



Bibliography on carbohydrate polymers

1 BOOKS, REVIEWS & SYMPOSIA

Barker SA//Univ Birmingham, Carbohydrate Chem, Birmingham B15 2TT, England

ENDEAVOUR 1991, 15 (4) 155

Carbohydrates and the chemical industry - Achievements and prospects

Ovodov YS, Gorshkova RP, Tomshich SV, Komandrova NA, Zubkov VA, Kalmykova EN, Isakov VV//Acad Sci, Far E Branch, Pacific Inst Bioorgan Chem, Vladivostok 690022, Russia

J CARBOHYD CHEM 1992, 11 (1) 21

Chemical and immunochemical studies on lipopolysaccharides of some *Yersinia* species - A review of some recent investigations

Bruyn GAW, Van Furth R**//Univ Hosp Leiden, Dept Infect Dis, POB 9600, 2300 RC Leiden, The Netherlands

EUR J CLIN MICROBIOL INFECT D 1991, 10 (11) 897

Pneumococcal polysaccharide vaccines - Indications, efficacy and recommendations (Review)

Nikupaavola ML (Ed)

Bioconversion of Plant Raw Materials - Biotechnology Advancement VTT Symposium, Vol 122

Finnish-Soviet Seminar, Mustio, Finland, March 1990

Tech Res Ctr Finland (Espoo), 1991, 243pp, Price not available, Soft-bound, ISBN: 951-38-3952-4

STARCH 1992, 44 (1) 1

43rd Starch Convention 1992 at Detmold

Tian SJ, Rickard JE, Blanshard JMV**//Univ Nottingham, Sch Agr, Dept Appl Biochem & Food Sci, Loughborough LE12 5RD, England

J SCI FOOD AGR 1991, 57 (3) 459

Physicochemical properties of sweet potato starch (Review)

2 CELLULOSE

Singh J//Banaras Hindu Univ, Inst Technol, Dept Pharmaceut, Varanasi 221005, Uttar Pradesh, India

DRUG DEVELOP IND PHARM 1992, 18 (3) 375

Effect of sodium carboxymethylcelluloses on the disintegration, dissolution and bioavailability of lorazepam from tablets

Baeseler M, Boeden HF*, Koelsch R, Lasch J//Cent Inst Molec Biol, Robert Rossle Str 10, O-1115 Berlin, FRG

J CHROMATOGR 1992, 589 (1-2) 93

Cellulose beads - A weak leaking affinity support

Bartoshevich SF, Nemchinov IA, Molotkov VA, Klenin SI//Acad Sci, Inst Macromolec Cpds, Leningrad, Russia

VYSOKOMOL SOEDIN SER A SSSR 1991, 33 (8) 1639

Features of degradation of water-soluble derivatives of cellulose in the course of oxidation with trivalent cobalt salts (Russian, English Abstract)

Belov SU, Mjasoedova VV//Acad Sci, Inst Chem Nonaqueous Solut, Moscow V-71, Russia

IZV AKAD NAUK SSSR FIZ 1991, 55 (9) 1789

Particularity of phase equilibrium and conformation state of cellulose triacetate in mixed solvents under flow

Dolz M, Roldan C, Herraez JV, Belda R, Sobrino P//Univ Valencia, Fac Pharm, Dept Thermodynam, Valencia, Spain

J DISPER SCI TECH 1992, 13 (1) 95

Rheological behaviour of microcrystalline cellulose hydrogels

Ferreira LFV, Freixo MR, Garcia AR, Wilkinson F//Univ Tecn Lisbon, Inst Super Tecn, Ctr Quim Fis Molec, Complexo 1, Ave Rovisco Pais, P-1096 Lisbon, Portugal

J CHEM SOC FARADAY TRANS 1992, 88 (1) 15

Photochemistry on surfaces - Fluorescence emission quantum yield evaluation of dyes adsorbed on microcrystalline cellulose

Hartshorne AW, Wild FM, Babb NL//Cent Res & Support Estab, Forens Sci Serv, Reading RG7 4PN, England

J FORENSIC SCI SOC 1991, 31 (4) 457

The discrimination of cellulose di-acetate and tri-acetate fibres by solvent tests and melting point determination

Hirata T, Nishimoto T//Forestry & Forest Prod Res Inst, Box 16, Ibaraki 305, Japan

THERMOCHIM ACTA 1991, 193 (DEC 14) 99

DSC, DTA, and TG of cellulose untreated and treated with flame-retardants

Ioyelovich MY//Acad Sci, Inst Wood Chem, Riga 226006, Latvia

VYSOKOMOL SOEDIN SER A SSSR 1991, 33 (8) 1786

Supramolecular structure of native and isolated cellulose (Russian, English Abstract)

Kai A, Kobayashi T//Tokyo Metropolitan Univ, Fac Technol, Dept Ind Chem, Tokyo 19203, Japan

POLYM J 1992, 24 (1) 131

Influence of poly(vinyl alcohol) on the structure of bacterial cellulose spherulite

Kamide K, Okajima K, Kowsaka K//Asahi Chem Ind Co Ltd, Fun-

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 & 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.

damental Res Lab Fibers & Fiber Forming Polymers, 11-7 Hacchowawate, Takatsuki, Osaka 569, Japan
POLYM J 1992, 24 (1) 71

Dissolution of natural cellulose into aqueous alkali solution - Role of super-molecular structure of cellulose

Kamide K, Saito M, Akedo T//Asahi Chem Ind Co Ltd, Fundamental Res Lab Fiber & Fiber Forming Polymers, Osaka 569, Japan
POLYM INT 1992, 27 (1) 35

Surface activity of aqueous solutions of cellulose acetate with low degree of substitution

Kuutti L, Laaksonen L, Teeri TT//Tech Res Ctr Finland, Biotech Lab, POB 202, SF-02151 Espoo, Finland

J CHIM PHYS PHYS-CHIM BIOL 1991, 88 (11-12) 2663

Interaction studies of the tail domain of cellobiohydrolase-I and crystalline cellulose using molecular modelling

Landin M, Vazquez MJ, Souto C, Concheiro A, Gomez-Amoza JL, Martinez-Pacheco R//Fac Farm Santiago de Compostela, Dept Farmacol Farm & Tecnol Farmaceut, Santiago, Spain

DRUG DEVELOP IND PHARM 1992, 18 (3) 355

Comparison of two varieties of microcrystalline cellulose as filler-binders. 1. Prednisone tablets

Lukasov SV, Petropavlovskii GA, Larina EI, Grigorev AI, Sidorovich AV, Savenkov AD, Kalinina NA, Kallistov OV//Acad Sci, Inst Macromolec Cpds, Moscow V-71, Russia

J APPL CHEM-ENGL TR 1991, 64 (2) PT 2, 350

Thermal properties and structural organization of composite films based on synthetic lattices and cellulose ethers

Lurye BA, Namestnikov VV, Makhotkin AF, Panarin YI, Shebeko SM//DI Mendeleev Chem Technol Inst, Moscow, Russia

VYSOKOMOL SOEDIN SER A SSSR 1991, 33 (8) 1683

Denitration of cellulose nitrate under the action of aqueous nitric acid (Russian, English Abstract)

Masson JF, Manley RS*//McGill Univ, Pulp & Paper Res Ctr, 3420 Univ St, Montreal, Quebec, Canada H3A 2A7

MACROMOLECULES 1992, 25 (2) 589

Solid-state NMR of some cellulose synthetic polymer blends

Meyerstork LS, Hocker H*, Berndt H//Rhein Westfal TH Aachen, Lehrstuhl Textilchem & Makromolek Chem, Worringergweg 1, W-5100 Aachen, FRG

J APPL POLYM SCI 1992, 44 (6) 1043

Syntheses and reactions of urethanes of cellobiose and cellulose-containing uretdione groups

Mitchell GR, Guo W, Davis FJ//Univ Reading, Ctr Polymer Sci, Reading RG6 2AF, England

POLYMER 1992, 33 (1) 68

Liquid crystal elastomers based upon cellulose derivatives

Myasoedova VV, Pokrovskii SA, Zavyalov NA, Krestov GA//Acad Sci, Inst Anhydrous Solut Chem, Ivanovo, Russia

USP KHIM SSSR 1991, 60 (9) 1875

Thermochemistry of solution and principles of solvation of cellulose, polysaccharides and their derivatives (Russian)

