

BIBLIOGRAPHY ON CARBOHYDRATE POLYMERS

1 Books, Reviews and Symposia

Mizrahi A (Ed)

Wiley-Liss (New York), 1990, 317 pp, \$130.00
Hardbound, ISBN: 0-471-56219-X

Bacterial Vaccines

Advances in Biotechnological Processes, Vol 13

Barker SA//Univ Birmingham, Dept Chem, POB
363, Birmingham B15 2TT, W Midlands, England
CHEM BRIT 1990, 26 (7) 665

Carbohydrates in the food industry

Hounsell EF//Clin Res Ctr, Watford Rd, Harrow
HA1 3UJ, Middx, England

CHEM BRIT 1990, 26 (7) 684

Spectroscopic studies of complex carbohydrates

Todd PA, Benfield P, Goa KL**/Adis Press
Ltd, Drug Informat Serv, 41 Centorian Dr,
Auckland 10, New Zealand

DRUGS 1990, 39 (6) 917

Guar gum: A review of its pharmacological
properties, and use as a dietary adjunct in hyper-
cholesterolaemia

ZUCKERINDUSTRIE 1990, 115 (6) 490

Conference on Starches 1990 in Detmold (Ger-
man, English Abstract)

2 Cellulose

Alinovskaya VA, Yurkshtovich TL, Kaputskii
FN//VI Lenin State Univ, Inst Physicochem
Problems, Minsk, Belorussia, USSR

COLLOID J USSR-ENGL TR 1989, 51 (6) 1013

Sorption immobilization of proteolytic enzymes
on cellulose oxidized by nitrogen(IV) oxide

Asaka K//Kyoto Univ, Inst Chem Res, Goka-
shou, Uji, Kyoto 611, Japan

J MEMBRANE SCI 1990, 50 (1) 71

Dielectric properties of cellulose acetate reverse
osmosis membranes in aqueous salt solutions

Dautzenberg H, Lukanoff B, Hicke HG//Acad
Sci GDR, Inst Polymerenchem Erich Correns,
O-1530 Teltow, FRG

ACTA POLYM 1990, 41 (4) 233

Characterization of cellulose derivatives by solu-
bility investigations (German, English Abstract)

Goetzky P, Pohl MM, Goering H, Schrader S//
Acad Sci GDR, Zent Inst Organ Chem, O-1199
Berlin, FRG

ACTA POLYM 1990, 41 (5) 273

Studies on the morphology of the matrix of
phenolic resin bonded cellulose paper laminates
(German, English Abstract)

Kai A, Kido H, Ishida N//Tokyo Metropolitan
Univ, Fac Technol, Dept Ind Chem, Fukazawa,
Setagaya ku, Tokyo 158, Japan

CHEM LETT 1990, (6) 949

The effect of a direct dye on the formation pro-
cess of the structure of bacterial cellulose

Lanes SF, Cohen A, Rothman KJ, Dreyer NA,
Soden KJ//Epidemiol Resources Inc, 826
Boylston St, Chestnut Hill, Ma 02167, USA

SCAND J WORK ENVIRON HEALTH 1990,
16 (4) 247

Mortality of cellulose fiber production workers

Lenz J, Schurz J//Lenzing AG, Forsch Abt, A-
4860 Lenzing, Austria

HOLZFORSCHUNG 1990, 44 (3) 227

Fractal analysis of cellulosic fibers by small-angle
x-ray scattering

Lin XQ, Qu TZ, Qu SQ//Acad Sinica, Guang-
zhou Inst Chem, POB 1122, Guangzhou, Peoples
R China

ACTA POLYM 1990, 41 (4) 220

Kinetics of the carboxymethylation of cellulose
in the isopropyl alcohol system

Ludwig J, Philipp B//Acad Sci GDR, Inst Poly-
merenchem Erich Correns, O-1530 Teltow, FRG
ACTA POLYM 1990, 41 (4) 230

As a service to subscribers, each issue of the Journal contains a bibliography of newly published materi-
al 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.

Partial fractionation of cellulose acetate (German, English Abstract)

Mackawa E, Koshijima T//Kyoto Univ, Wood Res Inst, Res Sect Wood Chem, Uji, Kyoto 611, Japan

J APPL POLYM SCI 1990, 40 (9-10) 1601

Preparation and characterization of hydroxamic acid derivative and its metal complexes derived from cellulose

Matsuo M, Sawatari C, Iwai Y, Ozaki F//Nara Womens Univ, Fac Home Econ, Dept Clothing Sci, Nara 630, Japan

MACROMOLECULES 1990, 23 (13) 3266

Effect of orientation distribution and crystallinity on the measurement by x-ray diffraction of the crystal lattice moduli of cellulose I and II

McLean RG, Smart RC, Gastonparry D, Barbagallo S, Baker J, Lyons NR, Bruck CE, King DW, Lubowski DZ, Talley NA//St George Hosp, Dept Nucl Med, Belgrave St, Kogara, NSW 2217, Australia

J NUCL MED 1990, 31 (6) 985

Colon transit scintigraphy in health and constipation using oral iodine-131-cellulose

Moll S, de Moerloose P, Reber G, Schifferli J, Leski M*//Univ Cantonal Hosp Geneva, Dept Med, Div Nephrol, CH-1211 Geneva 4, Switzerland

INT J ARTIF ORGANS 1990, 13 (5) 273

Comparison of two hemodialysis membranes, polyacrylonitrile and cellulose acetate, on complement and coagulation systems

Nishi Y, Uryu M, Yamanaka S, Watanabe K, Kitamura N, Iguchi M, Mitsuhashi S//Sony Corp, Res Ctr, 174 Fujitsuka cho, Hodogaya ku, Yokohama, Kanagawa 240, Japan

J MATER SCI 1990, 25 (6) 2997

The structure and mechanical properties of sheets prepared from bacterial cellulose. 2. Improvement of the mechanical properties of sheets and their applicability to diaphragms of electroacoustic transducers

Nishioka N, Yamaguchi H, Kosai K//Osaka Electrocomm Univ, Fac Engn, Neyagawa, Osaka 572, Japan

J APPL POLYM SCI 1990, 40 (11-12) 2007

Permeability through cellulose membranes grafted with vinyl monomers in a homogeneous system. VI. States of water in membranes swollen in solutions

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Nitta T, Yakushijin Y, Kametani T, Katayama T//Osaka Univ, Fac Engn Sci, Dept Chem Engn, Machikaneyama cho, Toyonaka, Osaka 560, Japan

BULL CHEM SOC JPN 1990, 63 (5) 1365

Resolution of enantiomers by supercritical fluid chromatography with cellulose tris(phenylcarbamate) coated on silica gel

Okamoto Y, Kaida Y, Hayashida H, Hatada K//Nagoya Univ, Fac Engn, Chikusa ku, Nagoya, Aichi 466, Japan

CHEM LETT 1990, (6) 909

Tris(1-phenylethylcarbamate)s of cellulose and amylose as useful chiral stationary phases for chromatographic optical resolution

Sato T, Koizumi J, Ohno Y, Endo T*//Tokyo Inst Technol, Resources Utilizat Res Lab, Midori ku, Yokohama, Kanagawa 227, Japan

J POLYM SCI A-POLYM CHEM 1990, 28 (8) 2223

An improved procedure for the preparation of chlorinated cellulose with methanesulfonyl chloride in a dimethylformamide-chloral-pyridine mixture

Sattler K, Fiedler S//Acad Sci GDR, Inst Biotechnol, Permoserstr 15, O-7050 Leipzig, FRG

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Production and application of bacterial cellulose. 2. Cultivation in a rotating drum fermenter (German, English Abstract)

Timoshenko EP, Yakhnin ED//All Union Film Mat & Synthet Leather Res Inst, Moscow, USSR

COLLOID J USSR-ENGL TR 1989, 51 (6) 994

Experimental study of contact interactions in the formation of materials from aqueous suspensions of cellulose fibers

Yudanov TN, Kukushkina NN, Skokova IF, Virnik AD//Moscow Text Inst, Chair Chem Fiber Technol, Moscow, USSR

IZV VYSSH UCH ZAV KHIM KHIM T 1990, 33 (1) 107

Preparation of albumin-containing cellulose fibrous material (Russian)

Hjartstam J, Borg K, Lindstedt B//AB Hassle, Pharmaceut Res & Dev, S-43183 Molndal, Sweden

INT J PHARM 1990, 61 (1-2) 101

The effect of tensile stress on permeability of free films of ethyl cellulose containing hydroxypropyl methylcellulose

Rozhkova OV, Myasoedova VV, Krestov GA// Acad Sci USSR, Inst Chem Nonaqueous Solut, Moscow V-71, USSR

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Influence of degree of hydroxyl-group esterification on thermooxidative stability of sodium ethylcellulose sulfate

Korneeva EV, Shtennikova IN*, Shibaev VP, Klenin SI, Kolbina GF, Ekaeva IV, Didenko SA// Acad Sci USSR, Inst Macromolec Compounds, Leningrad 199004, USSR

