Y6

CARBOHYD RES 1990, 197 (MAR) 61

The enzymic synthesis and n.m.r. charac-
terisation of specifically deoxygenated and fluori-
nated glycogens

Lalor BC, Bhatnagar D, Winocour PH, Ishola M,
Arrol S, Brading M, Durrington PN//Univ
Manchester, Manchester Royal Infirmary, Dept
Med, Oxford Rd, Manchester M13 9WL, Lancs,
England

DIABETIC MED 1990, 7 (3) 242

Placebo-controlled trial of the effects of guar
gum and Metformin on fasting blood glucose
and serum lipids in obese, type 2 diabetic pa-

tients

Wood PJ, Braaten JT, Scott FW, Riedel D,
Poste LM//Agr Canada, Ctr Food Res, Ottawa,
Ontario, Canada K1A 0C6

J AGR FOOD CHEM 1990, 38 (3) 753

Comparisons of viscous properties of oat and
guar gum and the effects of these and oat bran
on glycemic index

Anderson DMW, Weiping W//Univ Edinburgh,
Dept Chem, Edinburgh EH9 3JJ, Midlothian,
Scotland

PHYTOCHEMISTRY 1990, 29 (4) 1193

Composition of the gum from *Combretum pa-
niculatum* and four other gums which are not
permitted food additives

Bocci L, Leanza D, Marrapodi E, Stefanini A,
Cipriani C, Corsi C, Puliti R, Cenni A, Spignoli
G//L Manetti H Roberts & C, Pharmacol Res
Labs, Via Baldanzese 177, Florence, Italy

CLIN TRIALS J 1990, 27 (1) 1

Treatment of chronic venous failure secondary
to deep venous thrombosis - A comparative
study of heparan sulphate and Sulodexide

Jerg KR, Baumann H, Keller R, Friedl P//Rhein
Westfal TH Aachen, Makromolekul Chem & Text
Chem Worrringerweg 1, D-5100 Aachen, Fed
Rep Ger

INT J BIOL MACROMOL 1990, 12 (2) 153

Fermentation of bovine endothelial cells for
preparation of endothelial cell-surface heparan
sulphate

Brilledwards P, Ginsberg J, Burrows R//McMas-
ter Univ, Med Ctr, 1200 Main St W, Hamilton,
Ontario, Canada L8N 3Z5

AMER J OBSTET GYNECOL 1990, 162 (3)
870

Heparin prophylaxis during pregnancy (Letter)

Bergqvist D, Tengborn L, Matzsch T, Bergqvist
A, Hedner U//Malmö Gen Hosp, Dept Surg, S-
21401 Malmö, Sweden

AMER J OBSTET GYNECOL 1990, 162 (3)
870

Heparin prophylaxis during pregnancy (Reply)

Clarkepearson DL, DeLong E, Synan IS, Soper
JT, Creasman WT, Coleman RE//Duke Univ,
Med Ctr, Box 3079, Durham, NC 27710, USA

OBSTET GYNECOL 1990, 75 (4) 684

A controlled trial of two low-dose heparin regimens for the prevention of postoperative deep vein thrombosis

Elias A, Milandre L, Lagrange G, Aillaud MF, Alonzo B, Toulemonde F, Juhanvague I, Khalil R, Bayrou B, Serradimigni A//Chu Timone, Serv Cardiol, F-13385 Marseille 5, France

REV MED INTERNE 1990, 11 (1) 95

Prevention of deep-vein thrombosis of the lower limbs with a very low molecular weight heparin fraction (CY-222) in patients with hemiplegia due to cerebral infarction - A randomized pilot study in 30 patients (French, English Abstract)

Hartl P, Brucke P, Dienstl E, Vinazzer H//Gen Hosp Linz, Dept Surg 1, Linz, Austria

THROMB RES 1990, 57 (4) 577

Prophylaxis of thromboembolism in general surgery: Comparison between standard heparin and Fragmin

Jaques LB, Wice SM, Hiebert L//Univ Saskatchewan, Coll Dent, Dept Oral Biol, Room 521, Saskatoon, Saskatchewan, Canada S7N 0W0

J LAB CLIN MED 1990, 115 (4) 522

Determination of absolute amounts of heparin and of dextran sulfate in plasma in microgram quantities

Lee AE, Rogers LA, Longcroft JM, Jeffery RE//Imperial Canc Res Fund, Hormone Physiol Lab, POB 123, Lincolns Inn Fields, London WC2A 3PX, England

CLIN EXP METASTAS 1990, 8 (2) 165

Reduction of metastasis in a murine mammary tumour model by heparin and polyinosinic-polycytidylic acid

Miwa LJ, Shaefer MS, Wulf BG**//Univ Nebraska, Med Ctr, Coll Pharm, Dept Pharm Practice, 42nd & Dewey Ave, Omaha, Ne 68105, USA

HOSP FORMULARY 1990, 25 (3) 306

Drug usage evaluation of low-dose subcutaneous heparin prophylaxis in critically ill patients

Pijl AJ, Solen KA, Mohammad SF*, Monson R, Yu LS, van Griensven MT, Olsen DB, Kolff WJ//Univ Utah, Artificial Heart Res Lab, 803 N 300 W, Salt Lake City, Ut 84103, USA

ARTIF ORGANS 1990, 14 (2) 125

Loss of anticoagulant effect of heparin during circulation of human blood in vitro