Natchimuthu N, Rajalingam P, Radhakrishnan G*//Cent Leather Res Inst, Div Polymer, Madras 600020, Tamil Nadu, India

J APPL POLYM SCI 1992, 44 (5) 981

Cellulose nitrate-poly(vinyl chloride-CO-vinyl acetate)-polyurethane ternary IPNs - FT-IR and morphological studies

Okor RS, Iwuanyanwu U, Okhamafe AO//Univ Benin, Dept Pharmaceut, Benin City, Nigeria

J APPL POLYM SCI 1992, 44 (5) 749

Swellability of acrylate methacrylate-cellulose matrix systems and the effect on solute diffusion rates

Sato KJ, Goto SG, Yonemura ST, Sekine KJ, Okuma EK, Takagi YS, Honnami KY, Saiki T*//New Energy & Ind Technol Dev Org, Alcohol Prod Head Off, Ctr Res & Dev, Inagehigashi 4-5-1, Chiba 281, Japan

APPL ENVIRON MICROBIOL 1992, 58 (2) 734

Effect of yeast extract and vitamin-B₁₂ on ethanol production from cellulose by *Clostridium thermocellum* I-1-B

Shukla SR, Rao GVG, Athalye AR//Univ Bombay, Dept Chem Technol, Bombay 400019, India

J APPL POLYM SCI 1992, 44 (4) 577

Mechanical and thermal behavior of cotton cellulose grafted with hydroxyethyl methacrylate using photoinitiation

Shukla SR, Sakhardande VD//Univ Bombay, Dept Chem Technol, Bombay 400019, India

J APPL POLYM SCI 1992, 44 (5) 903

Column studies on metal ion removal by dyed cellulosic materials

Simanovich IE, Petropavlovskii GA, Larina EI, Sazanov YN, Stepanov NG//Acad Sci, Inst Macromolec Cpds, Moscow V-71, Russia

J APPL CHEM-ENGL TR 1991, 64 (3) PT 2, 560

Thermal conversions of cellulose ethers

Wolf RM, Grancotte E, Glasser L, Simon I, Scheraga HA//Ciba Geigy Ag, Cent Res Labs, CH-4002 Basel, Switzerland

MACROMOLECULES 1992, 25 (2) 709

Computation of low-energy crystalline arrangements of cellulose triacetate

Yakimanskii AV, Bochek AM, Zubkov VA, Petropavlovskii GA//Address not available

J APPL CHEM-ENGL TR 1991, 64 (3) PT 2, 556

Quantum-chemical analysis of electronic structure of solvents for cellulose (amine oxides)

Yamashiki T, Matsui T, Kowsaka K, Saitoh M, Okajima K, Kamide K*//Asahi Chem Ind Co Ltd, Fundamental Res Lab Fibres & Fiber Forming Polymers, 11-7 Hacchowawate, Takatsuki, Osaka 569, Japan

J APPL POLYM SCI 1992, 44 (4) 691

New class of cellulose fiber spun from the novel solution of cellulose by wet spinning method

Yang CQ, Freeman JM//Univ Georgia, Dept Text Merchandising & Interiors, Athens, Ga 30602, USA

APPL SPECTROSC 1991, 45 (10) 1695

Photo-oxidation of cotton cellulose studied by FT-IR photoacoustic spectroscopy

Yang KS, Theil MH, Chen YS, Cuculo JA//Chonnam Natl Univ, Dept Text Engn, Kwangju 500757, South Korea

POLYMER 1992, 33 (1) 170

Formation and characterization of the fibres and films from meso-phase solutions of cellulose in ammonia ammonium thiocyanate solvent

Shigemasa Y, Sashiwa H, Tanioka S, Saimoto H//Tottori Univ, Fac Engn, Dept Mat Sci, Koyama cho, Tottori 680, Japan

POLYM J 1992, 24 (1) 127

Preparation of copolymers containing dimethylcellulose block

Shigematsu M, Morita M, Sakata I/**Kyushu Univ, Fac Agr, Dept Forest Prod, Hakozaki 6-10-1, Higashi ku, Fukuoka 812, Japan
MAKROMOL CHEM-MACRO CHEM PHYS 1992, 193 (1) 133

Flory polymer-polymer interaction parameter between hemicellulose and lignin from hardwood

Tapia C, Sapagahagar J//Univ Chile, Fac Ciencias Quim & Farmaceut, Operac Unitarias Lab, Casilla 233, Santiago 1, Chile
BOL SOC CHIL QUIM 1991, 36 (4) 243

Study of a process for the preparation of hydroxyethylcellulose from different types of cellulose and mechanic pulp of national production (Spanish, English Abstract)

Toledo-Velasquez D, Gaud HT, Connors KA/**Univ Wisconsin, Sch Pharm, Madison, WI 53706, USA
J PHARM SCI 1992, 81 (2) 145

Misoprostol dehydration kinetics in aqueous solution in the presence of hydroxypropyl methylcellulose

Adeloye A//Univ Ilorin, Anim Prod, PMB 1515, Ilorin, Nigeria
BIORESOURCE TECHNOL 1992, 40 (2) 167

Efficiencies of conversion of some lignocellulosic waste materials by goats

Chowdhury NA, Moniruzzaman M, Nahar N, Choudhury N/**Atom Energy Res Estab, Inst Food & Radiat Biol, GPO Box 3787, Dhaka 1000, Bangladesh
WORLD J MICROBIOL BIOTECHNOL 1991, 7 (6) 603

Production of cellulases and saccharification of lignocellulosics by a *Micromonospora* sp

Iyo AH, Antai SP//Univ Guelph, Dept Microbiol, Guelph, Ontario, Canada N1G 2W1
WORLD J MICROBIOL BIOTECHNOL 1991, 7 (6) 624

Protein enrichment of lignocellulose resulting from the growth of 2 *Streptomyces* strains

Jin LH, Preston AF//CSI Laporte, Div Timber, 1 Woodlawn Green, Charlotte, NC 28217, USA
HOLZFORSCHUNG 1991, 45 (6) 455

The interaction of wood preservatives with lignocellulosic substrates. 1. Quaternary ammonium compounds (German, English Abstract)

Munoz F, Joy M, Faci R, Alibes X//DGA, Serv Invest Agr, Aptdo 727, Zaragoza, Spain
ANN ZOOTECH 1991, 40 (4) 215

Treatment of ligno-cellulosic residues with urea - Influence of dosage, moisture, temperature and addition of ureases

Roffael VE, Sattler H//Wilhelm Klauwitz Inst, Fraunhofer Arbeitsgrp Holzforsch, Bienroder Weg 54E, W-3300 Braunschweig, FRG
HOLZFORSCHUNG 1991, 45 (6) 445

Studies on the interaction between lignocellulosics (straw pulps) and cement (German, English Abstract)

3 CELLULOSE-DEGRADING ENZYMES

Bader J, Bellgardt KH, Singh A, Kumar PKR, Schugerl K/**Univ Hannover, Inst Tech Chem, Callinstr 3, W-3000 Hannover 1, FRG
BIOPROCESS ENG 1992, 7 (5) 235

Modelling and simulation of cellulase adsorption and recycling during enzymatic hydrolysis of cellulosic materials

Bastawde KB//Natl Chem Lab, Div Biochem Sci, Poona 411008, Maharashtra, India
WORLD J MICROBIOL BIOTECHNOL 1992, 8 (1) 45

Cellulolytic enzymes of a thermotolerant *Aspergillus terreus* strain and their action on cellulosic substrates

Din N, Gilkes NR, Tekant B, Miler RC, Warren AJ, Kilburn DG//Univ British Columbia, Dept Microbiol, 300-6174 Univ Blvd, Vancouver, BC, Canada V6T 1Z3

BIO-TECHNOLOGY 1991, 9 (11) 1096

Non-hydrolytic disruption of cellulose fibres by the binding domain of a bacterial cellulase

Ooshima H, Kurakake M, Kato J, Harano Y//Osaka City Univ, Dept Bioappl Chem, Sugimoto 3-3-138, Sumiyoshi ku, Osaka 558, Japan
APPL BIOCHEM BIOTECH 1991, 31 (3) 253

Enzymatic activity of cellulase adsorbed on cellulose and its change during hydrolysis