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Conformational properties of hydroxypropylcellulose. I. Hydrodynamic properties and equilibrium rigidity of its macromolecules

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Conformational properties of hydroxypropylcellulose. II. Flow birefringence and optical anisotropy of hydroxypropylcellulose macromolecules

Winnik FM, Winnik MA// Xerox Res Ctr Canada Ltd, 2660 Speakman Dr, Mississauga, Ontario, Canada L5K 2L1

POLYM J 1990, 22 (6) 482

The interaction of sodium dodecylsulfate with (hydroxypropyl) cellulose

Ehrich W, Hoh H*, Kreiner CF// Univ Saarland, Augen Klin, Funkt Bereiche Glaukom & Kontaktlinsen, W-6650 Homburg, FRG

KLIN MONATSBL AUGENHEILK 1990, 196 (6) 470

Biocompatibility and pharmacokinetics of hydroxypropylmethylcellulose in the anterior chamber of the rabbit eye (German, English Abstract)

Back EL, Johanson F// Feedback Consulting E & E Back KB, Vikbyvagen 42, S-18143 Lidingo, Sweden

HOLZFORSCHUNG 1990, 44 (3) 177

The rate of isothermal heat evolution between 150°C and 230°C of lignocellulosic sheet materials in an air stream. II. Temperature dependence, kinetics, interpretation

Kannan K, Oblisami G, Loganathan BG// Ehime Univ, Dept Environm Conservat, Tarumi 3-5-7, Matsuyama, Ehime 790, Japan

BIOL WASTE 1990, 33 (1) 1

Enzymology of ligno-cellulose degradation by *Pleurotus sajor-cjau* during growth on paper-mill sludge

3 Cellulose-degrading Enzymes

Abeles FB, Takeda F// USDA ARS, Appalachian Fruit Res Stn, 45 Wiltshire Rd, Kearneysville, WV 25430, USA

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Cellulase activity and ethylene in ripening strawberry and apple fruits

Davis DK, McGraw RL, Sleper DA, Beuselink PR// Univ Missouri, Dept Agron, USDA ARS, Columbia, Mo 65211, USA

CAN J PLANT SCI 1990, 70 (2) 487

Using a cellulolytic complex to estimate in vitro digestibility of birdsfoot trefoil

Heredia A, Fernandezbolanos J, Guillen R// CSIC, Inst Grasa & Derivados, Apartado 1078, Seville, Spain

FOOD CHEM 1990, 38 (1) 69

Cellulase inhibition by polyphenols in olive fruits

Holtzapfel M, Cognata M, Shu Y, Hendrickson C// Texas A&M Univ Syst, Dept Chem Engrn, College Stn, Tx 77843, USA

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Inhibition of *Trichoderma reesei* cellulase by sugars and solvents

Kung L, Carmean BR, Tung RS// Univ Delaware, Coll Agr Sci, Dept Anim Sci Agr Sci, Delaware Agr Expt Stn, Newark, De 19717, USA

J DAIRY SCI 1990, 73 (5) 1304

Microbial inoculation or cellulase enzyme treatment of barley and vetch silage harvested at three maturities

Rodriguez VB, Rubio FC, Duenas MPP, Requena AR// Univ Granada, Dept Ingn Quim, Granada, Spain

AN QUIM 1990, 86 (2) 208

Loss of beta-1,4-glucosidase activity in the cellulases from *T. reesei*

Schmid G, Wandrey C// Hoffmann La Roche & Co Ltd, ZFE MB, Bldg 66-302, CH-4002 Basel,

Switzerland

J BIOTECHNOL 1990, 14 (3-4) 393

Evidence for the lack of exo-cellobiohydrolase activity in the cellulase system of *Trichoderma reesei* QM 9414

Sim TS, Oh JCS//Natl Univ Singapore, Fac Med, Dept Microbiol, Lower Kent Ridge Rd, Singapore 0511, Singapore

J IND MICROBIOL 1990, 5 (2-3) 159

Spent brewery grains as substrate for the production of cellulases by *Trichoderma reesei* WM9414

4 Cyclodextrins

Aquino AM, Abelt CJ*, Berger KL, Darragh CM, Kelley SE, Cossette MV//Coll William & Mary, Dept Chem, Williamsburg, Va 23185, USA

J AMER CHEM SOC 1990, 112 (15) 5819

Synthesis and photochemistry of some anthraquinone-substituted beta-cyclodextrins

Bar R, Rokem JS//Hebrew Univ Jerusalem, Inst Microbiol, Dept Appl Microbiol, POB 1172, IL-91010 Jerusalem

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Cyclodextrin-stimulated fermentation of prodigiosin by *Serratia marcescens*

Berthod A, Jin HL, Beesley TE, Duncan JD, Armstrong DW*//Univ Missouri, Dept Chem, Rolla, Mo 65401, USA

J PHARMACEUT BIOMED ANAL 1990, 8 (2) 123

Cyclodextrin chiral stationary phases for liquid chromatographic separations of drug stereoisomers

Berthod A, Li WY, Armstrong DW*//Univ Missouri, Dept Chem, Rolla, Mo 65401, USA

CARBOHYD RES 1990, 201 (2) 175

Chiral recognition of racemic sugars by polar and nonpolar cyclodextrin-derivative gas chromatography

Cabrera K, Schwinn G//E Merck Ag, Div Chem Reagents, W-6100 Darmstadt, FRG

AMER LAB 1990, 22 (9) 22

Cyclodextrins as mobile phase additives in the high performance liquid chromatographic separation of enantiomers

Chattopadhyay N, Chakraborty T, Nag A, Chowdhury M//Kanyapur Polytech, Dept Chem, Asansol 713304, W Bengal, India

J PHOTOCHEM PHOTOBIOLOG A-CHEM 1990, 52 (1) 199

Effect of inclusion of cyclodextrin on excited state proton transfer: Carbazole-gamma-cyclodextrin

Cserhati T, Szejtli J, Szogyi M//Hungarian Acad Sci, Cent Res Inst Chem, POB 17, H-1525 Budapest, Hungary

J CHROMATOGR 1990, 509 (1) 255

Charge-transfer chromatographic study on inclusion complex formation between two hydroxypropyl-beta-cyclodextrins and some chlorophenols

Djedaini F, Desalos J, Perly B//CENS, CEA, Dept Lasers & Phys Chim, F-91191 Gif Sur Yvette, France

J LABEL COMPOUND RADIOPHARM 1990, 28 (7) 785

Regio- and stereo-selective deuterium labelling of beta-cyclodextrin

Djedaini F, Lin SZ, Perly B, Wouessidjewe D*//CNRS, Unite 1218, Pharm Galen & Biopharm Lab, 5 Rue Jean Baptiste Clement, F-92296 Chateaufort Malabry, France

J PHARM SCI 1990, 79 (7) 643

High-field nuclear magnetic resonance techniques for the investigation of a beta-cyclodextrin:indomethacin inclusion complex

Farnia G, Sandona G, Fornasier R, Marcuzzi F//Univ Padua, Dipartimento Chim Fis, Via Loredan 2, I-35131 Padua, Italy

ELECTROCHIM ACTA 1990, 35 (7) 1149

Electrochemical reduction of carbonyl compounds in aqueous media in the presence of beta-cyclodextrin - Reduction of acetophenone and para-methoxyacetophenone in alkaline solution

Gao D, Yamamoto Y*, Hayashi K//Osaka Univ, Inst Sci & Ind Res, 8-1 Mihogaoka, Ibaraki, Osaka 567, Japan

J CHEM SOC CHEM COMMUN 1990, (13) 910

Effects of cyclodextrins on the radiation-induced polymerization of sodium p-styrenesulphonate in aqueous solution

Grob K, Neukom HP, Schmarr HG, Mosandl

A//Kantonales Lab, POB, CH-8030 Zurich, Switzerland

HRC-J HIGH RES CHROMATOGR 1990, 13 (6) 433

Separation efficiency versus resolution - Chiral separation of gamma lactones by capillary GC on derivatized cyclodextrin

Ho JW//Univ Utah, Ctr Human Toxicol, 417 Wakara Way, Room 290, Salt Lake City, Ut 84108, USA

J CHROMATOGR 1990, 508 (2) 375

Separation of porphyrins on cyclodextrin-bonded phases with a novel mobile phase

Kamihira M, Asai T, Yamagata Y, Taniguchi M, Kobayashi T**//Nagoya Univ, Fac Engn, Dept Chem Engn, Chikusa ku, Nagoya 46401, Japan

J FERMENT BIOENG 1990, 69 (6) 350

Formation of inclusion complexes between cyclodextrins and aromatic compounds under pressurized carbon dioxide

Koizumi K, Tanimoto T, Okada Y, Matsuo M//Mukogawa Womens Univ, Fac Pharmaceut Sci, 11-68 Koshien Kyuban cho, Nishinomiya, Hyogo 663, Japan