Neville GA, Mori F, Racey TJ, Rochon P, Holme KR, Perlin AS//Hlth & Welf Canada, Hlth Protect Branch, Bur Drug Res, Ottawa, Ontario, Canada K1A 0L2

J PHARM SCI 1990, 79 (4) 339

Chemical composition, particle size range, and biological activity of some low molecular weight heparin derivatives

Rosove MH, Tabsh K, Wasserstrum N, Howard P, Hahn BH, Kalunian KC//Univ Calif Los Angeles, Sch Med, Dept Med, 42-121 CHS, Los Angeles, Ca 90024, USA

OBSTET GYNECOL 1990, 75 (4) 630

Heparin therapy for pregnant women with lupus anticoagulant or anticardiolipin antibodies

von Bonsdorff M, Stiekema J, Harjanne A, Alaïssa U//Mjölbolsta Sjukhus, SF-10350 Mjölbolsta, Finland

INT J ARTIF ORGANS 1990, 13 (2) 103

A new low molecular weight heparinoid Org 10172 as anticoagulant in hemodialysis

Jung K, Klotzek S, Schulze BD//Humboldt Univ, Univ Hosp Charite, Dept Exptl Organ Transplant, Leninallee 49, DDR-1017 Berlin, Ger Dem Rep

NEPHRON 1990, 54 (4) 360

Refinements of assays for low concentrations of inulin in serum

Preziosi L, Michel GPF, Baratti J**//Univ Provence, CNRS, Chim Bacterienne Lab, BP 71, F-13277 Marseille 9, France

CAN J MICROBIOL 1990, 36 (3) 159

Sucrose metabolism in *Zymomonas mobilis*: Production and localization of sucrase and levansucrase activities

Tanaka K, Shimonishi M, Kitagaki M, Ikunaga M//Koshier Univ, Dept Nutr, Momijigaoka 10-1, Takarazuka, Hyogo 665, Japan

AGR BIOL CHEM TOKYO 1990, 54 (3) 815

Action of levansucrase of *Arthrobacter ureafaciens* on three oligosaccharides containing a bifurcose residue

Ogawa Y, Fujishima Y, Ishida H, Kiso M, Hasegawa A//Gifu Univ, Dept Appl Bioorgan Chem, Gifu 50111, Japan

CARBOHYD RES 1990, 197 (MAR) 281

Synthesis of 3-O-[(3R)-acyloxytetradecanoyl]-2-deoxy-2-[(3R)-3-hydroxytetradecanamido-4-O-phosphono-D-glucose derivatives related to bac-

terial lipid A

Jarvis MC//Univ Glasgow, Dept Agr Chem,
Glasgow G12 8QQ, Scotland

CARBOHYD RES 1990, 197 (MAR) 276

The ^{13}C -n.m.r. spectrum of (1-4)-beta-D-mannans in intact endosperm tissue of the date (Phoenix dactylifera)

Kobayashi M, Okawa Y, Suzuki S, Suzuki M//
Hokkaido Univ, Fac Pharmaceut Sci, Kita ku,
Sapporo, Hokkaido 060, Japan

CHEM PHARM BULL TOKYO 1990, 38 (3)
807

Protective effect of baker's yeast mannan against
Listeria monocytogenes and Pseudomonas
aeruginosa

Bartolini ME, Jen JJ//Refinerias Maiz, Mendoza,
Brazil

J FOOD SCI 1990, 55 (2) 564

Molecular characteristics of pectins from
enzyme-treated apple juices

Davis EA, Derouet C, du Penhoat CH*, Morvan
C//Ecole Natl Super Chim, Dept Chem Serv
Rmn, Lhomond, F-75231 Paris, France

CARBOHYD RES 1990, 197 (MAR) 205

Isolation and an n.m.r. study of pectins from flax
(Linum usitatissimum L.)

Maness NO, Ryan JD, Mort AJ*//Oklahoma
State Univ, Oklahoma Agr Expt Stn, Dept
Biochem, Stillwater, Ok 74078, USA

ANAL BIOCHEM 1990, 185 (2) 346

Determination of the degree of methyl esterifica-
tion of pectins in small samples by selective re-
duction of esterified galacturonic acid to galac-
tose

Walter RH, Sherman RM//Cornell Univ, Inst
Food Sci, Geneva, NY 14456, USA

COLLOID SURFACE 1990, 44 (MAR) 1

Derivation of a cooling-rate quotient for high-
methoxyl pectin jelly sols

Izydorczyk MS, Biliaderis CG, Bushuk W//Univ
Manitoba, Dept Food Sci, Winnipeg, Manitoba,
Canada R3T 2N2

J CEREAL SCI 1990, 11 (2) 153

Oxidative gelation studies of water-soluble pen-
tosans from wheat

Sych J, Lacroix C, Adambonou LT, Castaigne

F//Univ Laval, Dept Sci & Technol Aliments, St
Foy, Quebec, Canada G1K 7P4

J FOOD SCI 1990, 55 (2) 356

Cryoprotective effects of lactitol, palatinit and
polydextrose on cod surimi proteins during
frozen storage

Bailey MJ, Pessa E//Valt Teknillinen Tutkimus-
keskus, Biotech Lab, Tietotie 2, SF-02150 Espoo,
Finland

ENZYME MICROB TECHNOL 1990, 12 (4)
266

Strain and process for production of polygalactu-
ronase

Kester HCM, Visser J*//Agr Univ Wageningen,
Dept Genet, Dreyenlaan 2, 6703 HA Wagening-
en, The Netherlands