Taniguchi M, Hoshino K, Watanabe K, Sugai K, Fujii M//Niigata Univ, Fac Engn, Dept Mat & Chem Engn, Ikarashi 2, Niigata 95021, Japan

BIOTECHNOL BIOENG 1992, 39 (3) 287

Production of soluble sugar from cellulosic materials by repeated use of a reversibly soluble-autoprecipitating cellulase

4 CYCLODEXTRINS

Arima H, Kondo T, Irie T, Hirayama F, Uekama K*, Miyaji T, Inoue Y/**Kumamoto Univ, Fac Pharmaceut Sci, 5-1 OE Honmachi, Kumamoto 862, Japan

YAKUGAKU ZASSHI 1992, 112 (1) 65

Use of water-soluble beta-cyclodextrin derivatives as carriers of anti-inflammatory drug biphenylacetic acid in rectal delivery

Ashton PR, Ellwood P, Staton I, Stoddart JF/**Univ Birmingham, Sch Chem, Birmingham B15 2TT, England
J ORG CHEM 1991, 56 (2) 7274

Per-3,6-anhydro-alpha-cyclodextrin and per-3,6-anhydro-beta-cyclodextrin

Bovetto LJ, Backer DP, Villette JR, Sicard PJ, Bouquelet SJL/**Univ Lille 1, Chim Biol Lab, F-59655 Villeneuve Dascq, France
BIOTECHNOL APPL BIOCHEM 1992, 15 (1) 48

Cyclomaltodextrin glucanotransferase from *Bacillus circulans* E-192. 1. Purification and characterization of the enzyme

Bovetto LJ, Villette JR, Fontaine IF, Sicard PJ, Bouquelet SJL/**Univ Lille 1, Chim Biol Lab, F-59655 Villeneuve Dascq, France
BIOTECHNOL APPL BIOCHEM 1992, 15 (1) 59

Cyclomaltodextrin glucanotransferase from *Bacillus circulans* E-192. 2. Action patterns

Brewster ME, Loftsson T, Estes KS, Lin JL, Fridriksdottir H, Bodor N//Univ Florida, Ctr Drug Discovery, Gainesville, FL 32610, USA
INT J PHARM 1992, 79 (2-3) 289

Effect of various cyclodextrins of solution stability and dissolution rate of doxorubicin hydrochloride

Hostettler JS, Hanson LH, Stevens DA//Santa Clara Valley Med Ctr, Dept Med, Div Infect Dis, 751 S Bascom, San Jose, CA 95128, USA
ANTIMICROB AGENTS CHEMOTHER 1992, 36 (2) 477

Effect of cyclodextrin on the pharmacology of antifungal oral azoles

Krohn BM, Lindsay JA/**Univ Florida, Dept Food Sci & Human Nutr, Gainesville, FL 32611, USA
ENZYME MICROBIAL TECHNOL 1992, 14 (3) 194

Reclassification of a thermostable alpha-glucosidase from *Bacillus subtilis* H-17 as a cyclomaltodextrinase

- Kuhn R, Stoecklin F, Erni F//Sandoz Pharma Ltd, Analyt Res & Dev, CH-4002 Basel, Switzerland
CHROMATOGRAPHIA 1992, 33 (1-2) 32
Chiral separations by host-guest complexation with cyclodextrin and crown ether in capillary zone electrophoresis
- Ling CC, Coleman AW*, Miocque M//Univ Paris 11, Chim Organ Lab, CNRS, SDI 6233, F-92290 Chateaufort Malabry, France
CARBOHYD RES 1992, 223 (JAN) 287
Multiple tritylation - A convenient route to polysubstituted derivatives of cyclomaltohexaose
- Litwiler KS, Bright FV**//SUNY Buffalo, Dept Chem, Acheson Hall, Buffalo, NY 14214, USA
APPL SPECTROSC 1992, 46 (1) 169
Investigation of beta-cyclodextrin immobilized at silica surfaces by fluorescence spectroscopy
- Morozumi T, Uetsuka H, Komiyama M*, Pitha J//Univ Tokyo, Fac Engn, Dept Ind Chem, Tokyo 113, Japan
J MOL CATAL 1991, 70 (3) 399
Selective synthesis using cyclodextrins as catalysts. 6. Cyclodextrin modification for para-selective hydroxymethylation and hydroxyethylation of phenol
- Muller BW, Albers E//Univ Kiel, Dept Pharmaceut, Gutenbergstr 76-78, W-2300 Kiel 1, FRG
INT J PHARM 1992, 79 (2-3) 273
Complexation of dihydropyridine derivatives with cyclodextrins and 2-hydroxypropyl-beta-cyclodextrin in solution
- Oakes JV, Shewmaker CK*, Stalker DM//Calgene Inc, 1920 5th St, Davis, Ca 95616, USA
BIO-TECHNOLOGY 1991, 9 (10) 982
Production of cyclodextrins, a novel carbohydrate, in the tubers of transgenic potato plants
- Otero-Epinar FJ, Angui-Anoigea S, Garcia-Gonzalez N, Vila-Jato JL, Blanco-Mendez J//Univ Santiago de Compostela, Fac Farm, Dept Farmacol Farm & Tecnol Pharmaceut, Farm Galen Lab, Santiago, Spain
INT J PHARM 1992, 79 (2-3) 149
Interaction of naproxen with beta-cyclodextrin in solution and in the solid state
- Patonay G, Warner IM**//Emory Univ, Dept Chem, Atlanta, Ga 30322, USA
J INCLUSION PHENOM MOL RECOGN 1991, 11 (4) 313
Investigation of induced circular dichroism of benzo(a)pyrene cyclodextrin complexes
- Rao CT, Pitha J, Lindberg B, Lindberg J//NIA, GRC, Baltimore, Md 21224, USA
CARBOHYD RES 1992, 223 (JAN) 99
Distribution of substituents in O-(2-hydroxypropyl) derivatives of cyclomalto-oligosaccharides (cyclodextrins) - Influence of increasing substitution, of the base used in the preparation, and of macrocyclic size
- Schmalzing D, Nicholson GJ, Jung M, Schurig V**//Univ Tubingen, Inst Organ Chem, Morgenstelle 18, W-7400 Tubingen 1, FRG
J MICROCOLUMN SEP 1992, 4 (1) 23
Enantiomer separation by capillary SFC and GC on immobilized permethyl-beta-cyclodextrin - A systematic comparison
- Shity H, Bar R**//Hebrew Univ Jerusalem, Dept Appl Microbiol, POB 1172, IL-91010 Jerusalem, Israel
BIOTECHNOL BIOENG 1992, 39 (4) 462
- New approach for selective separation of dilute products from simulated clostridial fermentation broths using cyclodextrins
- Suzuki M, Kajtar M, Szejtli J, Vikmon M, Fenyvesi E//Osaka Univ, Fac Pharmaceut Sci, 1-6, Suita, Osaka 565, Japan
CARBOHYD RES 1992, 223 (JAN) 71
Inclusion compounds of cyclodextrins and azo dyes. 10. Induced circular-dichroism spectra of complexes of cyclomalto-oligosaccharides and azo dyes containing naphthalene nuclei
- Taguchi K//Univ Rio Grande Japan, Fac Arts & Sci, 13-15 1-chome Chidori, Ohta ku, Tokyo 146, Japan
J CHEM SOC-PERKIN TRANS II 1992, (1) 17
Transient binding mode of phenolphthalein beta-cyclodextrin complex - The lactone dianion as an induced transition-state analogue trapped in beta-cyclodextrin
- Tanimoto T, Tanaka M, Yuno T, Koizumi K//Mukogawa Womens Univ, Fac Pharmaceut Sci, 11-68 Koshien kyuban cho, Nishinomiya, Hyogo 663, Japan
CARBOHYD RES 1992, 223 (JAN) 1
Preparation of di-O-triphenylmethyl-(trityl)-cyclomaltohexaoses and di-O-triphenylmethyl-(trityl)-cyclomaltoheptaoses and characterization of 3 positional isomers of each by the hex-5-ene degradation
- Tasic LM, Jovanovic MD, Djuric ZR//Univ Belgrade, Fac Pharm, Belgrade, Yugoslavia
J PHARM PHARMACOL 1992, 44 (1) 52
The influence of beta-cyclodextrin on the solubility and dissolution rate of paracetamol solid dispersions
- Vetter D, Thorn W, Brunner H, Konig WA//Univ Hamburg, Inst Biochem & Lebensmittelchem, Martin Luther King Pl 6, W-2000 Hamburg 13, FRG
CARBOHYD RES 1992, 223 (JAN) 61
Directed enzymatic synthesis of linear and branched glucooligosaccharides, using cyclodextrin-glycosyltransferase
- Villette JR, Sicard PJ, Bouquelet SJL**//Univ Lille 1, Chim Biol Lab, F-59655 Villeneuve Dascq, France
BIOTECHNOL APPL BIOCHEM 1992, 15 (1) 69
Cyclomalto-dextrin glucanotransferase from *Bacillus circulans* E-192. 3. Chemical modification by diethylpyrocarbonate - Evidence for an induced fit at the active site resulting from the binding of an acceptor
- Wertz DA, Shi CX, Venanzi CA**//New Jersey Inst Technol, Dept Chem Engr Chem & Environm Sci, Univ Hts, Newark, NJ 07102, USA
J COMPUT CHEM 1992, 13 (1) 41
A comparison of distance geometry and molecular dynamics simulation techniques for conformational analysis of beta-cyclodextrin