CARBOHYD RES 1990, 201 (1) 125

Isolation and characterization of three positional isomers of diglucosylcyclomaltoheptaose

Kotake Y, Janzen EG//Univ Guelph, Dept Chem & Biochem, Guelph, Ontario, Canada N1G 2W1

FREE RADICAL RES COMMUN 1990, 10 (1-2) 103

Group-recognition ability of derivatized beta-cyclodextrin as studied by the ESR spin probing technique

Kurihara M, Hirayama F, Uekama K*, Yamasaki M//Kumamoto Univ, Fac Pharmaceut Sci, 5-1 Oe Honmachi, Kumamoto 862, Japan

J INCLUSION PHENOM MOL RECOGN 1990, 8 (4) 363

Improvement of some pharmaceutical properties of nocolprost by beta- and gamma-cyclodextrin complexation

Li W-Y, Jin HL, Armstrong DW**//Univ Missouri, Dept Chem, Rolla, Mo 65401, USA

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2,6-di-O-pentyl-3-O-trifluoroacetyl cyclodextrin liquid stationary phases for capillary gas chromatographic separation of enantiomers

Mahmoud WM, El-Sayed AHMM, Coughlin RW**//Univ Connecticut, Dept Chem Engn, Storrs, Ct 06268, USA

BIOTECHNOL BIOENG 1990, 36 (3) 256

Effect of beta-cyclodextrin on production of L-phenylacetyl carbinol by immobilized cells of *Saccharomyces cerevisiae*

Mosandl A, Rettinger K, Fischer K, Schubert V, Schmarr HG, Maas B//Univ Frankfurt, Inst Lebensmittelchem, Robert Mayer Str 7-9, W-6000 Frankfurt, FRG

HRC-J HIGH RES CHROMATOGR 1990, 13 (5) 382

Stereoisomeric flavor compounds-XLI - New applications of permethylated beta-cyclodextrin phase in chiral CGC analysis

Nakanishi K, Nadai T, Masada M, Miyajima K//Setsunan Univ, Fac Pharmaceut, Nagaotoge cho, Hirakata, Osaka 57301, Japan

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Effect of cyclodextrins on biological membrane. I. Effect of cyclodextrins on the absorption of a non-absorbable drug from rat small intestine and rectum

Oguchi T, Okada M, Yonemochi E, Yamamoto K, Nakai Y**//Chiba Univ, Fac Pharmaceut Sci, 1-33 Yayoicho, Chiba 260, Japan

INT J PHARM 1990, 61 (1-2) 27

Freeze-drying of drug-additive binary systems. 3. Crystallization of alpha-cyclodextrin inclusion complex in freezing process

Ohashi M, Kasatani K, Shinohara H, Sato H**//Mie Univ, Fac Engn, Chem Dept Resources, Tsu, Mie 514, Japan

J AMER CHEM SOC 1990, 112 (15) 5824

Molecular mechanics studies on inclusion compounds of cyanine dye monomers and dimers in cyclodextrin cavities

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

THERMOCHIM ACTA 1990, 162 (1) 155

Calorimetric and diffusional behaviour of the system alpha-cyclodextrin-L-phenylalanine in aqueous solution

Raja KCM, Sreedharan VP, Prema P, Ramakrishna SV//Reg Res Lab, Fermentat Sect, Trivandrum, India

STARCH 1990, 42 (5) 196

Cyclodextrin from cassava (*Manihot esculanta* Crantz) starch. Isolation and characterization as bromobenzene and chloroform clathrates

Rietman EA//AT & T Bell Labs, Murray Hill, NJ 07974, USA

MAT RES BULL 1990, 25 (5) 649

Electrical properties of alpha-cyclodextrin metal iodide inclusion compounds

Sanchez FG, Hernandez M, Marquez JC//Univ Malaga, Fac Ciencias, Dept Quim Analit, E-29071 Malaga, Spain

J INCLUSION PHENOM MOL RECOGN 1990, 8 (4) 389

Thermodynamic study of the beta-cyclodextrin benzyl-2-pyridyl ketone 2-pyridyl hydrazone inclusion process

Shen Z-Y, Huang SL, Tsai G-J*, Chen Z-X, Tsao GT//Purdue Univ, AA Potter Engn Ctr, Renewable Resources Engn Lab, W Lafayette, IN 47907, USA

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Synthesis and characterization of cyclomaltoheptaose (Z)-2-butenedioic monoesters

Suzuki M, Takai H, Szejtli J, Fenyvesi E//Osaka Univ, Fac Pharmaceut Sci, 1-6, Suita, Osaka 565, Japan

CARBOHYD RES 1990, 201 (1) 1

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Tahara T, Fujita K*, Koga T//Daiichi Coll Pharmaceut Sci, Minami ku, Fukuoka 815, Japan

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Simple and convenient method for synthesis of 3-O-sulfonyl-gamma-cyclodextrin

Ueno A, Fukushima M, Osa T//Tohoku Univ, Inst Pharmaceut, Sendai, Miyagi 980, Japan

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Inclusion complexes and Z-E photoisomerization of beta-cyclodextrin bearing an azobenzene pendant

Veglia AV, Sanchez AM, de Rossi RH**//Natl Univ Cordoba, Fac Ciencias Quim, Inst Invest Fis Quim Organ, Suc 15, CC 61, RA-5016 Cordoba, Argentina

J ORG CHEM 1990, 55 (13) 4083

Change of selectivity in the photo-Fries rearrangement of phenyl acetate induced by beta-cyclodextrin

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

J INCLUSION PHENOM MOL RECOGN 1990, 9 (1) 51

Inclusion effects of cyclodextrins on the photobleaching of coumarins

Yamashoji Y, Tanaka M, Shono T//Osaka Univ, Fac Engn, Dept Appl Chem, Suita, Osaka 565, Japan

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Evaluation of host-guest interaction of cyclodextrins with DL-alanine beta-naphthylamide by ¹H NMR spectroscopy

5 Lignin

Bourbonnais R, Paice MG//Pulp & Paper Res Inst Canada, 570 St Johns Blvd, Pointe Claire, Quebec, Canada H9R 3J9

FEBS LETT 1990, 267 (1) 99

Oxidation of non-phenolic substrates - An expanded role for laccase in lignin biodegradation

Ford CW//Queensland Agr Coll, Dept Food Studies, Lawes, Qld 4343, Australia

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Borohydride-soluble lignin-carbohydrate complex esters of p-coumaric acid from the cell walls of a tropical grass

Galletti GC, Piccaglia R, Concialini V//CNR, Ctr Studio Conservaz Foraggi, Via Filippo R 8, I-40126 Bologna, Italy

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Optimization of electrochemical detection in the high-performance liquid chromatography of lignin phenolics from lignocellulosic by-products

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Influence of culture conditions on production of flavour compounds by 29 ligninolytic Basidiomycetes

Itoh T//Kyoto Univ, Inst Wood Res, Uji, Kyoto

611, Japan

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Lignification of bamboo (*Phyllostachys heterocycla* Mitf) during its growth

Jin L, Sellers T, Schultz TP, Nicholas DD//Mississippi State Univ, Mississippi Forest Prod Lab, PO Drawer FP, Mississippi State, Ms 39762, USA

HOLZFORSCHUNG 1990, 44 (3) 207

Utilization of lignin modified by brown-rot fungi. I. Properties of flakeboard produced with a brown-rotted lignin modified phenolic adhesive

Khazaal KA, Owen E*, Dodson AP, Harvey P, Palmer J//Univ Reading, Dept Agr, Earley Gate, Reading RG6 2AT, Berks, England
BIOL WASTE 1990, 33 (1) 53

A preliminary study of the treatment of barley straw with ligninase enzyme: Effect on in vitro digestibility and chemical composition

Kraus RJ, Marlett JA//Univ Wisconsin, Dept Nutr Sci, 1415 Linden Dr, Madison, Wi 53706, USA

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Michel FC, Grulke EA*, Reddy CA//Michigan State Univ, Dept Chem Engr, E Lansing, Mi 48824, USA

J IND MICROBIOL 1990, 5 (2-3) 103

Development of a stirred tank reactor system for the production of lignin peroxidases (ligninases) by *Phanerochaete chrysosporium* BKM-F-1767

Rials TG, Glasser WG//US Forest Serv, So Forest Expt Stn, 2500 Shreveport Highway, Pineville, La 71360, USA

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Shabaka AA, Nada AMA, Fadly M//Nat'l Res Ctr, Dept Spect, Cairo, Egypt

J MATER SCI 1990, 25 (6) 2925

Infrared spectroscopic study of thermally treated lignin

Shakkottai P, Kwack EY, Lawson D//Caltech, Jet Prop Lab, Pasadena, Ca 91109, USA

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metry of pulp in hydrogen or helium

Sorimachi K, Yamazaki S, Toda S, Yasumura Y//Dokkyo Univ, Sch Med, Dept Microbiol, Mibu, Tochigi 32102, Japan