BIOTECHNOL APPL BIOCHEM 1990, 12 (2)
150

Purification and characterization of polygalactu-
ronases produced by the hyphal fungus Asperil-
lus niger

Koch JL, Nevins DJ*//Univ Calif Davis, Dept
Vegetable Crops, Davis, Ca 95616, USA

PLANT PHYSIOL 1990, 92 (3) 642

The tomato fruit cell wall. 2. Polyuronide meta-
bolism in a nonsoftening tomato mutant

Phillips CG, Jansons KM*//Univ London Univ
Coll, Dept Math, Gower St. London WC1E
6BT, England

MACROMOLECULES 1990, 23 (6) 1717

Flow and diffusion through random suspensions
of aggregated rods: Application to proteoglycan
solutions

Odibo FJC, Obi SKC//Anambra State Univ
Technol, Dept Appl Microbiol & Brewing, PMB
5025, Awka, Nigeria

BIOL WASTES 1990, 32 (1) 9

Optimum culture conditions for the production
of the extracellular pullulanase of Thermoactino-
myces thalophilus

Bestendonk CMH, Willuhn G*, Steigel A, Wen-
disch D, Middelhaue B, Wiebecke M, Mootz
D//Univ Dusseldorf, Inst Pharmazeut Biol,
GEB 26 23, Univ Str 1, D-4000 Dusseldorf 1,
Fed Rep Ger

PLANTA MED 1990, 56 (1) 104

Germaacranolides, guaianolides, and xantha-
nolides from the flowers of Arnica mollis and an
x-ray structure analysis of baileyin acetate (Ger-

man, English Abstract)

Fu J-F, Tseng Y-H*//Natl Chung Hsing Univ, Dept Bot, Taichung 40227, Taiwan

APPL ENVIRON MICROBIOL 1990, 56 (4) 919

Construction of lactose-utilizing *Xanthomonas campestris* and production of xanthan gum from whey

Gonzales R, Johns MR, Greenfield PF*//Dept Chem Engr, Univ Queensland, St Lucia, Queensland 4067, Australia

CARBOHYD POLYM 1990, 13 (3) 317

Phase equilibria for xanthan gum in ethanol-water solutions

Milas M, Viehweg H, Weiss A//Ctr Rech Macromolec Vegetales, Lab CNRS Univ Joseph Fourier, BP 53 X, F-38041 Grenoble-cedex, France

CARBOHYD POLYM 1990, 13 (2) 119

Structure and properties of xanthan versus fermentation time in an emulsion system

Pons A et al//Lab Genie Chem Biol, F-63177 Clermont Ferrand, France

BIOPROCESS ENG 1990, 5 (3) 107

Xanthan batch fermentations: Compared performances of a bubble column and a stirred tank fermentor

Shatwell KP, Sutherland IW, Ross-Murphy SB*//Univ Cambridge, Cavendish Lab, Madingley Rd, Cambridge CB3 0HE, England

INT J BIOL MACROMOL 1990, 12 (2) 71

Influence of acetyl and pyruvate substituents on the solution properties of xanthan polysaccharide

Suh IS, Herbst H, Schumpe A*, Deckwer WD//*GBF Natl Res Ctr Biotechnol, Mascheroder Weg 1, D-3300 Braunschweig, Fed Rep Ger

BIOTECHNOL LETT 1990, 12 (3) 201

The molecular weight of xanthan polysaccharide produced under oxygen limitation

Tait MI, Sutherland IW*, Clarke-Sturman AJ//*Dept Genetics & Microbiol, Univ Aberdeen, Marischal College, Aberdeen AB9 1AS, Scotland

CARBOHYD POLYM 1990, 13 (2) 133

Acid hydrolysis and high-performance liquid chromatography of xanthan

Yoshida H, Hatakeyama T, Hatakeyama H//Tokyo Metropolitan Univ, Dept Ind Chem, 2-1-1 Fukazawa, Setagaya ku, Tokyo 158, Japan

POLYMER 1990, 31 (4) 693

Phase transitions of the water-xanthan system

Capalash N, Sharma P, Gupta KG//Punjab Univ, Dept Microbiol, Chandigarh 160014, India

LETT APPL MICROBIOL 1990, 10 (3) 151

Use of a modified cupric acetate method for the detection and quantitation of xylanolytic activities: A comparative study with the congo red method

Ebringerova A, Kacurakova M, Pruzinec J//Slovak Acad Sci, Inst Chem, CS-80936 Bratislava, Czechoslovakia

J RADIOANAL NUCL CHEM LETT 1990, 144 (4) 297

Gamma-radiolysis of water-insoluble heteroxylans

Gattinger LD, Duvnjak Z*, Khan AW*//Univ Ottawa, Dept Chem Engr, Ottawa, Ontario, Canada K1N 9B4

APPL MICROBIOL BIOTECHNOL 1990, 33 (1) 21

The use of canola meal as a substrate for xylanase production by *Trichoderma reesei*

Kardosova A, Malovikova A, Rosik J, Capek P//Slovak Acad Sci, Ctr Chem Res, Inst Chem, CS-84238 Bratislava, Czechoslovakia