5 LIGNIN

- Fengal D//Univ Munich, Inst Holzforsch, Winzerstr 45, W-8000 Munich 40, FRG
HOLZFORSCHUNG 1991, 45 (6) 395
Chemical studies on the wood of *Quebracho Colorado* (*Schinopsis balansae* Engl). 2. Investigation of the lignin
- Guo ZX, Gandini A*, Pla F**//Inst Natl Polytech Grenoble, Ecole Francaise Papeterie, Mat Polymer Lab, BP 65, F-38402 St Martin d'Heres, France
POLYM INT 1992, 27 (1) 17
Polyesters from lignin. 1. The reaction of Kraft lignin with dicarboxylic acid chlorides

Hoffren AM, Saloheimo M, Thomas P, Overington J, Johnson MS, Blundell TL//Tech Res Ctr Finland, Biotech Lab, POB 202, SF-02151 Espoo, Finland

J CHIM PHYS-CHIM BIOL 1991, 88 (11-12) 2659

Modelling the lignin peroxidase LIII of *Phlebia radiata* using a knowledge-based approach

Jin L, Nicholas DD, Schultz TP//CSI Laporte, Div Timber, 1 Woodlawn Green, Charlotte, NC 28217, USA

HOLZFORSCHUNG 1991, 45 (6) 467

Wood laminates glued by enzymatic oxidation of brown-rotted lignin

Lalvani SB, Rajagopal P//South Illinois Univ, Dept Mech Engn & Energy Proc, Carbondale, IL 62901, USA

J ELECTROCHEM SOC 1992, 139 (1) L1

Lignin-augmented water electrolysis (Letter)

Meier D, Ante R, Faix O//Bundesforsch Anstalt Forst & Holzwirtschaft, Inst Holzchem & Chem Technol Holzes, Leuschnerstr 91, W-2050 Hamburg 80, FRG

BIORESOURCE TECHNOLOGY 1992, 40 (2) 171

Catalytic hydrolysis of lignin - Influence of reaction conditions on the formation and composition of liquid products

Meister JJ, Li CT//Univ Detroit, Dept Chem, 4001 W McNichols Rd, Detroit, MI 48221, USA

MACROMOLECULES 1992, 25 (2) 611

Synthesis and properties of several cationic graft copolymers of lignin

Saloheimo M, Nikupaavola ML//Valt Teknillinen Tutkimuskeskus, Biotech Lab, POB 202, SF-02151 Espoo, Finland

BIO-TECHNOLOGY 1991, 9 (10) 987

Heterologous production of a ligninolytic enzyme - Expression of the *Phlebia radiata* laccase gene in *Trichoderma reesei*

6 POLYSACCHARIDES - NAMED

Martinez MC, Depinto GL*, Rivas C//Univ Zulia, Fac Humanidades & Educ, Invest Quim Lab, Apartado 526, Maracaibo, Venezuela

PHYTOCHEMISTRY 1992, 31 (2) 535

Composition of *Acacia macracantha* gum exudates

Nagura M, Murai J, Ohkoshi Y//Shinshu Univ, Fac Text Sci & Technol, 3-15-1 Tokida, Ueda, Nagano 386, Japan

KOBUNSHI RONBUNSHU 1991, 48 (12) 775

Structure of the hydrogels obtained by blending poly(vinyl alcohol) with alginic acid and repeated freezing and thawing (Japanese, English Abstract)

Hoffmann RA, Geijtenbeek T, Kamerling JP, Vliegthart JFG*//*Univ Utrecht, Dept Bioorgan Chem, Ctr Bijvoet, POB 80-075, 3508 TB Utrecht, The Netherlands

CARBOHYD RES 1992, 223 (JAN) 19

¹H-NMR study of enzymically generated wheat-endosperm arabinoxylan oligosaccharides - Structures of hepta-saccharides to tetradeca-saccharides containing 2 or 3 branched xylose residues

Kailasapathy K, Hourigan JA, Nguyen MH//Univ Western Sydney, Dept Food Sci & Technol, Richmond, NSW 2753, Australia

FOOD AUST 1992, 44 (1) 30

Effect of casein-carrageenan interactions on yield and sensory qualities of cottage cheese

Matsuhiro B, Urzua CC//Univ Santiago Chile, Fac Ciencia, Dept Quim, Casilla 5659, Santiago 2, Chile

PHYTOCHEMISTRY 1992, 31 (2) 531

Heterogeneity of carrageenans from *Chondrus crispus*

Ueda K, Ochiai H, Itaya T, Yamaoka K//Hiroshima Univ, Fac Sci, Dept Chem, Hiroshima 724, Japan

POLYMER 1992, 33 (2) 429

Electric field orientation of sonicated kappa-carrageenan in aqueous solution - Ionic polarization of loosely bound counterions

Kunz C, Ludwig A, Bertheau Y, Boller T*//*Univ Basel, Inst Bot, Hebelstr 1, CH-4056 Basel, Switzerland

FEMS MICROBIOL LETT 1992, 90 (2) 105

Evaluation of the antifungal activity of the purified chitinase-1 from the filamentous fungus *Aphanocladium album*

Ulhoa CJ, Peberdy JF*//*Univ Nottingham, Sch Biol Sci, Dept Life Sci, Microbial Biochem & Genet Grp, Nottingham NG7 2RD, England

ENZYME MICROBIAL TECHNOLOGY 1992, 14 (3) 236

Purification and some properties of the extracellular chitinase produced by *Trichoderma harzianum*

Whitmore FW//Ohio State Univ, Ohio Agr Res & Dev Ctr, Wooster, OH 44691, USA

BIOTECHNIQUES 1992 12 (2) 202

A hemagglutinating substance in chitin

Arcidiacono S, Kaplan DL//Natick Res Dev & E Ctr, Div Biotechnol, Natick, MA 01760, USA

BIOTECHNOL BIOENG 1992, 39 (3) 281

Molecular weight distribution of chitosan isolated from *Mucor rouxii* under different culture and processing conditions

Cardenas G, Bernal L, Retamal J//Concepcion Univ, Fac Ciencias, Dept Quim, Concepcion, Chile

BOL SOC CHIL QUIM 1991, 36 (4) 239

Synthesis of chitosan derivatives .1.