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Tai-D-S, Terazawa M, Chen C-L, Chang H-M//Nanjing Forestry Univ, Nanjing, Peoples R China

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Valmaseda M, Almendros G, Martinez AT**//CSIC, Ctr Invest Biol, Belazquez 144, E-28006 Madrid, Spain

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Substrate-dependent degradation patterns in the decay of wheat straw and beech wood by ligninolytic fungi

Wariishi H, Marquez L, Dunford HB, Gold MH**//Oregon Grad Inst Sci & Technol, Dept Chem & Biol Sci, 19600 NW von Neumann Dr, Beaverton, Or 97006, USA

J BIOL CHEM 1990, 265 (19) 11137

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Yoshida H, Morck R, Kringstad KP, Hatakeyama H//Tokyo Metropolitan Univ, Dept Ind Chem, Setagaya ku, Tokyo 158, Japan

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Kraft lignin in polyurethanes. II. Effects of the molecular weight of Kraft lignin on the properties of polyurethanes from a Kraft lignin-polyether triol-polymeric MDI system

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Hirano S, Yamaguchi R, Fukui N, Iwata M//Tottori Univ, Dept Agr Biochem & Biotechnol, Tottori 680, Japan

CARBOHYD RES 1990, 201 (1) 145

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Jinno K, Ogura S, Takayama K//Toyoashi Univ Technol, Sch Mat Sci, Toyohashi, Aichi 440, Japan

HRC-J HIGH RES CHROMATOGR 1990, 13 (5) 323

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Takahashi T, Takayama K*, Machida Y, Nagai T//Hoshi Univ, Dept Pharmaceut, Ebara 2-4-41, Shinagawa ku, Tokyo 142, Japan

INT J PHARM 1990, 61 (1-2) 35

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Yomota C, Komuro T, Kimura T//Natl Inst Hyg Sci, 1-1-43 Hoensaka, Cyuo ku, Osaka 540, Japan

YAKUGAKU ZASSHI-J PHARM SOC J 1990, 110 (6) 442

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Jacquinet J-C//Univ Orleans, UFR Fac Sci, Biochim Struct Lab, URA 499, BP 6759, F-45067 Orleans, France

CARBOHYD RES 1990, 199 (2) 153

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Aaseth J, Benov L, Ribarov S//Hedmark Cent Hosp, Dept Clin Chem, N-2400 Elverum, Norway

ACTA PHARMACOL SIN 1990, 11 (4) 363

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REV CHIR ORTHOP REPARAT APP 1990, 76 (2) 80

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labeled dextran (PM = 70,000) (study made in the dog) (French, English Abstract)

Brown DE, McAvoy A//Cranfield Inst Technol, Ctr Biotechnol, Cranfield MK43 0AL, England

J CHEM TECHNOL BIOTECHNOL 1990, 48 (4) 405

A pH-controlled fed-batch process for dextransucrase production

Soldani G, Della Longa A, Mengozzi G, Demi S, Intorre L, Martelli F//Univ Pisa, Inst Vet Internal Med, Pharmacol Lab, Viale Piagge 2, I-56100 Pisa, Italy

DRUG EXP CLIN RES 1990, 16 (2) 67

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Rexova-Benkova L//Slovak Acad Sci, Inst Chem, CS-84238 Bratislava, Czechoslovakia

COLLECT CZECH CHEM COMMUN 1990, 55 (5) 1389

Evidence for the role of carboxyl groups in activity of endopolygalacturonase of *Aspergillus niger*. Chemical modification by carbodiimide reagent

Baldwin EA, Pressey R//USDA, ARS, Citrus & Subtrop Prod Lab, POB 1909, Winter Haven, FL 33883, USA

HORTSCIENCE 1990, 25 (7) 779

Expolygalacturonase elicits ethylene production in tomato

Nussinovitch A, Ak MM, Mormand MD, Peleg M//Univ Massachusetts, Dept Food Engn, Amherst, Ma 01003, USA

J TEXTURE STUD 1990, 21 (1) 37

Characterization of gellan gels by uniaxial compression, stress relaxation and creep

Baird SD, Hefford MA, Johnson DA, Sung WL, Yaguchi M, Seligy VL//Natl Res Council Canada, Div Biol Sci, Ottawa, Ontario, Canada K1A 0R6

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The Glu residue in the conserved Asn-Glu-Pro sequence of two highly divergent endo-beta-1,4-glucanases is essential for enzymatic activity

Breedveld MW, Zevenhuizen LPTM, Zehnder AJB//Agr Univ Wageningen, Dept Microbiol, Hesselink van Suchtelenweg 4, 6703 CT Wageningen

ingen, The Netherlands

APPL ENVIRON MICROBIOL 1990, 56 (7) 2080

Excessive excretion of cyclic beta-(1,2)-glucan by *Rhizobium trifolii* TA-1

Carr JM, Glatter S, Jeraci JL, Lewis BA/** Cornell Univ, Div Nutr Sci, Savage Hall, Ithaca, NY 14853, USA

CEREAL CHEM 1990, 67 (3) 226

Enzymic determination of beta-glucan in cereal-based food products

Hoj PB, Hoogenraad NJ, Hartman DJ, Yan-nakena H, Fincher GB//La Trobe Univ, Dept Biochem, Commonwealth Res Ctr Port & Enzyme Technol, Bundoora, Vic 3083, Australia
J CEREAL SCI 1990, 11 (3) 261

Identification of individual (1-3, 1-4)-beta-D-glucanase isoenzymes in extracts of germinated barley using specific monoclonal antibodies

Horvathova M, Soltes L, Mislovicova D, Zubor V, Fugedi A//Slovak Acad Sci, Ctr Physiol Sci, CS-83306 Bratislava, Czechoslovakia

J CHROMATOGR 1990, 509 (1) 213

High-performance gel permeation chromatography of water-soluble beta-1,3-glucans

Kobayashi S, Koga K, Hayashida O, Nakano Y*, Hasegawa Y/** Good Shusei Co Ltd, Cent Res Lab, 250 Nakahara, Kamihongo, Chiba 271, Japan

AGR BIOL CHEM TOKYO 1990, 54 (6) 1417

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Saito K, Nishijima M, Miyazaki T//Tokyo Metropolitan Res Lab Publ Hlth, 24-1 Hyakunincho 3-chome, Shinjuku ku, Tokyo 169, Japan

CHEM PHARM BULL TOKYO 1990, 38 (6) 1745

Further examination on the structure of an alkali-soluble glucan isolated from *Omphalia lapidescence* (studies on fungal polysaccharide. XXXVI)

Wolff BR, Lewis D, Pasternak JJ, Glick BR//Univ Waterloo, Dept Biol, Waterloo, Ontario, Canada N2L 3G1

J IND MICROBIOL 1990, 5 (2-3) 59

Partial characterization of *Pseudomonas fluorescens* subsp. *cellulosa* endoglucanase activity produced in *Escherichia coli*

Labenthal E, Lu R-B//Univ Connecticut, Dept Nutr Sci, U 17, 3624 Horsebarn Rd Ext, Storrs, Ct 06269, USA

J PEDIAT GASTROENTEROL NUTR 1990, 11 (1) 1

Glucose polymers in diarrhoea - High caloric density nutrients with low osmolality (Editorial)

Sloven DG, Jirapinyo P, Lebenthal E/** Hahnemann Univ, Dept Pediat, Broad & Vine St, Philadelphia, Pa 19102, USA

J PEDIAT 1990, 116 (6) 876

Hydrolysis and absorption of glucose polymers from rice compared with corn in chronic diarrhoea of infancy

Kobayashi M, Yamazaki F, Ito Y, Ogawa T/** Inst Phys & Chem Res, Wako, Saitama 35101, Japan

CARBOHYD RES 1990, 201 (1) 51

A regio- and stereo-controlled synthesis of beta-D-GlcpNac6SO₃-(1-3)-beta-D-Galp6SO₃-(1-4)-beta-D-GlcpNac6SO₃-(1-3)-D-Galp, a linear acidic glycan fragment of keratan sulfate I

Yamazaki F, Kitajima T, Nukada T, Ito Y, Ogawa T/** Inst Phys & Chem Res, Wako, Saitama 35101, Japan

CARBOHYD RES 1990, 201 (1) 15

Synthesis of an appropriately protected core glycotetraoside, a key intermediate for the synthesis of "bisected" complex-type glycans of a glycoprotein

Yamazaki F, Sato S, Nukada T, Ito Y, Ogawa T/** Inst Phys & Chem Res, Wako, Saitama 35101, Japan

CARBOHYD RES 1990, 201 (1) 31

Synthesis of alpha-D-Manp-(1-3)-[beta-D-GlcpNac-(1-4)]-[alpha-D-Manp-(1-6)]-beta-D-Manp-(1-4)-beta-D-GlcpNac-(1-4)-[alpha-L-Fucp-(1-6)]-D-GlcpNac, a core glycopheptaose of a "bisected" complex-type glycan of glycoproteins