CHEM PAP-CHEM ZVESTI 1990, 44 (1) 111

Distribution pattern of 4-O-methyl-D-glucuronic acid units in 4-O-methyl-D-glucurono-D-xylan isolated from the leaves of marsh mallow (*Althaea officinalis* L, var *Rhubusta*)

Kluepfel K, Vats-Mehta S, Aumont F, Shareck F, Morosoli R//Univ Quebec, Ctr Rech Microbiol Appl, Inst Armand Frappier, 531 Blvd Prairies, Laval, Quebec, Canada H7N 4Z3

BIOCHEM J 1990, 267 (1) 45

Purification and characterization of a new xylanase (xylanase B) produced by *Streptomyces lividans*

Swamy NR, Salimath PV*//Cent Food Technol Res Inst, Dept Food Chem, Biochem Sect, Mysore 570013, Karnataka, India

CARBOHYD RES 1990, 197 (MAR) 327

Structural features of acidic xylans isolated from red gram (*Cajanus cajan*) husk

Kiefer LL, York WS, Albersheim P, Darvill AG*//Univ Georgia. Complex Carbohydrate Res Ctr, 220 Riverbend Rd, Athens, Ga 30602, USA

CARBOHYD RES 1990, 197 (MAR) 139

Structural characterization of an arabinose-containing heptadecasaccharide enzymically isolated from sycamore extracellular xyloglucan

7 Polysaccharides - Other

Abdel-Kader SM, Issa MA*, El-Shefi MA//Menia Univ, Fac Agr. Dept Agr Chem, Menia, Egypt

CAN J CHEM 1990, 68 (2) 323

Structure of an acidic polysaccharide elaborated by *Bacillus polymyxa*-1231-ATCC 842

Akiyoshi K, Takanabe H, Sato T, Sato T, Kondo H, Sunamoto J*//Kyoto Univ, Fac Engn, Dept Polymer Chem, Kyoto 606, Japan

CHEM LETT 1990, (3) 473

Cell specificity of polysaccharide derivatives on liposomal surface

Auer DPF, Seviour RJ*//Bendigo Coll Adv Educ, Dept Biol & Chem Sci, Biotechnol Res Ctr, Bendigo, Vic 3550, Australia

APPL MICROBIOL BIOTECHNOL 1990, 32 (6) 637

Influence of varying nitrogen sources on polysaccharide production by *Aureobasidium pullulans* in batch culture

Baba M, Schols D, Pauwels R, Nakashima H, de Clercq E*//Catholic Univ Leuven, Rega Inst Med Res, B-3000 Louvain, Belgium

J ACQ IMMUN DEFIC SYNDROME 1990, 3 (5) 493

Sulfated polysaccharides as potent inhibitors of HIV-induced syncytium formation: A new strategy towards AIDS chemotherapy

Berkowitz CD, Ward JI, Chiu CE, Marcy SM, Gordon L, Hendley JO, Meier K, Marchant CD, McVerry P//Univ Calif Los Angeles, Los Angeles Cty Harbor Med Ctr, 1000 W Carson St, Bin 437, Torrance, Ca 90509, USA

PEDIATRICS 1990, 85 (3) 288

Persistence of antibody and booster responses to reimmunization with *Haemophilus influenzae* type B polysaccharide and polysaccharide diphtheria toxoid conjugate vaccines in children initially immunized at 15 to 24 months of age

Cesaro A, Liut G, Bertocchi C, Navarini L, Urbani R//Univ Trieste, Dipartimento Biochem Biofis & Chim Macromolec, I-34127 Trieste, Italy

INT J BIOL MACROMOL 1990, 12 (2) 79

Physicochemical properties of the exocellular polysaccharide from *Cyanospira capsulata*

Dutton GGS, Kuma-Mintah A, Parolis H//Univ British Columbia, Dept Chem, Vancouver, BC, Canada V6T 1Y6

CARBOHYD RES 1990, 197 (MAR) 171

The structure of *Escherichia coli* K31 antigen

Glazebrook J, Reed JW, Reuber TL, Walker GC*//MIT, Dept Biol, Cambridge, Ma 02139, USA

INT J BIOL MACROMOL 1990, 12 (2) 67

Genetic analyses of *Rhizobium meliloti* exopolysaccharides

Gonda R, Tomoda M*, Shimizu N, Kanari M//Kyoritsu Coll Pharmaceut Sci, Shibakoen, Minato ku, Tokyo 105, Japan

PLANTA MED 1990, 56 (1) 73

Constituents of the seed of *Malva verticillata*. 4. Characterization of an acidic polysaccharide from the seeds of *Malva verticillata* stimulating the phagocytic activity of cells of the RES

Gonda R, Tomoda M*, Shimizu N, Kanari M//Kyoritsu Coll Pharmaceut Sci, Shibakoen, Minato ku, Tokyo 105, Japan

CHEM PHARM BULL TOKYO 1990, 38 (2) 482

Characterization of polysaccharides having activity on the reticuloendothelial system from the rhizome of *Curcuma longa*

Hay JW, Daum RS//Stanford Univ, Hoover Inst, Stanford, Ca 94305, USA

PEDIAT INF DIS J 1990, 9 (4) 246

Cost-benefit analysis of *Haemophilus influenzae* type b prevention: Conjugate vaccination at eighteen months of age

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

MACROMOLECULES 1990, 23 (6) 1884

Synthesis of a comb-shaped branched polysaccharide via ring-opening polymerization of a reactive anhydro disaccharide derivative