Cardenas G, Bernal L, Tagle LH//Concepcion Univ, Fac Ciencias, Dept Quim, Casilla 3-C, Concepcion, Chile

THERMOCHIM ACTA 1992, 195 (JAN) 33

Thermogravimetric studies of chitosan derivatives

El-Ghaouth A, Arul J*, Ponnampalam R, Boulet M//*Univ Laval, Dept Food Sci & Technol, Quebec City, Quebec, Canada G1K 7P4

J FOOD PROCESS PRESERV 1991, 15 (5) 359

Use of chitosan coating to reduce water loss and maintain quality of cucumber and cell pepper fruits

Matsumoto T, Kawai M, Masuda T//Kyoto Univ, Dept Polymer Chem, Kyoto 606, Japan

BIOPOLYMERS 1992, 32 (1) 1721

Heterogeneous molecular aggregation and fractal structure in chitosan/acetic acid systems

Nudga LA, Petrova VA, Petropavlovskii GA, Seliverstov AR, Sukhov NL, Ershov BG//Acad Sci, Inst Macromolec Cpd, Moscow V-71, Russia

J APPL CHEM-ENGL TR 1991, 64 (3) PT 2, 552

Radiation-chemical conversions of allyl chitosan

Rubinstein A, Nakar D, Sintov A//Hebrew Univ Jerusalem, Sch Pharm, POB 12065, IL-91120 Jerusalem, Israel

PHARMACEUT RES 1992, 9 (2) 276

Colonic drug delivery - Enhanced release of indomethacin from cross-linked chondroitin matrix in rat cecal content

- Konno A, Harada T/Kinran Jr Coll, Suita 565, Japan
FOOD HYDROCOLLOID 1991, 5 (5) 427
Thermal properties of curdlan in aqueous suspension and curdlan gel
- Hashimoto K, Imanishi SI, Okada M, Sumitomo H/Nagoya Univ, Fac Agr, Furo cho, Chikusa ku, Nagoya 46401, Japan
J POLYM SCI A-POLYM CHEM 1992, 30 (2) 211
Synthesis of block copolymer containing dextran and polyamide sequences
- Johansson G, Joelsson M, Bastos M/Univ Lund, Ctr Chem, Dept Biochem, POB 124, S-22100 Lund, Sweden
POLYMER 1992, 33 (1) 152
Some physical measurements in the one-phase region of a water dextran poly(ethylene glycol) system
- Michiels AG, Wang AY, Cark DS, Blanch HW*/Univ Calif Berkeley, Dept Chem Engr, Berkeley, Ca 94720, USA
APPL BIOCHEM BIOTECH 1991, 31 (3) 237
Inhibition of dextranase by alpha-D-glucose derivatives
- Zhang W, Piculell L, Nilsson S/Univ Lund, Ctr Chem, Box 124, S-22100 Lund, Sweden
BIOPOLYMERS 1992, 32 (1) 1727
Salt dependence and ion specificity of the coil helix transition of furcellaran
- Usov AI, Elashvili MY/ND Zelinskii Organ Chem Inst, Leninsky Prospect 47, Moscow B334, Russia
BOT MAR 1991, 34 (6) 553
Polysaccharides of algae. 44. Investigation of sulfated galactan from *Laurencia nipponica* Yamada (Rhodophyta, Rhodomelaceae) using partial reductive hydrolysis
- Maga JA, Kim CH, Wolf CI/Colorado State Univ, Dept Food Sci & Human Nutr, Ft Collins, Co 80523, USA
FOOD HYDROCOLLOID 1991, 5 (5) 435
The effect of gellan gum addition on corn grits extrusion
- Aono R, Sato M, Yamamoto M, Horikoshi K/Tokyo Inst Technol, Fac Biosci & Biotechnol, Dept Bioengn, Nagatsuta 4259, Midori ku, Yokohama, Kanagawa 227, Japan
APPL ENVIRON MICROBIOL 1992, 58 (2) 520
Isolation and partial characterization of an 87-kilodalton beta-1,3-glucanase from *Bacillus circulans* IAM1165
- Gomaa K, Kruas J, Rosskopf F, Roper H, Franz G*/Univ Regensburg, Inst Pharm, Univ Str 31, W-8400 Regensburg, FRG
J CANCER RES CLIN ONCOL 1992, 118 (2) 136
Antitumour and immunological activity of a beta1-3/1-6 glucan from *Glomerella cingulata*
- Kadkhodaei M, Wu H, Brant DA*/Univ Calif Irvine, Dept Chem, Irvine, Ca 92717, USA
BIOPOLYMERS 1991, 31 (13) 1581
Comparison of the conformational dynamics of the (1-4)-linked and (1-6)-linked alpha-D-glucans using ¹³C-NMR relaxation
- Kochetkov NK, Malysheva NN, Klimov EM, Demchenko AV/ND Zelinskii Organ Chem Inst, Moscow B334, Russia
TETRAHEDRON LETT 1992, 33 (3) 381
Synthesis of polysaccharides with 1,2-cis-glycosidic linkages by tritylthiocyanate polycondensation - Stereoregular alpha-(1-6)-D-glucan
- Watanabe T, Kasahara N, Aida K, Tanaka H/Niigata Univ, Fac Agr, Dept Agr Chem, 8050 Ikarashi 2, Niigata 95021, Japan
J BACTERIOL 1992, 174 (1) 186
Three N-terminal domains of beta-1,3-glucanase A1 are involved in binding to insoluble beta-1,3-glucan
- Watanabe Y, Moriyama R, Matsuda T, Shimizu S, Ohmiya K*/Mie Univ, Fac Bioresources, Tsu, Mie 514, Japan
J FERMENT BIOENG 1992, 73 (1) 54
Purification and properties of the endo-1,4-beta-glucanase-III from *Ramunococcus albus*
- Sen AK, Das AK, Baneri N*, Vignon MR*/Indian Inst Chem Biol, Dept Organ Chem Carbohydrate, 4 Raja SC Mullick Rd, Calcutta 700032, W Bengal, India
CARBOHYD RES 1992, 223 (JAN) 321
Isolation and structure of a 4-O-methyl-glucuronarabinogalactan from *Boswellia serrata*
- Cherniak R, Morris LC, Turner SH/Georgia State Univ, Dept Chem, Atlanta, Ga 30303, USA
CARBOHYD RES 1992, 223 (JAN) 263
Glucuronoxylomannan of *Cryptococcus neoformans* serotype-D - Structural analysis by gas liquid chromatography mass spectrometry and by ¹³C-nuclear magnetic resonance spectroscopy
- Raval DK, Patel MV, Patel RG, Patel VS/Sardar Patel Univ, Dept Chem, Vallabh Vidyanagar 388120, Gujarat, India
STARCH 1991, 43 (12) 483
Perspective study of vinyl grafting onto *Leucaena glauca* seed gum and guar gum by hydrogen peroxide initiation
- Gettins P, Horne AP/Vanderbilt Univ, Med Ctr, Sch Med, Dept Biochem, Nashville, Tn 37232, USA
CARBOHYD RES 1992, 223 (JAN) 81
One-dimensional and 2-dimensional ¹³C-NMR characterization of 2 series of oligosaccharides derived from porcine intestinal mucosal heparin by degradation with heparinase
- Lahiri B, Lai PS, Pousada M, Stanton D, Danishefsky I*/New York Med Coll, Dept Biochem & Molec Biol, Valhalla, NY 10595, USA
ARCH BIOCHEM BIOPHYS 1992, 293 (1) 54
Depolymerization of heparin by complexed ferrous ions
- Peitzsch RM, Burt MJ, Reed WF*/Tulane Univ, Dept Phys, New Orleans, La 70118, USA
MACROMOLECULES 1992, 25 (2) 806
Evidence of partial draining for linear polyelectrolytes - Heparin, chondroitin 6-sulfated, and poly(styrenesulfonate)
- Saivin S, Lormeau JC, Dupouy D, Sie P, Caranobe C, Houin G, Boneu B*/Ctr Transfus Sanguine, Hemostase Lab, F-31052 Toulouse, France
J LAB CLIN MED 1992, 119 (2) 189
Pharmacologic properties of an unfractionated heparin butyryl derivative with long-lasting effects
- Gandolfi SA, Massari A, Orsoni JG/Univ Parma, Ist Oftalmol, via Gramsci 14, I-43100 Parma, Italy
GRAEF ARCH CLIN EXP OPHTHAL 1992, 230 (1) 20
Low-molecular-weight sodium hyaluronate in the treatment of bacterial corneal ulcers
- Rosner H, Grimmecke HD, Knirel YA, Shashkov AS/Res Inst Bacterial Anim Dis, Naumburger Str 96A, W-6909 Jena, FRG
CARBOHYD RES 1992, 223 (JAN) 329
Hyaluronic acid and a (1-4)-beta-D-xylan, extracellular polysaccharides of *Pasteurella multocida* (Carter type-A) strain-880