Hollosi M, Perczel A, Fasman GD/** Brandeis Univ, Dept Biochem, Waltham, Ma 02254, USA
BIOPOLYMERS 1990, 29 (12-13) 1549

Cooperativity of carbohydrate moiety orientation and beta-turn stability is determined by intramolecular hydrogen bonds in protected glycopeptide models

Martinpolo M, Voilley A//Consejo Nacl Ciencia & Technol, Mexico City, Mexico
SCI ALIMENT 1990, 10 (2) 473

Comparative study of the water permeability of edible film composed of arabic gum and of glycerolmonostearate

Kovensky J, Sassetti B, Cirelli AF*, Kordich L//
*Univ Buenos Aires, Fac Ciencias Exactas &
Nat, Dept Quim Organ, RA-1428 Buenos Aires,
Argentina

THROMB HAEMOST 1990, 63 (3) 488

Low anticoagulant activity of high sulphated heparan sulphates

Agnelli G, Cosmi B//Univ Perugia, Montelupe
Policlin, Ist Semeiot Med, I-06100 Perugia, Italy

MED RIV ENC MED ITAL 1990, 10 (1) 9

Low molecular weight heparins (Italian, English Abstract)

Bearman SI, Hinds MS, Wolford JL, Petersen FB, Nugent DL, Slichter SJ, Shulman HM, McDonald GB//Fred Hutchinson Canc Res Ctr, Div Clin Res, 1124 Columbia St, Seattle, Wa 98104, USA

BONE MARROW TRANSPLANT 1990, 5 (6) 407

A pilot study of continuous infusion heparin for the prevention of hepatic veno-occlusive disease after bone marrow transplantation

Brace LD, Fareed J//Univ Illinois, Dept Med Lab Sci 808 S Wood St, Rm 690 CME, Chicago, IL 60612, USA

THROMB RES 1990, 59 (1) 1

Heparin-induced platelet aggregation. II. Dose/response relationships for two low molecular weight heparin fractions (CY 216 and CY 222)

Dieval J, Moriniere P, Gross S, d'Azemar P, Fournier A, Delobel J//CHR Amiens, Haematol Lab, Amiens, France

THROMB RES 1990, 58 (6) 555

Influence of thromboembolism prophylaxis by low molecular weight heparin CY 216 (Fraxiparine[®]) on several parameters of haemostasis in patients under dialysis and receiving either unfractionated heparin or CY 216

Lewandowski K, Psuja P, Takarz A, Zozulinska M, Sowier J, Zawilska K//Med Acad Poznan, Dept Haematol, 8-12 Szkolna St, PL-61833 Poznan, Poland

THROMB RES 990, 58 (5) 525

Anticoagulant activity in the plasma after a single administration of nebulized heparin or

LMW heparin fraction (Fraxiparine) in patients undergoing abdominal surgery

Matzsch T, Bergqvist D, Fredin H, Hedner U//Hadassah Mt Scopus Univ Hosp, Hematol Unit, IL-91240 Jerusalem, Israel

ACTA CHIR SCAND 1990, 156 (6-7) 445

Low molecular weight heparin compared with dextran as prophylaxis against thrombosis after total hip replacement

Nakanishi E, Sato H*, Nakajima A//Kyoto Univ, Med Polymers & Biomat Res Ctr, 53 Kawaharacho, Sakyo ku, Kyoto 606, Japan

POLYM J 1990, 22 (6) 510

Electrophoretic study on a soluble complex of heparin and fibrinogen

Oguma Y, Sakuragawa N, Maki M, Nakagawa M, Hasegawa H//Toyama Med & Pharmaceut Univ, Dept Clin Lab Med, Sugitani, Toyama 93001, Japan

THROMB RES 1990, 59 (1) 37

Clinical effect of low molecular weight heparin (Fragmin) on DIC: A multicenter cooperative study in Japan

Sorensen JV, Borris LC, Lassen MR, Christiansen HM, Schott P, Olsen AD, Neerstrand HS//Aalborg Hosp, Venous Thrombosis Grp, DK-9000 Aalborg, Denmark

THROMB RES 1990, 59 (1) 131

Association between plasma levels of tissue plasminogen activator and postoperative deep vein thrombosis - Influence of prophylaxis with a low molecular weight heparin

Van Arman SA, Czarnik AW**//Ohio State Univ, Dept Chem, Columbus, Oh 43210, USA

J AMER CHEM SOC 1990, 112 (13) 5376

General fluorescence assay for enzyme-catalyzed polyanion hydrolysis based on template-directed excimer formation. Application to heparin and polyglutamate

Wentland SH, Morgan CA, Cepero NM, Lorenzo I//Houston Baptist Univ, Houston, Tx 77074, USA

J CHEM EDUC 1990, 67 (5) 446

A diffusion-precipitation assay for measuring heparin concentrations

Huey G, Stair S, Stern R//Univ Calif San Francisco, Sch Med, Dept Pathol, HSW-501, San Francisco, Ca 94143, USA

MATRIX 1990, 10 (2) 67

Hyaluronic acid determination - Optimizing assay parameters

Lacarte MPR, Casasin T, Pumarola F, Alonso A//C Santa Anna 2, E-08901 Lhospitalet, Spain

ACTA OTO-LARYNGOL 1990, 110 (1-2) 110

An alternative treatment for the reduction of tympanic membrane perforations: Sodium hyaluronate. A double blind study

Repa I, Garnic JD, Hollenberg NK*//Harvard Univ, Brigham & Womens Hosp, Sch Med, Dept Radiol, 75 Francis St, Boston, Ma 02115, USA

J CARDIOVASC PHARMACOL 1990, 16 (2) 286

Myocardial infarction treated with two lymphagogues, calcium dobesilate (CLS 2210) and hyaluronidase: A coded, placebo-controlled animal study

Yamazaki H, Dilawri N//Carleton Univ, Dept Biol, Ottawa, Ontario, Canada K1S 5B6

LETT APPL MICROBIOL 1990, 10 (6) 229

Measurement of growth of bifidobacteria on inulofructosaccharides

Dickenson JM, Huckerby TN, Nieduszynski IA*//Univ Lancaster, Inst Environm & Biol Sci, Div Biol Sci, Lancaster LA1 4YQ, England

BIOCHEM J 1990, 269 (1) 55

Two linkage-region fragments isolated from skeletal keratan sulphate contain a sulphated N-acetylglucosamine residue

Reiss M, Hartmeier W//Univ Hohenheim, Inst Food Technol, Dept Tech Biochem, Garbenstr 25, W-7000 Stuttgart 70, FRG

FOOD BIOTECHNOL 1990, 4 (1) 69

Levan production with a flocculent strain of Zygomonas mobilis

Tojo M, Shibata N, Ban Y, Suzuki S*//Tohoku Coll Pharmaceut Sci, Dept Hyg Chem, 4-4-1 Komatsushima, Aobaku, Sendai 981, Japan

CARBOHYD RES 1990, 199 (2) 215

Structure of the D-mannan of Candida stellatoidea IFO 1397 strain. Comparison with that of the phospho-D-mannan of Candida albicans NIH B-792 strain

Denis I, Durand M, Stevani J, Hannequart G, Dumay C//INRA, Rech Nutr Stn, Cr Jouy, F-78350 Jouy en Josas, France

SCI ALIMENT 1990, 10 (2) 265

Fermentation of different types of purified pectins by pig hind-gut microflora in a semi-continuous culture system

Fils-Lycaon B, Buret M//INRA, Technol Prod Veg Stn, Domaine St Paul, BP 91, F-84143 Montfavet, France

HORTSCIENCE 1990, 25 (7) 777

Loss of firmness and changes in pectic fractions during ripening and overripening of sweet cherry

Friedrich J, Cimerman A, Steiner W//Boris Kidric Inst Chem, Hajdrihova 19, Ljubljana, Yugoslavia

APPL MICROBIOL BIOTECHNOL 1990, 33 (4) 377

Production of pectolytic enzymes by Aspergillus niger - Effect of inoculum size and potassium hexacyanoferrate II-trihydrate

Komae K, Sone Y, Kakuta M, Misaki A*//Osaka City Univ, Fac Sci Living, Dept Food & Nutr, Sumiyoshi ku, Osaka 558, Japan

AGR BIOL CHEM TOKYO 1990, 54 (6) 1469

Purification and characterization of pectinesterase from Ficus awkeotsang

Silacci MW, Morrison JC*//Univ Calif Davis, Dept Viticulture & Enol, Davis, Ca 95616, USA

AMER J ENOL VITICULT 1990, 41 (2) 111

Changes in pectin content of cabernet sauvignon grape berries during maturation

Wittenburg H, Jentsch W//Forschungszentrum Tierprodukt Dummerstorf Rostock, Bereich Tierernahrung Oskar Kellner, O-2500 Rostock, FRG