Kinzel B//Address not available

AGR RES 1990, 38 (3) 22

Natural gum finds many uses

Klein J, Kunz M, Kowalczyk J//Gesell Biotechnol Forsch GmbH, Mascheroder Weg 1, D-3300 Braunschweig, Fed Rep Ger

MAKROMOL CHEM-MACRO CHEM PHYS 1990, 191 (3) 517

Poly(vinylsaccharide)s, 7. New surfactant polymers based on carbohydrates

Lenter M, Jann B, Jann K//Max Planck Inst Immunbiol, D-7800 Freiburg, Fed Rep Ger
CARBOHYD RES 1990, 197 (MAR) 197

Structure of the K16 antigen from *Escherichia coli* O7:K16:H, a Kdo-containing capsular polysaccharide

Marra M, Palmeri A, Ballio A, Segre A, Slodki ME//Univ Roma Tor Vergata, Dipartimento Biol, Via O Raimondo, I-00173 Rome, Italy

CARBOHYD RES 1990, 197 (MAR) 338

Structural characterisation of the exocellular polysaccharide from *Cyanospira capsulata*

Montefiori DC, Robinson WE, Modliszewski A, Rowland JM, Schuffman SS, Mitchell WM//Vanderbilt Univ, Med Ctr, Sch Med, Dept Pathol, Nashville, Tn 37232, USA

J ANTIMICROBIAL CHEMOTHER 1990, 25 (3) 313

Differential inhibition of HIV-1 cell binding and HIV-1-induced syncytium formation by low molecular weight sulphated polysaccharides

Morris VJ, Brownsey GJ, Chilvers GR, Harris JE, Gunning AP, Ridout MJ, Stevens BJH//AFRC Inst Food Res, Norwich Lab, Colney Lane, Norwich NR4 7UA, England
CARBOHYD POLYM 1990, 13 (2) 165

Gelation of members of a family of branched anionic heteropolysaccharides produced by certain strains of *Rhizobium leguminosarum*

Morris VJ, Brownsey GJ, Gunning AP, Harris JE//AFRC Inst Food Res, Norwich Lab, Colney Lane, Norwich NR4 7UA, England
CARBOHYD POLYM 1990, 13 (2) 221

Gelation of the extracellular polysaccharide produced by *Agrobacterium rhizogenes*

Musher DM, Luchi MJ, Watson DA, Hamilton R, Baughn RE//Vet Adm Med Ctr, Infect Dis

Sect 151B, Med Serv, 2002 Holcombe Blvd, Houston, Tx 77030, USA

J INFEC DIS 1990, 161 (4) 728

Pneumococcal polysaccharide vaccine in young adults and older bronchitics: Determination of IgG responses by ELISA and the effect of adsorption of serum with non-type-specific cell wall polysaccharide

Musher DM, Watson DA, Baughn RE//Vet Adm Med Ctr, Infect Dis Sect 151B, Med Serv, 2002 Holcombe Blvd, Houston, Tx 77030, USA

J INFEC DIS 1990, 161 (4) 736

Does naturally acquired IgG antibody to cell wall polysaccharide protect human subjects against pneumococcal infection?

Ohtani K, Tooyama M, Oota A, Isozaki C//Mukogawa Womens Univ, Fac Home Sci, Nishinomiya, Hyogo 663, Japan

NIPPON NOGEIKAGAKU KAISHI 1990, 64 (4) 883

Changes in carbohydrate components of hot water-soluble polysaccharides of satoimo (*Colocasia esculenta* (L) Schott) during tuberization and development (Japanese, English Abstract)

Ohtani K, Tooyama M//Mukogawa Womens Univ, Fac Home Sci, Nishinomiya, Hyogo 663, Japan

NIPPON NOGEIKAGAKU KAISHI 1990, 64 (4) 891

Partial structure of hot water-soluble polysaccharide of mother corm (*Colocasia esculenta* (L) Schott) (Japanese, English Abstract)

Petersen GR, Schubert WW, Richard GF, Nelson GA//Caltech, Jet Propuls Lab 125-112, Appl Sci & Micrograv Expts, Pasadena, Ca 91109, USA

ENZYME MICROB TECHNOL 1990, 12 (4) 255

Yeasts producing exopolysaccharides with drag-reducing activity

Ray N, Maddali UB, Roy A, Roy N**//Indian Assoc Cultivat Sci, Dept Biol Chem, Calcutta 700032, W Bengal, India

CARBOHYD RES 1990, 197 (MAR) 93

Synthesis of di- and tri-saccharides related to the polysaccharide from *Streptococcus pneumoniae* type 23 and a study of their inhibition in the precipitin reaction

Sarnaik S, Kaplan J, Schiffman G, Bryla D, Rob-

bins JB, Schneerson R//Childrens Hosp Michigan, Detroit Med Ctr, 3901 Beaubien Blvd, Detroit, Mi 48201, USA

PEDIAT INF DIS J 1990, 9 (3) 181

Studies on pneumococcus vaccine alone or mixed with DTP vaccine and on pneumococcus type 6B and Haemophilus influenzae type b capsular polysaccharide-tetanus toxoid conjugates in two- to five-year-old children with sickle cell anemia

Seymour GB, Colquhoun LJ, Dupont MS, Parsley KR, Selvendran RR*//AFRC, Inst Food Res, Norwich Lab, Colney Lane, Norwich NR4 7UA, Norfolk, England