- Kim DM, Kim HS*//Korea Adv Inst Sci & Technol, Dept Biol Sci & Engr, POB 150, Seoul 130650, South Korea
BIOTECHNOL BIOENG 1992, 39 (3) 336
Continuous production of gluconic acid and sorbitol from Jerusalem artichoke and glucose using an oxidoreductase of *Zymomonas mobilis* and inulinase
- Duda CA, Stevens ES//SUNY Binghamton, Dept Chem, Binghamton, NY 13902, USA
BIOPOLYMERS 1991, 31 (12) 1379
Solution conformation of laminaribioside and (1-3)-beta-D-glucan from optical rotation
- Ovodova RG, Glazkova VE, Mikheyskaya LV, Molchanova VI, Isakov VV, Ovodov YS*, Molina LEF//Acad Sci, Pacific Inst Bioorgan Chem Inst, Valadivostok 690022, Russia
CARBOHYD RES 1992, 223 (JAN) 221
The structure of mytilan, a bioglycan-immunomodulator isolated from the mussel *Crenomytilus grayanus*
- Bahkali AH//King Saud Univ, Coll Sci, Dept Bot & Microbiol, POB 2455, Riyadh 11451, Saudi Arabia
WORLD J MICROBIOL BIOTECHNOL 1992, 8 (1) 55
In vitro production of pectolytic and cellulolytic enzymes by *Colletotrichum lindemuthianum* isolated from soybean grown in Saudi Arabia
- Said S, Fonseca MJV, Diessere V//Univ Sao Paulo, Fac Ciencias Farmaceut Ribeirao Preto, Ave Cafe S-N Bairro Monte Alegre, BR-14049 Ribeirao Preto, SP, Brazil
WORLD J MICROBIOL BIOTECHNOL 1991, 7 (6) 607
Pectinase production by *Penicillium frequentans*
- Schultz M, Schmidt G, Krause JP, Seifert A, Schmandke H//Cent Inst Nutr, Arthur Scheunert Allee 114-116, O-1505 Bergholz, FRG
NAHRUNG 1991, 35 (10) 1067
Low methoxy pectin/protein interaction in o/w emulsions - Effects of acetylated faba bean globulin dependence of pH
- Michniewicz J, Biliaderis CG, Bushuk W//Univ Manitoba, Food Sci Dept, Winnipeg, Manitoba, Canada R3T 2N2
FOOD CHEM 1992, 43 (4) 251
Effect of added pentosans on some properties of wheat bread
- Matsumoto A, Horie A, Otsu T*//Osaka City Univ, Fac Engr, Dept Appl Chem, Sumiyoshi ku, Osaka 558, Japan
MAKROMOL CHEM-RAP COMM 1991, 12 (12) 681
Synthesis and thermal properties of poly(adamantyl sorbate)
- Ivanov K, Popova M, Denev P, Kratchanov C*//Hsch Lebensmittellind, 26 Blvd Maritza, BU-4002 Plovdiv, Bulgaria
Z LEBENSMITTEL-UNTERSUCH FORS 1992, 194 (1) 26
Application of polyuronides for removing heavy metals from vegetable oils. 2. Application of chemically modified polyuronides for demetalization of hydrogenated sunflower oil
- Garg HG, Lippay EW, Neame PJ//Shriners Burn Inst, 51 Blossom St, Boston, Ma 02114, USA
CARBOHYD RES 1992, 223 (JAN) 209
Proteoglycans in human burn hypertrophic scar from a patient with Ehlers-Danlos syndrome
- Kariya Y, Inoue N, Kihara T, Okamoto N, Sugie K, Mori T, Uchida A*//Kyoto Univ, Ctr Radiat Biol, Dept Late Effect Studies, Kyoto 60601, Japan
IMMUNOL LETT 1992, 31 (3) 241
Activation of human natural killer cells by the protein-bound polysaccharide PSK independently of interferon and interleukin-2
- Kato H, Yamamura Y, Inoue M, Tanigawa M, Kimura S, Sugino S, Kondo M//Kyoto Prefectural Univ Med, Dept Internal Med 1, Kyoto 602, Japan
BIOTHERAPY 1992, 4 (1) 69
In vitro augmentation of cytotoxicity by N-CWS in peritoneal polymorphonuclear leukocytes (PMNs) induced by PSK, OK-432 or N-CWS
- Emanuilova EI, Kambourova MS*//Inst Microbiol, Dept Enzyme Biosynthesis, Acad G Bonchev Str B1-26, BU-1113 Sofia, Bulgaria
WORLD J MICROBIOL BIOTECHNOL 1992, 8 (1) 21
Effect of carbon source and dissolved oxygen level on cell growth and pullulanase production by *Bacillus stearothermophilus* G-823
- Lappalainen A, Nikupaavola ML, Suorti T, Poutanen K//VTT Bitoech Lab, POB 202, SF-02151 Espoo, Finland
STARCH 1991, 43 (12) 477
Purification and characterization of *Bacillus acidopullulyticus* pullulanase for enzymatic starch modification
- Yamashita M, Nakagawa A, Katsuragi N, Murooka Y*//Hiroshima Univ, Fac Engr, Dept Fermentat Technol, Kagamiyami 1, Hiroshima 724, Japan
MOL MICROBIOL 1992, 6 (3) 389
Role of lipid modification on a starch-debranching enzyme, *Klebsiella* pullulanase - Comparison of properties of lipid-modified and unmodified pullulanases
- Akoh CC, Nwosu CV//Alabama A&M Univ, Sch Agr & Home Econ, Dept Food Sci & Anim Ind, POB 264, Huntsville, Al 35762, USA
J AMER OIL CHEM SOC 1992, 69 (1) 14
Emulsification properties of polyesters and sucrose ester blends. 2. Alkyl glycoside polyesters
- Akoh CC//Alabama A&M Univ, Sch Agr & Home Econ, Dept Food Sci & Anim Ind, POB 264, Huntsville, Al 35762, USA
J AMER OIL CHEM SOC 1992, 69 (1) 9
Emulsification properties of polyesters and sucrose ester blends. 1. Carbohydrate fatty acid polyesters
- Tseng YH, Ting WY, Chou HC, Yang BY, Chen CC//Nat'l Chung Hsing Univ, Dept Bot, Taichung 400, Taiwan
LETT APPL MICROBIOL 1992, 14 (2) 43
Increase of xanthan production by cloning XPS genes into wild-type *Xanthomas campestris*
- Matulewicz MC, Cerezo AS*, Jarret RM, Syn N//Univ Buenos Aires, Fac Ciencias Exactas & Nat, Dept Quim Organ, Pabellon 2, Ciudad Univ, RA-1428 Buenos Aires, Argentina
INT J BIOL MACROMOL 1992, 14 (1) 29
High resolution ¹³C-NMR spectroscopy of mixed linkage xylans

7 POLYSACCHARIDES - OTHER

- Cao YH, Dickinson E*, Wedlock DJ*//Univ Leeds, Procter Dept Food Sci, Leeds LS2 9JT, England
FOOD HYDROCOLLOID 1991, 5 (5) 443
Influence of polysaccharides on the creaming of casein-stabilized emulsions
- Fattom A, Shiloach J, Bryla D, Fitzgerald D, Pastan I, Karakawa WW, Robbins JB, Schneerson R*//NICHHD, Dev & Molec Immun Lab, Bethesda, Md 20892, USA
INFEC IMMUNITY 1992, 60 (2) 584
Comparative immunogenicity of conjugates composed of the Staphylo-

coccus aureus type-8 capsular polysaccharide bound to carrier proteins by adipic acid dihydrazide or N-succinimidyl-3-(2-pyridyldithio)propionate

Hasegawa M, Kaku T, Kuroda M, Ise N, Kitano H/**Toyama Univ, Dept Chem & Biochem Engn, Toyama 930, Japan
BIOTECHNOL APPL BIOCHEM 1992, 15 (1) 40

Mutual recognition between polymerized liposomes. 4. Polysaccharide-lectin system

Jikibara T, Takegawa K, Iwahara S/**Kagawa Univ, Fac Agr, Dept Bioresource Sci, Miki, Kagawa 76107, Japan
J BIOCHEM TOKYO 1992, 111 (2) 236

Studies on the uronic acid containing glycoproteins of *Fusarium* sp M7-1. 3. The primary structures of the acidic polysaccharides of the glycoproteins

Kapoor VP, Banerji R, Prakash D//Natl Bot Res Inst, Lucknow 226001, Uttar Pradesh, India
J SCI IND RES 1992, 51 (1) 1