NAHRUNG 1990, 34 (3) 289

Determination of pectin in feed, feces and chyme and on the digestibility of pectin

Anand R, Nayyar S, Galvin TA, Merril CR, Bigelow LB//US FDA, CBER, Retrovirus Res Lab, Bldg 29A, 8800 Rockville Pike, Bethesda, Md 20892, USA

AIDS RES HUM RETROVIRUS 1990, 6 (5) 679

Sodium pentosan polysulfate (PPS), an anti-HIV agent also exhibits synergism with AZT, lymphoproliferative activity, and virus enhancement

Renard CMGC, Rouau X, Thibault JF//INRA, Biochim & Technol Glucides Lab, Rue Gerardi, BP 527, F-44026 Nantes 03, France

SCI ALIMENT 1990, 10 (2) 283

Structure and properties of water-soluble pentosans from wheat flour

Garcia-Bustos J, Tomasz A*//Rockefeller Univ, 1230 York Ave, New York, NY 10021, USA

PROC NAT ACAD SCI USA 1990, 87 (14) 5415
A biological price of antibiotic resistance: Major changes in the peptidoglycan structure of penicillin-resistant pneumococci

Carroll LE//Address not available

FOOD TECHNOL 1990, 44 (6) 137

Polydextrose manufacturer expands production capacity

Komae K, Komae A, Misaki A*//Osaka City Univ, Fac Sci Living, Dept Food & Nutr, Sumiyoshi ku, Osaka 558, Japan

AGR BIOL CHEM TOKYO 1990, 54 (6) 1477
A 4,5-unsaturated low molecular oligogalacturonide as a potent phytoalexin-elicitor isolated from polygalacturonide of *Ficus awkeotsang*

Angelo R, Voepel KC, Buller CS*//Univ Kansas, Dept Microbiol, Lawrence, Ks 66045, USA

J IND MICROBIOL 1990, 5 (2-3) 125
Isolation and characterization of a new strain of *Cellulomonas flavigena*

Voepel KC, Buller CS*//Univ Kansas, Dept Microbiol, Lawrence, Ks 66045, USA

J IND MICROBIOL 1990, 5 (2-3) 131
Formation of an extracellular energy reserve by *Cellulomonas flavigena* strain KU

Buller CS, Voepel KC//Univ Kansas, Dept Microbiol, Lawrence, Ks 66045, USA

J IND MICROBIOL 1990, 5 (2-3) 139
Production and purification of an extracellular polyglucan produced by *Cellulomonas flavigena* strain KU

Cesaro A, Delben F, Paoletti S//Univ Trieste, Dipartimento Biochim Biofis & Chim Macromolec, Piazzale Europa 1, I-34127 Trieste, Italy

INT J BIOL MACROMOL 1990, 12 (3) 170
Thermodynamics of the proton dissociation of natural polyuronic acids

Kratchanov C, Popova M*//Higher Inst Food Flavour Ind, Dept Organ Chem & Biochem, 26 Lenin Blvd, BU-4000 Plovdiv, Bulgaria

J CHROMATOGR 1990, 509 (1) 239

Increasing the purity of polyuronic sorbents

Wegrowski J, Moczar M, Robert L, Dachet C//Fac Med Reims, CNRS, UA 610, Biochim Lab, F-51095 Reims, France

INT J BIOL MACROMOL 1990, 12 (3) 213
Comparative study of the precipitation of low density lipoproteins by aortic proteodermatan sulphate and heparin

Basak RK, Sarkar AK, Saha M, Sikdar B, Das NN, Mukherjee AK*//Indian Jute Ind Res Assoc, Div Appl Chem, 17 Taratola Rd, Calcutta 700088, India

INDIAN J CHEM SECT B 1990, 29 (7) 641
Studies on carbohydrate part of a proteoglycan isolated from the cambium layer of jute plant (*Corchorus capsularis*)

McBain JA, Mueller GC*//Univ Wisconsin, McArdle Lab Canc Res, Madison, Wi 53706, USA

ANAL BIOCHEM 1990, 188 (1) 203
Isolation of proteoglycans using phenol extraction and isopycnic centrifugation in cesium trifluoroacetate

Soby L, Jamieson AM*, Blackwell J, Choi HU, Rosenberg LC*//Case Western Reserve Univ, Dept Macromolec Sci, Cleveland, Oh 44106, USA

BIOPOLYMERS 1990, 29 (12-13) 1587
Viscoelastic and rheological properties of concentrated solutions of proteoglycan subunit and proteoglycan aggregate

Scott JE, Cummings C, Greiling H, Stuhlsatz HW, Gregory JD, Damle SP//Univ Joseph Fourier, CNR, Lab Propre, Ctr Rech Macromolec Vegetales, BP 53, F-38041 Grenoble, France

INT J BIOL MACROMOL 1990, 12 (3) 180
Examination of corneal proteoglycans and glycosaminoglycans by rotary shadowing and electron microscopy

Sakagami H, Kim F, Konno K//Showa Univ, Sch Med, Dept Biochem 1, 1-5-8 Hatanodai, Shinagawa ku, Tokyo 142, Japan

ANTICANCER RES 1990, 10 (3) 697
Stimulation of human peripheral blood polymorphonuclear cell iodination by PSK subfractions

Takeda Y, Yoshikai Y*, Ohga S, Nomoto K//Kyushu Univ, Med Inst Bioregulat, Dept Immunol, Maidashi 3-1-1, Higashi ku, Fukuoka 812,

USA

INT J IMMUNOPHARMACOL 1990, 12 (4) 373

Augmentation of host defense against *Listeria monocytogenes* infection by oral administration with polysaccharide RBS (RON)

Gravanis G, Milas M, Rinaudo M, Clarke-Sturman AJ//Univ Joseph Fourier, CNR, Lab Propre, Ctr Rech Macromolec Vegetales, BP 53, F-38041 Grenoble, France

INT J BIOL MACROMOL 1990, 12 (3) 195

Conformational transition and polyelectrolyte behaviour of a succinoglycan polysaccharide

Gravanis G, Milas M, Rinaudo M, Clarke-Sturman AJ//Univ Joseph Fourier, CNR, Lab Propre, Ctr Rech Macromolec Vegetales, BP 53, F-38041 Grenoble, France

INT J BIOL MACROMOL 1990, 12 (3) 201

Rheological behaviour of a succinoglycan polysaccharide in dilute and semi-dilute solutions

Hassler RA, Doherty DH*//Synergen Inc, 1885 33rd St, Boulder, Co 80301, USA

BIOTECHNOL PROGR 1990, 6 (3) 182

Genetic engineering of polysaccharide structure - Production of variants of xanthan gum in *Xanthomonas campestris*

Jones, WM//Univ Coll Aberystwyth, Dept Math, Aberystwyth SY23 1NE, Dyfed, Wales

J NON-NEWTONIAN FLUID MECH 1990, 35 (1) 77

Comparison of the behaviour of filaments of xanthan solutions with that of filaments of polyacrylamide solutions

Ferreira LMA, Durrant AJ, Hall J, Hazelwood GP, Gilbert HJ*//Univ Newcastle Upon Tyne, Dept Agr Biochem & Nutr, Newcastle upon Tyne NE1 7RU, England

BIOCHEM J 1990, 269 (1) 261

Spatial separation of protein domains is not necessary for catalytic activity or substrate binding in a xylanase

Simkovic I, Alföldi J//Slovak Acad Sci, Inst Chem, CS-84238 Bratislava, Czechoslovakia

CARBOHYD RES 1990, 201 (2) 346

Acetylation of (4-O-methyl-D-glucurono)-D-xylan under homogeneous conditions using trifluoroacetic acid-acetic anhydride

Ogawa K, Hayashi T, Okamura K//Radiat Ctr Osaka Prefecture, Shinke cho, Sakai, Osaka 593, Japan

INT J BIOL MACROMOL 1990, 12 (3) 218

Conformational analysis of xyloglucans

7 Polysaccharides - Other

Baig S, Qadeer MA, Akhtar MS, Ahmed T//Forman Christian Coll, Biotechnol & Food Res Ctr, PCSIR Labs Complex, Lahore 54600 Pakistan

J FERMENT BIOENG 1990, 69 (6) 345

Utilization of unhydrolyzed cheese whey for the production of extracellular polysaccharide by *Xanthomonas cucurbitae* PCSIR B-52

Barry JL, Hoebler C, David A, Kozlowski F, Gueneau S//INRA, Technol Appl Nutr Lab, BP 527, F-44026 Nantes 03, France

SCI ALIMENT 1990, 10 (2) 275

Cell wall polysaccharides determination - Comparison of detergent method and direct monomeric analysis

Campbell H, Byass P, Ahonkhai VI, Vella PP, Greenwood BM*//MRC Labs, POB 273, Banjul, Senegambia