PHYTOCHEMISTRY 1990, 29 (3) 725

Composition and structural features of cell wall polysaccharides from tomato fruits

Shabtai Y//Tel Aviv Univ, George S Wise Fac Life Sci, Dept Biotechnol, IL-69978 Tel Aviv, Israel

INT J BIOL MACROMOL 1990, 12 (2) 145

Production of exopolysaccharides by Acinetobacter strains in a controlled fed-batch fermentation process using soap stock oil (SSO) as carbon source

Verschoor J, Christensen CR*//Diamond Sci Corp, Tech Serv, 2538 SE 43rd St, Des Moines, Ia 50137, USA

VET CLIN N AMER-FOOD ANIM PR 1990, 6 (1) 69

Fluid therapy with specific mucopolysaccharides: A new approach to control diarrhoea

Vinogradov EV, Kaca W*, Shashkov AS, Krajewska-Pietrasik D, Rozalski A, Knirel YA, Kochetkov NK*//Univ Lodz, Inst Microbiol, Banacha 12-16, PL-90238 Lodz, Poland

EUR J BIOCHEM 1990, 188 (3) 645

The structure of Proteus mirabilis O3 O-specific polysaccharide containing N-(2-hydroxyethyl)-D-alanine

Yokoyama A, Srinivasan KR, Fogler HS*//Univ Michigan, Dept Chem Engn, Ann Arbor, Mi 48109, USA

LANGMUIR 1990, 6 (3) 702

Stabilization of colloidal particles by acidic polysaccharides. Effect of temperature on stability

Council Canada, Div Biol Sci, Ottawa, Ontario, Canada K1A 0R6

CAN J CHEM 1990, 68 (2) 329

Structural characterization of the capsular polysaccharide and O-chain of the lipopolysaccharide of Actinobacillus pleuropneumoniae serotype 8 (strain 405)

Carrion M, Bhat UR, Reuhs B, Carlson RW*//Univ Georgia, Complex Carbohydrate Res Ctr, 220 Riverbend Rd, Athens, Ga 30602, USA

J BACTERIOL 1990, 172 (4) 1725

Isolation and characterization of the lipopolysaccharides from Bradyrhizobium japonicum

9 Starch

Biliaderis CG, Seneviratne HD//Dept Food Sci, Univ Manitoba, Winnipeg, Manitoba, Canada R3T 2N2

CARBOHYD POLYM 1990, 13 (2) 185

On the supermolecular structure and metastability of glycerol monostearate-amylose complex

Niemann C, Nuck R, Pfannemuller B, Saenger W*//Free Univ Berlin, Inst Kristallog, Takustr 6, D-1000 Berlin 33, Fed Rep Ger

CARBOHYD RES 1990, 197 (MAR) 187

Phosphorolytische Synthese von niedermolekularen Amylosen mit modifizierten Endruppen (German, English Abstract)

Gudmundsson M, Eliasson A-C//Dept Food Technol, Univ Lund, Box 124, S-221 00 Lund, Sweden

CARBOHYD POLYM 1990, 13 (3) 295

Retrogradation of amylopectin and the effects of amylose and added surfactants/emulsifiers

Baum TD, Wang H, Rothschild HR, Gang DL, Fink MP*//Univ Massachusetts, Med Ctr, Dept Surg, 55 Lake Ave N, Worcester, Ma 01655, USA

CIRC SHOCK 1990, 30 (4) 385

Mesenteric oxygen metabolism, ileal mucosal hydrogen ion concentration, and tissue edema after crystalloid or colloid resuscitation in porcine endotoxic shock: Comparison of Ringer's lactate and 6% hetastarch

Gold MS, Russo J, Tissot M, Weinhouse G, Riles T//NYU Med Ctr, Dept Anesthesiol, 550 1st Ave, New York, NY 10016, USA

ANN SURG 1990, 211 (4) 482

Comparison of hetastarch to albumin for peri-

8 Lipopolysaccharides

Altman E, Brisson J-R, Perry MB*//Natl Res

operative bleeding in patients undergoing abdominal aortic aneurysm surgery: A prospective, randomized study

Laskawi R, Brauneis J, Damenz W, Schroder M//Univ Gottingen, Hals Nasen Ohren Klin, Robert Koch Str 40, D-3400 Gottingen, Fed Rep Ger

LARYNGO RHINO OTOL 1990, 69 (3) 163

The value of hydroxyethyl starch solution in the treatment of Bell's palsy (German, English Abstract)

Tormann T, Jung F, Simon J, Schwerdtfeger K, Kiesewetter H, Racenberg E//Univ Saarland, Klin, Inst Anaesthet, D-6650 Homburg, Fed Rep Ger

ANAESTHESIST 1990, 39 (3) 166

Effect of intraoperative and postoperative administration of different hydroxyethyl starch solutions on blood fluidity and conjunctival pO₂ (German, English Abstract)

Chinachoti P, Steinberg MP, Villota R//Univ Massachusetts, Dept Food Sci, Amherst, Ma 01003, USA

J FOOD SCI 1990, 55 (2) 543

A model for quantitating energy and degree of starch gelatinization based on water, sugar and salt contents

de Alteriis E, Scardi V**//Naples Univ, Dipartimento Fisiol Gen & Ambientale, Via Mezzocannone 8, I-80134 Naples, Italy

STARCH 1990, 42 (2) 57

Oxidized starch as a hardening agent in the gelatin-immobilization of living yeast cells