Leguminous seeds - Potential industrial sources for gum, fat and protein

Langue J, Fritzell B, Preziosi MP, Houmeau P//Pasteur Merieux, De-rums & Vaccins, 3 Av Pasteur, F-92430 Marnes Coquette, France
PEDIATRIE 1991, 46 (12) 821

Evaluation of immunization of three-month-old infants with *Hemo-philus influenzae* type-b capsular-polysaccharide tetanus-toxoid conjugate

Leal JA, Guerrero C, Gomez-Miranda B, Prieto A, Bernabe M//CSIC, Ctr Invest Biol, Velazquez 144, E-28006 Madrid, Spain
FEMS MICROBIOL LETT 1992, 90 (2) 165

Chemical and structural similarities in wall polysaccharides of some *Penicillium* *eupenicillium* and *Aspergillus* species

McClure MO, Moore JP, Blanc DF, Scotting P, Cook GMW, Keynes RJ, Weber JN, Davies D, Weiss RA//St Marys Hosp, Sch Med, Dept Communicable Dis, Praed St, London W2 1PG, England
AIDS RES HUM RETROVIRUS 1992, 8 (1) 19

Investigations into the mechanism by which sulfated polysaccharides inhibit HIV infection in vitro

Mitra A, Chakraborty AK/**Tripura Univ, Dept Chem, Agartala 799004, Tripura, India
INDIAN J CHEM SECT A 1992, 31 (2) 77

Studies on interaction of cationic dye with bacterial acidic polysaccharide

Navarini L, Cesaro A*, Ross-Murphy SB//Univ Trieste, Dipartimento Biochim Biofis & Chim Macromolec, P Europa 1, I-34012 Trieste, Italy
CARBOHYD RES 1992, 223 (JAN) 227

Exopolysaccharides from *Rhizobium* *meliloti* YE-2 grown under different osmolarity conditions - Viscoelastic properties

Nifantev NE, Lipkind GM, Shashkov AS, Kochetkov NK//ND Zelin-skii Organ Chem Inst, Moscow, Russia
CARBOHYD RES 1992, 223 (JAN) 109

Synthesis, NMR, and conformational studies of branched oligosaccharides. 4. Synthesis of di-O-glycosyl derivatives of methyl alpha-L-rhamnopyranoside

Rinaudo M//CNRS, Ctr Rech Macromol Vegetales, BP 53X, F-38041 Grenoble, France
POLYM BULL 1992, 27 (5) 585

On the abnormal exponents α_{ga} and α_{d} in Houwink, Mark type equations for wormlike chain polysaccharides

Stasinopoulos SJ, Seviour RJ/**La Trobe Univ, Coll North Victoria, Biotechnol Res Ctr, Bendigo, Vic 3550, Australia
APPL MICROBIOL BIOTECHNOL 1992, 36 (4) 465

Exopolysaccharide production by *Acremonium persicinum* in stirred-tank and air-lift fermentors

Toba T, Uemura H, Itoh T//Tohoku Univ, Fac Agr, Anim Prod Chem Lab, 1-1 Tsutsumidori amamiyamachi, Aoba ku, Sendai 981, Japan
LETT APPL MICROBIOL 1992, 14 (2) 30

A new method for the quantitative determination of microbial extracellular polysaccharide production using a disposable ultrafilter membrane unit

8 LIPOPOLYSACCHARIDES

Haishima Y, Holst O, Brade H/**Forschungsinstitut Borstel, Inst Exptl Biol & Med, Div Biochem Microbiol, Pk Allee 22, W-2061 Borstel, FRG

EUR J BIOCHEM 1992, 203 (1-2) 127

Structural investigation on the lipopolysaccharide of *Escherichia coli* rough mutant F653 representing the R3 core type

MacLean LL, Perry MB//Natl Res Council Canada, Inst Biol Sci, Ottawa, Ontario, Canada K1A 0R6
BIOCHEM CELL BIOL 1991, 69 (12) 852

Characterisation of the *Salmonella* O-8 antigen in the O-chain of the lipopolysaccharide produced by *Salmonella* *virginia* O-8

Toman R, Kazar J//Slovak Acad Sci, Inst Virol, Dubravcska Cesta 9, CS-84246 Bratislava, Czechoslovakia
ACTA VIROL 1991, 35 (6) 531

Evidence for the structural heterogeneity of the polysaccharide component of *Coxiella burnetii* strain Nine-Mile lipopolysaccharide

9 STARCH

Jane JL, Chen JF//Iowa State Univ Sci & Technol, Dept Food Sci & Human Nutr, Ames, Ia 50011, USA
CEREAL CHEM 1992, 69 (1) 60

Effect of amylose molecular size and amylopectin branch chain length on paste properties of starch

Alloncle M, Doublier JL//INRA, LPCM, rue Geraudiere, BP 527, F-44026 Nantes 03, France
FOOD HYDROCOLLOID 1991, 5 (5) 455

Viscoelastic properties of maize starch hydrocolloid pastes and gels

Asaoka M, Blanshard JMV, Rickard JE//Univ Nottingham, Dept Appl Biochem & Food Sci, Loughborough LE12 5RD, England
STARCH 1991, 43 (12) 455

Seasonal effects on the physico-chemical properties of starch from 4 cultivars of cassava

Braun D, Rosinger S, Unvericht R//Deutsch Kunststoff Inst Darmstadt, Schlossgartenstr 6, W-6100 Darmstadt, FRG
ANGEW MAKROMOL CHEM 1991, 193 (DEC) 183
Modification of urea-formaldehyde foams using a starch hydrolyzate (German, English Abstract)

Carr ME, Kim S, Yoon KJ, Stanley KD//USDA ARS, Natl Ctr Agr Utilizat Res, 1815 N Univ St, Peoria, Il 61604, USA
CEREAL CHEM 1992, 69 (1) 70

Graft polymerization of cationic methacrylate, acrylamide, and acry-

lonitrile monomers onto starch by reactive extrusion

Delwiche SR, Pitt RE, Norris KH//USDA ARS, Beltsville Agr Res Ctr, Beltsville, Md 20705, USA

CEREAL CHEM 1992, 69 (1) 107

Sensitivity of near-infrared absorption to moisture content versus water activity in starch and cellulose

El-Halwagi MM, El-Hefy MA, Aziz HAT, Sorour MH, Abulnour AG, El-Defrawy NMH//Minist Sci Res, Tech & Technol Consulting Studies & Res Fund, Cairo, Egypt

STARCH 1992, 44 (1) 2

Overall performance evaluation and functional analysis of Egyptian starch manufacturing plants

Ferreira EI, Cruz ML, Korolkovas A//Univ Sao Paulo, Fac Pharmaceut Sci, Dept Pharm, CXF 30786, Sao Paulo, Brazil

STARCH 1992, 44 (1) 21

Latentiation of chemotherapeutic agents. 1. Synthesis of oxidized starch imine derivatives and antimalarials

Inouchi N, Glover DV, Sugimoto Y, Fuwa H//Fukuyama Univ, Dept Food Sci & Technol, Higashima 72902, Japan

STARCH 1991, 43 (12) 468

DSC characteristics of gelatinization of starches of single-mutants, double-mutants, and triple-mutants and their normal counterpart in the inbred Oh43-maize (*Zea mays* L) background

Inouchi N, Glover DV, Sugimoto Y, Fuwa H//Fukuyama Univ, Dept Food Sci & Technol, Higashima 72902, Japan

STARCH 1991, 43 (12) 473

DSC characteristics of retrograded starches of single-mutants, double-mutants, and triple-mutants and their normal counterpart in the inbred Oh43-maize (*Zea mays* L) background

Jane JL, Shen L, Aguilar F//Iowa State Univ Sci & Technol, Dept Food Sci & Human Nutr, Ames, Ia 50011, USA

CEREAL CHEM 1992, 69 (1) 96

Characterization of Pejibaye starch

Karve MS, Kale NR//Univ Poona, Dept Chem, Div Biochem, Poona 411007, Maharashtra, India

STARCH 1992, 44 (1) 19

A spectrophotometric method for the determination of iodine binding capacity for starch and its components

Kim CH, Abidin Z, Ngee CC, Rhee SK*//Korea Adv Inst Sci & Technol, Genet Engr Res Inst, Taeduk, South Korea