PEDIATRICS 1990, 86 (1) 102

Serologic responses to an *Haemophilus influenzae* type-B polysaccharide *Neisseria meningitidis* outer membrane protein conjugate vaccine in very young Gambian infants

Cerning J, Bouillanne C, Landon M, Desmazaud MJ//INRA, Ctr Rech Jouy Rech Laitieres Stn, F-78350 Jouy en Josas, France

SCI ALIMENT 1990, 10 (2) 443

Comparison of exocellular polysaccharide production by thermophilic lactic acid bacteria

Champ M, Barry JL, Bonnet C, Berot S, Delortlaval J//INRA, Technol Appl Nutr Lab, BP 527, F-44026 Nantes 03, France

SCI ALIMENT 1990, 10 (2) 317

The role of cell wall polysaccharides and alpha-galactosides in the flatus induced by the consumption of a legume seed (lupin) in the rat

Claesson BA, Schneerson R, Trollfors B, Lagergard T, Taranger J, Robbins JB//East Hosp, Dept Infect Dis, S-41685 Gothenburg, Sweden

J PEDIAT 1990, 116 (6) 929

Duration of serum antibodies elicited by *Haemophilus influenzae* type-B capsular polysac-

charide alone or conjugated to tetanus toxoid in 18-month-old to 23-month-old children

Demigne C, Remesy C//INRA, Malad Metab Lab, F-63122 Ceyrat, France

SCI ALIMENT 1990, 10 (2) 325

Ammonia and urea fluxes in rat cecum - Influence of fermentable polysaccharides (French, English Abstract)

Elinov NP, Pronina MI, Kossior LA, Pogrebnyaya AV, Ananayeva EP, Sapunkova TY, Kletzko LI//Leningrad Pharmaceut Chem Res Inst, Leningrad, USSR

MIKOL FITOPATOL 1990, 24 (2) 136

Specific features of mutagenesis and hybridization of the polysaccharide producers *Aureobasidium pullulans* (d By) Arnaud and *Rhodotorula rubra* (Demme) Lodder (Russian)

Elkins KL, Stashak PW, Baker PJ**//NIAID, Immunogenet Lab, Twinbrook Res Facil 2, 12441 Parklawn Dr, Rockville, Md 20852, USA

J IMMUNOL METHOD 1990, 130 (1) 124

Analysis of the optimal conditions for the adsorption of type III pneumococcal polysaccharide to plastic for use in solid-phase ELISA

Fattom A, Lue C, Szu SC, Mestecky J, Schiffman G, Bryla D, Vann WF, Watson D, Kimzey LM, Robbins JB, Schneerson R//NICHHD, Biometry Branch, Dev & Molec Immun Lab, Bethesda, Md 20892, USA

INFEC IMMUNITY 1990, 58 (7) 2309

Serum antibody response in adult volunteers elicited by injection of *Streptococcus pneumoniae* type 12F polysaccharide alone or conjugated to diphtheria toxoid

Fattom A, Schneerson R, Szu SC, Vann W, Shiloach J, Karakawa WW, Robbins JB//NICHHD, Biometry Branch, Dev & Molec Immun Lab, Bethesda, Md 20892, USA

INFEC IMMUNITY 1990, 58 (7) 2367

Synthesis and immunologic properties in mice of vaccines composed of *Staphylococcus aureus* type 5 and type 8 capsular polysaccharides conjugated to *Pseudomonas aeruginosa* exotoxin A

Freire JB, Peinau J, Aumaitra A//INRA, Rech Porcines St Gilles Stn, F-35590 Hermitage, France

SCI ALIMENT 1990, 10 (2) 293

Digestive and metabolic consequences of non-starch polysaccharides in the starter of the

weaned piglet

Heinze T, Klemm D, Loth F, Philipp B//Univ Jena, Sekt Chem, O-6900 Jena, FRG

ACTA POLYM 1990, 41 (5) 259

Preparation structure and application of ionotropic gels of polysaccharides containing carboxy groups (German, English Abstract)

Hsieh KM, Lion LW, Shuler ML**//Amoco Chem Co, Naperville, Il 60565, USA

BIOTECHNOL LETT 1990, 12 (6) 449

Production of extracellular and cell-associated biopolymers by *Pseudomonas atlantica*

Iwahara S, Jikibara T, Takegawa K//Kagawa Univ, Fac Agr, Dept Bioresource Sci, Miki, Kagawa 76107, Japan

AGR BIOL CHEM TOKYO 1990, 54 (6) 1559

Identification of O-alpha-D-glucopyranosyluronate-(1-2)-D-galactose isolated from the acidic polysaccharide of *Fusarium* sp M7-1

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

CARBOHYD RES 1990, 201 (2) 327

Solid state ¹³C-n.m.r. spectra of *Vigna* primary cell walls and their polysaccharide components

Kroen WK, Ramus J//N Carolina State Univ, Dept Hort Sci, Raleigh, NC 27695, USA

J PHYCOL 1990, 26 (2) 266

Viscous polysaccharide and starch synthesis in *Rhodella reticulata* (Porphyridiales, Rhodophyta)

Leitch RA, Richards JC**//Nat'l Res Council Canada, Div Biol Sci, Ottawa, Ontario, Canada K1A 0R6

BIOCHEM CELL BIOL 1990, 68 (4) 778

Structural analysis of the specific capsular polysaccharide of *Rhodococcus equi* serotype I

Meikle PJ, Bundle DR//Nat'l Res Council Canada, Div Biol Sci, Ottawa, Ontario, Canada K1A 0R6

GLYCOCONJUGATE J 1990, 7 (3) 207

Preparation of polysaccharide-enzyme conjugates for competitive binding assays

Moreau M, Richards JC, Fournier J-M, Byrd RA, Karakawa WW, Vann WF**//US FDA, Off Biol Res & Review, Bethesda, Md 20892, USA

CARBOHYD RES 1990, 201 (2) 285

Structure of the type 5 capsular polysaccharide of *Staphylococcus aureus*

Morris VJ//AFRC, Inst Food Res, Norwich Lab, Colney Lane, Norwich NR4 7UA, England
FOOD BIOTECHNOL 1990, 4 (1) 45

Biotechnically produced carbohydrates with functional properties for use in food systems

Nikolaev AV, Ivanova IA, Shibaev VN, Kochetkov NK//ND Zelinskii Organ Chem Inst, Moscow, USSR
BIOORG KHIM 1990, 16 (5) 674

Fragments of biopolymers containing glycosyl phosphate residues. 4. Synthesis of (1-2)-linked, (1-3)-linked and (1-4)-linked glycosyl phosphosugars by the hydrogenphosphonate method (Russian, English Abstract)

Oishi K, Aoi S, Ehara Y, Otsuka Y, Shimamura K, Higuchi Y, Nomoto M//Nihon Univ, Agr & Vet Med, Dept Agr Chem, Shimouma, Setagaya ku, Tokyo 154, Japan

J FERMENT BIOENG 1990, 69 (6) 360

Inhibition of restriction endonucleases by commercial polysaccharides

Sierakowski M-R, Gorin PAJ, Reicher F, Correa JBC//Univ Fed Parana, Dept Quim, CP 19081, BR-81504 Curitiba, Parana, Brazil

CARBOHYD RES 1990, 201 (2) 277

Location of O-acetyl groups in the heteropolysaccharide of the cactus *Pereskia aculeata*

Sperl GT//Geomicrobial Technol Inc, POB 132, Ochelata, Ok 74051, USA

FOOD BIOTECHNOL 1990, 4 (2) 663

Isolation and characterization of the *Physarum polycephalum* extracellular polysaccharides

Stack RJ, Weisleder D//USDA ARS, No Reg Res Ctr, 1815 N Univ St Peoria, Il 61604, USA
BIOCHEM J 1990, 268 (2) 281

4-O-(1-carboxyethyl)-L-rhamnose, a second unique acidic sugar found in an extracellular polysaccharide from *Butyrivibrio fibrisolvens* strain 49

Tomoda M, Shimizu N, Kanari M, Gonda R, Arai S, Okuda Y//Kyoritsu Coll Pharmaceut Sci, Minato ku, Tokyo 105, Japan

CHEM PHARM BULL TOKYO 1990, 38 (6) 1667

Characterization of two polysaccharides having activity on the reticuloendothelial system from

the root of *Glycyrrhiza uralensis*

Usmanov TI, Karimova UG, Sarymsakov A//Tashkent Cotton Cellulose Chem & Technol, Res Inst, Tashkent, Uzbekistan, USSR

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C-13 NMR study of substituents distribution in carboxymethyl esters of polysaccharides (Russian, English Abstract)

Van Laeke G, Cuppens H, Leyssens L*, Raus J//Dr L Willems Inst, Univ Campus, B-3610 Diepenbeek, Belgium

J PHARMACEUT BIOMED ANAL 1989, 7 (12) 1641

Identification of polysaccharides in pharmaceuticals by capillary gas chromatography