El Hag IA, Teder H, Roos G, Christensson PI, Stenram U//Univ Lund Hosp, Dept Pathol, S-22185 Lund, Sweden

SELECT CANCER THER 1990, 6 (1) 23

Enhanced effect of adriamycin on a rat liver adenocarcinoma after hepatic artery injection with degradable starch microspheres

Gujska E, Khan K**//N Dakota State Univ, Dept Cereal Sci & Food Technol, Fargo, ND 58105, USA

J FOOD SCI 1990, 55 (2) 466

Effect of temperature on properties of extrudates from high starch fractions of navy, pinto and garbanzo beans

Hartunian SM, White PJ*, Batres LV**//Iowa

State Univ Sci & Technol, Dept Food Nutr, 111 MacKay Hall, Ames, Ia 50011, USA

STARCH 1990, 42 (2) 53

Influence of monoglycerides of different chain lengths on texture and flavor of breads made with waxy cornstarch

Jentsch W, Schiemann R, Hoffmann L, Beyer M, Zwierz P//Acad Agr Sci GDR, Forsch Zentrum Tierprod Dummerstorf Rostock, DDR-2500 Rostock, Ger Dem Rep

ARCH TIERERNAHR 1989, 39 (11) 875

Studies of the energetic utilization in pigs of variously treated potato starch and potatoes (German, English Abstract)

Juliano BO, Perez CM//POB 933, Manila 1099, Philippines

STARCH 1990, 42 (2) 49

Crystallinity of raw rice starch granules as indexed by corrosion with hydrochloric acid and amylase

Kanta RC, Neelgund YF**//Gulbarga Univ, Dept Studies Microbiol, Gulbarga 585106, India

STARCH 1990, 42 (2) 44

Production of ethanol from maize by *Zymomonas mobilis*

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

STARCH 1990, 42 (2) 60

Carboxymethylation of maize starch

Kim H-O, Williams PC**//Canadian Grain Commiss, Grain Res Lab, 1404-303 Main St, Winnipeg, Manitoba, Canada R3C 3G8

J AGR FOOD CHEM 1990, 38 (3) 682

Determination of starch and energy in feed grains by near-infrared reflectance spectroscopy

Mackey KL, Ofoli RY//USDA ARS, Eastern Reg Res Ctr, Philadelphia, Pa 19118, USA

J FOOD SCI 1990, 55 (2) 417

Rheological modeling of corn starch doughs at low to intermediate moisture

Matsui T, Kitagawa H//Kagawa Univ, Fac Agr, Dept Agroind Sci, Miki, Kagawa 76107, Japan

J JPN SOC FOOD SCI TECHNOL 1990, 37 (3) 224

Maturity evaluation of kiwifruit determined on the basis of starch and pectin contents and related enzyme activities (Japanese, English Ab-

stract)

Pasteka M, Tihlarik K/Slovak Acad Sci, Ctr Chem Res, Inst Chem, CS-84238 Bratislava, Czechoslovakia

ACTA POLYM 1990, 41 (1) 69

Treatment of starch in nonaqueous solution of sodium hydroxide

Rutschmann MA, Solms J/Swiss Fed Inst Technol, Dept Food Sci, CH-8092 Zurich, Switzerland

LEBENS-M-WISS TECHNOL 1990, 23 (1) 70

Formation of inclusion complexes of starch with different organic compounds. 2. Study of ligand binding model systems with decanal, 1-naphthol, monostearate and monopalmitate

Rutschmann MA, Solms J/Swiss Fed Inst Technol, Dept Food Sci, CH-8092 Zurich, Switzerland

LEBENS-M-WISS TECHNOL 1990, 23 (1) 80

Formation of inclusion complexes of starch with different organic compounds. 3. Study of ligand binding in binary model systems with (-) limonene

Rutschmann MA, Solms J/Swiss Fed Inst Technol, Dept Food Sci, CH-8092 Zurich, Switzerland

LEBENS-M-WISS TECHNOL 1990, 23 (1) 84

Formation of inclusion complexes of starch with different organic compounds. 4. Ligand binding and variability in helical conformations of V amylose complexes

Rutschmann MA, Solms J/Swiss Fed Inst Technol, Dept Food Sci, CH-8092 Zurich, Switzerland

LEBENS-M-WISS TECHNOL 1990, 23 (1) 88

Formation of inclusion complexes of starch with different organic compounds. 5. Characterization of complexes with amperometric iodine titration, as compared with direct quantitative analysis

Schanen PA, Pearce LE, Davis EA, Gordon J/Univ Minnesota, Dept Food Sci & Nutr, 1334 Eckles Ave, St Paul, Mn 55108, USA

CEREAL CHEM 1990, 67 (2) 124

Hydration of whey protein-wheat starch systems as measured by electron spin resonance

Schroeder WJ/USDA ARS, Hort Res Lab, 2120 Camden Rd, Orlando, Fl 32803, USA

FLA ENTOMOL 1990, 73 (1) 129

Water-absorbent starch polymer - Survival aid to nematodes for control of *Diaprepes abbreviatus* (Coleoptera, Curculionidae) in citrus

Singhal RS, Kulkarni PR/Univ Bombay, Univ Dept Chem Technol, Div Food & Fermentat, Bombay 400019, India