BIORESOURTECH 1992, 40 (1) 1

Pilot-scale ethanol fermentation by *Zymomonas mobilis* from simultaneously saccharified sago starch

Lim ST, Jane JL*, Rajagopalan S, Seib PA//Iowa State Univ Sci & Technol, Ctr Crops Utilizat Res, Dept Food Sci & Human Nutr, Ames, Ia 50011, USA

BIOTECHNOL PROGR 1992, 8 (91) 51

Effect of starch granule size on physical properties of starch-filled polyethylene film

McLeod CD, Misener GC//Agr Canada, Res Stn, Fredericton, NB, Canada E3B 4Z7

TRANS ASAE 1991, 34 (4) 1592

Small scale production of crude starch from potatoes

Muhrbeck P, Svensson E, Eliasson AC//Univ Lund, Ctr Chem, Dept Food Technol, POB 124, S-22100 Lund, Sweden

STARCH 1991, 43 (12) 466

Effect of the degree of phosphorylation on the crystallinity of native potato starch

Munzing K//Fed Ctr Cereal Potato & Lipid Res, POB 1354, W-4930 Detmold, FRG

THERMOCHIM ACTA 1991, 193 (DEC 14) 441

DSC studies of starch in cereal and cereal products

Murugesan G, Hizukuri S*, Fukuda M, Juliano BO**Kagoshima Univ, Dept Biochem Sci & Technol, Kagoshima 890, Japan

CARBOHYD RES 1992, 223 (JAN) 235

Structure and properties of waxy-rice (IR29) starch during development of the grain

Ohno H, Higano M//Tokyo Univ Agr & Technol, Dept Biotechnol, Koganei, Tokyo 184, Japan

NIPPON KAGAKU KAISHI 1992, (1) 124

Preparation and size control of starch microgels by the heat treatment of their coacervates

Padmanabhan S, Kallabinski J, Ramakrishna M, Lonsane BK, Krishnaiah MM//Fermentat Technol & Bioengn Discipline, Cent Food Technol Res Inst, Mysore 570013, India

BIOTECHNOL TECHNIQUE 1992, 6 (1) 65

Novel enzymatic technique for recovery of starch from whole cassava chips without mechanical pulverization

Phillips EA, Blazey SD//A Schulman Inc, 790 E Tallmadge Ave, Akron, Oh 44310, USA

THERMOCHIM ACTA 1991, 192 (DEC) 191

Quantitative thermogravimetric analysis of starch contents in several polymer systems

Quilez MA, Clotet R//Escola Super Agr Barcelona, Dept Ind Agroalimentaries Bioquim, Compte Urgell 187, E-08036 Barcelona, Spain

REV AGROQUIM TECNOL ALIMENT 1991, 31 (4) 551

The influence of cornstarch acetylation on the kinetics of its enzymatic and chemical hydrolysis (Spanish, English Abstract)

Radosta S, Kettlitz B, Schierbaum F, Gernat C//Zent Inst Ernährung, Arthur Scheunert Allee 114-116, O-1505 Bergholz, FRG

STARCH 1992, 44 (1) 8

Studies on rye starch properties and modification. 2. Swelling and solubility behaviour of rye starch granules

Sim SL, Oates CG, Wong HA//Natl Univ Singapore, Dept Biochem, 10 Kent Ridge Crescent, Singapore 0511, Singapore

STARCH 1991, 43 (12) 459

Studies on sago starch. 1. Characterization and comparison of sago starches obtained from Metroxylon sago processed at different times

Skerrett JH, Hill AS//CSIRO, Div Plant Ind, Wheat Res Unit, Box 7, N Ryde, NSW 2113, Australia

CEREAL CHEM 1992, 69 (1) 110

How free is gluten free - Relationship between Kjeldahl nitrogen values and gluten protein content for wheat starches

Wang C, Johnson LA//Iowa State Univ Sci & Technol, Dept Food Sci & Human Nutr, Ames, Ia 50011, USA

CEREAL CHEM 1992, 69 (1) 43

Wet-milling characteristics of propionate-treated high-moisture maize. 1. Yields and compositions of products

Wang C, Johnson LA//Iowa State Univ Sci & Technol, Dept Food Sci & Human Nutr, Ames, Ia 50011, USA

CEREAL CHEM 1992, 69 (1) 47

Wet-milling characteristics of propionate-treated high-moisture maize.
2. Qualities of starch and gluten

Wolters MGE, Cone JW//TNO, Inst Biotechnol & Chem, Dept Biochem & Biophys Chem, Utrechtsweg 48, 3704 HE Zeist, The Netherlands

STARCH 1992, 44 (1) 14

Prediction of degradability of starch by gelatinization enthalpy as measured by differential scanning calorimetry

10 STARCH-DEGRADING ENZYMES

Blanc-Muesser M, Driguez H, Lehmann J*, Steck J//Univ Freiburg, Inst Organ Chem & Biochem, Albertstr 21, W-7800 Freiburg, FRG

CARBOHYD RES 1992, 223 (JAN) 129

Photolabile derivatives of maltose and maltotriose as ligands for the affinity labelling of the maltodextrin-binding site in porcine pancreatic alpha-amylase

Brosnan MP, Kelly CT*, Fogarty WM//Natl Univ Ireland, Univ Coll Dublin, Dept Ind Microbiol, Dublin 4, Ireland

EUR J BIOCHEM 1992, 203 (1-2) 225

Investigation of the mechanisms of irreversible thermoinactivation of *Bacillus stearothermophilus* alpha-amylase

Castro GR, Ferrero MA, Abate CM, Mendez BS, Sifteriz F//Univ Buenos Aires, Fac Ciencias Exactas & Nat, Dept Quim Biol, Ciudad Univ, RA-1428 Buenos Aires, Argentina

BIOTECHNOL LETT 1992, 14 (1) 49

Simultaneous production of alpha-amylases and beta-amylases by *Bacillus subtilis* MIR-5 in batch and continuous culture

Haska N, Ohta Y//Hiroshima Univ, Fac Appl Biol Sci, Microbial Biochem Lab, Hiroshima 724, Japan

STARCH 1992, 44 (1) 25

Mechanism of hydrolysis of the treated sago starch granules by raw starch digesting amylase from *Penicillium brunneum*

Henry RJ, Bultler D//Queensland Wheat Res Inst, POB 2282, Toowoomba, Qld 4350, Australia

J INST BREW 1992, 98 (1) 25

An inter-laboratory study of starch degrading enzyme assays

Tsuge H, Tatsumi E, Ohtani N, Nakazima A//Gifu Univ, Fac Agr, Inst Food Sci, 1-1 Yanagido, Gifu 50111, Japan

STARCH 1992, 44 (1) 29

Screening of alpha-amylase suitable for evaluating the degree of starch retrogradation

Buttner R, Bode R, Birnbaum D//Univ Greifswald, Inst Biochem, Fachrichtung Biol, Jahnstr 15A, O-2200 Greifswald, FRG

J BASIC MICROBIOL 1991, 31 (6) 423

Comparative study of external and internal beta-glucosidases and glucoamylase of *Arxula adeninivorans*

Noda T, Takahata Y, Nagata T, Monma M//Minist Agr Forestry & Fisheries, Kyushu Natl Agr Expt Stn, 2421 Suya, Kumamoto 86111, Japan

STARCH 1992, 44 (1) 32

Digestibility of sweet potato raw starches by glucoamylase

Van Verseveld HW, Metwally M, Elsyed M, Osman M, Schrickx JM, Stouthamer AH//Free Univ Amsterdam, Dept Microbiol, Biol Labs, de Boelelaan 1087, 1081 HV Amsterdam, The Netherlands

ANTON LEEUWENHOEK INT J GEN M 1991, 60 (3-4) 313

Determination of the maximum product yield from glucoamylase-producing *Aspergillus niger* grown in the recycling fermentor

Zhou JH, Baba T*, Takano T, Kobayashi S, Kobayashi S, Arai Y// *Univ Tsukuba, Inst Appl Biochem, Tsukuba, Ibaraki 305, Japan

CARBOHYD RES 1992, 223 (JAN) 255

Properties of the enzyme expressed by the *Pseudomonas saccharophila* maltotetrahydrolase gene (MTA) in *Escherichia coli*