STARCH 1990, 42 (2) 52

Utilisation of *Amaranthus paniculatus* (rajgeera) starch in salad dressing

Vihervaara T, Bruun HH, Backman R, Paakanen M/Chem Ind, Taisio Grp, SF-21200 Raisio, Finland

STARCH 1990, 42 (2) 64

The effect of different methods of cationisation on the starch granule and its gelatinisation product

Visavarungroj N, Herman J, Remon JP/State Univ Ghent, Pharmaceut Technol Lab, Harelbekestr 72, B-9000 Ghent, Belgium

INT J PHARM 1990, 59 (1) 73

Crosslinked starch as binding agent. 1. Conventional wet granulation

Wu Y, Seib PA/Kansas State Univ Agr & Appl Sci, Dept Grain Sci & Ind, Manhattan, Ks 66506, USA

CEREAL CHEM 1990, 67 (2) 202

Acetylated and hydroxypropylated distarch phosphates from waxy barley: Paste properties and freeze-thaw stability

Yakubu PI, Baianu IC, Orr PH/Univ Illinois, Coll Agr, Dept Food Sci, Agr & Food Chem Nucl Magnet Resonance Facil, Urbana, Il 61801, USA

J FOOD SCI 1990, 55 (2) 458

Unique hydration behavior of potato starch as determined by deuterium nuclear magnetic resonance

10 Starch-degrading Enzymes

Agravante JU, Matsui T, Kitagawa H/Kagawa Univ, Fac Agr, Dept Agroind Sci, Miki, Kagawa 76107, Japan

J JPN SOC FOOD SCI TECHNOL 1990, 37 (3) 235

Effect of ethanol on ripening and amylase activity of banana (Japanese, English Abstract)

Ann YG, Iizuka M, Tamamoto T, Minamiura

N//Osaka City Univ, Fac Sci, 3-3-138 Sugimoto, Osaka 558, Japan

AGR BIOL CHEM TOKYO 1990, 54 (3) 769
Preparation and some properties of active monomer of sweet potato beta-amylase

Bornet FRJ, Bizas Y, Varannes SBD, Pouliquen B, Laval JD, Galmiche JP//INRA, Technol Appl & Nutr Lab, BP 527, F-44026 Nantes 03, France
BRIT J NUTR 1990, 63 (2) 207

Alpha-amylase (EC 3.2.1.1) susceptibility rather than viscosity or gastric emptying rate controls plasma responses to starch in healthy humans

Chakrabarti AC, Storey KB*//Carleton Univ, Inst Biochem, Ottawa, Ontario, Canada K1S 5B6
APPL MICROBIOL BIOTECHNOL 1990, 33 (1) 48

Co-immobilization of amyloglucosidase and pululanase for enhanced starch hydrolysis

Faulks RM, Bailey AL//AFRC, Inst Food Res, Norwich Lab, Colney Lane, Norwich NR4 7UA, Norfolk, England

FOOD CHEM 1990, 36 (3) 191
Digestion of cooked starches from different food sources by porcine alpha-amylase

Inglett GE//USDA ARS, No Reg Res Ctr, 1815 N Univ St, Peoria, IL 61604, USA

J FOOD SCI 1990, 55 (2) 560

Amylo-oligosaccharide formation from B-stearothermophilus alpha-amylase action on starches

Lecommandeur D, Sirou Y, Lauriere C*//CNRS, Physiol Organes Vegetaux, 4 Route Gardes, F-92190 Meudon, France

ARCH BIOCHEM BIOPHYS 1990, 278 (1) 245
Glycan research on barley, maize, oats, and sorghum grain alpha-amylases: Comparison with rice alpha-amylase

Miyagi M, Oku H, Chinen I//Univ Ryukus, Dept Agr Chem, Nishihara, Okinawa 900, Japan

AGR BIOL CHEM TOKYO 1990, 54 (3) 849
Purification and action pattern on soluble starch of alpha-amylase from sugar cane leaves

Nakada T, Kubota M, Sakai S, Tsujisaka Y//Hayashibara Biochem Labs Inc, 7-7 Amase minami, Okayama 700, Japan

AGR BIOL CHEM TOKYO 1990, 54 (3) 737
Purification and characterization two forms of maltotetraose-forming amylase from Pseudo-

monas stutzeri

Ogawa K, Uejima O, Nakakuki T, Usui T, Kainuma K//Iwaki Meisei Univ, Coll Sci & Engr, Dept Fundamental Sci, Iwaki, Fukushima 970, Japan

AGR BIOL CHEM TOKYO 1990, 54 (3) 581
Enzymatic synthesis of p-nitrophenyl alpha-maltoheptoside by transglycosylation of maltohexaose-forming amylase

Saha BC, Lamed R, Lee C-Y, Mathupala SP, Zeikus JG*//Michigan Biotechnol Inst, Lansing, MI 48909, USA

APPL ENVIRON MICROBIOL 1990, 56 (4) 881

Characterization of an endo-acting amylopullulanase from Thermoanaerobacter strain B6A

Ohnishi M, Nakamura Y, Murata-Nakai M, Hiromi K//Kyoto Univ, Coll Agr, Dept Food Sci & Technol, Enzyme Chem Lab, Sakyo Ward, Kyoto 606, Japan

CARBOHYD RES 1990, 197 (MAR) 237

A pH-induced change in state around active-site tryptophan residues of Rhizopus niveus glucoamylase, detected by stopped-flow studies of chemical modification with N-bromosuccinimide