Zhang JP, Qian DH, Zheng QY//Mil Med Univ 2, Coll Pharm, Nat & Synth Drugs Res Lab, Shanghai 2004433, Peoples R China

ACTA PHARMACOL SIN 1990, 11 (4) 375

Effects of *Phytolacca acinosa* polysaccharides-I on cytotoxicity of macrophages and its production of tumor necrosis factor and interleukin-1 (Chinese, English Abstract)

8 Lipopolysaccharides

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

BIOCHEM CELL BIOL 1990, 68 (4) 808

Structural analysis of the lipopolysaccharide of *Actinobacillus* (*Haemophilus*) *pleuropneumoniae* serotype 10

Rakhmilevich AL, Rakhimova MS//Acad Med Sci USSR, Human Morphol Res Inst, Cellular Immunopathol & Biotechnol Lab, Moscow 109801, USSR

BULL EXP BIOL MED-ENGL TR 1989, 108 (12) 1782

Synergic action of lipopolysaccharide and muramyl dipeptide in immunotherapy of DBA/2 mice with mastocytoma P815

Uehara A, Okumura T, Okamura K, Takasugi Y, Namiki M//Asahikawa Med Coll, Dept Internal Med 3, 4-5 Nishikagura, Ashikawa, Hokkaido 078, Japan

EUR J PHARMACOL 1990, 181 (1-2) 141

Lipopolysaccharide-induced inhibition of gastric acid and pepsin secretion in rats

Vreeman HJ, Van Markwijk BW//Netherlands Inst Dairy Res, Dept Biophys Chem, Ede, The Netherlands

MILCHWISSENSCHAFT 1990, 45 (6) 352

Bacterial lipopolysaccharides modified by a component in skim milk are not detectable by the *Limulus* amoebocyte lysate test

Wollenweber H-W, Rietschel ET**//Forschungsinstitut Borstel, Inst Exptl Biol & Med, Parkallee 1-42, W-2061 Borstel, FRG

J MICROBIOL METH 1990, 11 (3-4) 195

Analysis of lipopolysaccharide (lipid A) fatty acids

Yermak IM, Soloveva TF, Ovodov YS//Acad Sci USSR, Pacific Inst Bioorgan Chem, Far E Branch, Vladivostok 690022, USSR

BIOL MEMBRANY 1990, 7 (5) 462

A sedimentation study of thermotropic behavior of lipopolysaccharide and lipopolysaccharide-protein complex from *Yersinia pseudotuberculosis* (Russian, English Abstract)

9 Starch

Matheson NK//Univ Sydney, Dept Agr Chem, Sydney, NSW 2006, Australia

CARBOHYD RES 1990, 199 (2) 195

A comparison of the structures of the fractions of normal and high-amylose pea-seed starches prepared by precipitation with concanavalin A

Takeda Y, Shitaozono T, Hizukuri S//Kagoshima Univ, Fac Agr Chem, Kagoshima 890, Japan

CARBOHYD RES 1990, 199 (2) 207

Structures of sub-fractions of corn amylose

Cura JA, Krisman CR//Fdn Campomar, Inst Invest Bioquim, Avda Patricia Argentinas 435, 1405 Buenos Aires, Argentina

STARCH 1990, 42 (5) 171

Cereal grains: A study of their alpha-1,4-alpha-1,6 glucopolysaccharide composition

Kruuv J, Glofcheski DJ//Univ Waterloo, Guelph Waterloo Program Grad Work Phys, Waterloo, Ontario, Canada N2L 3G1

CRYO-LETT 1990, 11 (3) 215

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Zikria BA, Subbarao C, Oz MC, Popilkis SJ, Sachdev R, Chauhan P, Freeman HP, King TC//Columbia Presbyterian Med Ctr, Dept Surg, 622 W 168th St, New York, NY 10032, USA

ARCH SURG 1990, 125 (7) 930

Hydroxyethyl starch macromolecules reduce myocardial reperfusion injury

Bengtsson S, Larsson K//Natl Lab Agr Chem, POB 7004, S-75007 Uppsala, Sweden

SWED J AGR RES 1990, 20 (1) 27

Determination of starch in a flow-injection system with immobilized enzymes

Biliaderis CG, Zawistowski J//Univ Manitoba, Dept Food Sci, Winnipeg, Manitoba, Canada R3T 2N2

CEREAL CHEM 1990, 67 (3) 240

Viscoelastic behavior of aging starch gels: Effects of concentration, temperature, and starch hydrolysates on network properties

Castelain C, Bronnec I, Genot C, Laroche M//INRA, Etud Interact Molec Alimentaires Lab, Rue Geraudiere, BP 527, F-44026 Nantes 03, France

SCI ALIMENT 1990, 10 (2) 453

Flow behaviour and stability of concentrated oil-in-water emulsions - Effects of modified starch in aqueous phase (French, English Abstract)

Cereda MP, Bonet AF, Valles S, Alberola J//Univ Estadual Paulista Julio Mesquita Filho, Fac Ciencias Agron, Dept Tecnol Prods Agropecuarias, BR-18600 Botucatu, SP, Brazil

REV MICROBIOL 1990, 21 (1) 73

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Fahlvik AK, Holtz E, Schroder U, Klaveness J//Nycomed Imaging AS, Div Res & Dev, Dept Pharmacol & Toxicol, PB 4220 Torshov, N-0401 Oslo 4, Norway

INVEST RADIOL 1990, 25 (7) 793

Magnetic starch microspheres, biodistribution and biotransformation - New organ-specific contrast agent for magnetic resonance imaging

Figueroa V, Maylin A, Ly J, Perez A, Carrillo O, Bayley HS//Inst Invest Porcinas, Havana, Cuba

LIVEST PROD SCI 1990, 25 (12) 151

Ileal and total digestibility studies in pigs fed molasses type-A or starch diets supplemented with *Torula* yeast or soybean meal

Gernat C, Radosta S, Damaschun G, Schierbaum F//Acad Sci GDR, Zent Inst Molek Biol, Robert Rossle Str 10, O-1115 Berlin, FRG

STARCH 1990, 42 (5) 175

Supramolecular structure of legume starches revealed by x-ray scattering

Griffith LS, Sporns P*//Univ Alberta, Dept Food Sci, Edmonton, Alberta, Canada T6G 2P5

J AGR FOOD CHEM 1990, 38 (6) 1356

Determination of dextrose equivalent in starch hydrolysates using cerium(IV)

Hayde M, Widhalm K*//Univ Vienna, Dept Paediat, Div Metab Dis, Wahinger Gurtel 18-20, A-1090 Vienna, Austria

EUR J PEDIAT 1990, 149 (9) 630

Effects of cornstarch treatment in very young children with type I glycogen storage disease

He GC, Kogure K, Suzuki H//Hubei Acad Agr Sci, Wuhan, Peoples R China

JPN J CROP SCI 1990, 59 (2) 340

Development of endosperm and synthesis of starch in rice grain. 3. Starch property as affected by the temperature during grain development

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

STARCH 1990, 42 (5) 185

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Hunt TM, Flowerdew ADS, Birch SJ, Williams JD, Mullee MA, Taylor I*//Univ Southampton, Southampton Gen Hosp, Surg Unit, Tremona Rd, Southampton SO1 6HU, England

BRIT J SURG 1990, 77 (7) 779

Prospective randomized controlled trial of hepatic arterial embolization or infusion chemotherapy with 5-fluorouracil and degradable starch microspheres for colorectal liver metastases

I'Anson KJ, Miles MJ, Morris VJ*, Besford LS, Jarvis DA, Marsh RA//AFRC, Inst Food Res, Norwich Lab, Colney Lane, Norwich NR4 7UA, England

J CEREAL SCI 1990, 11 (3) 243

The effects of added sugars on the retrogradation of wheat starch gels

Johnson JM, Davis EA, Gordon J//Univ Min-

nesota, Dept Food Sci & Nutr, 1334 Eckles Ave, St Paul, Mn 55108, USA

CEREAL CHEM 1990, 67 (3) 236

Lipid binding of modified corn starches studied by electron spin resonance

Johnson JM, Davis EA, Gordon J//Univ Minnesota, Dept Food Sci & Nutr, 1334 Eckles Ave, St Paul, Mn 55108, USA

CEREAL CHEM 1990, 67 (3) 286

Interactions of starch and sugar water measured by electron spin resonance and differential scanning calorimetry

Lama L, Nicolaus B, Trincone A, Morzillo P, Derosa M, Gambacorta A//CNR, Ist Chim Molec Interesse Biol, Via Toiano 6, I-80072 Naples, Italy

BIOTECHNOL LETT 1990, 12 (6) 431

Starch conversion with immobilized thermophilic arachaeobacterium Sulfolobus solfataricus

Likimani TA, Maga JA, Sofos JN//Univ Nairobi, Dept Food Technol & Nutr, Nairobi, Kenya

LEBENS-MISS TECHNOL 1990, 23 (3) 226

The rate of starch hydrolysis in extruded corn/soybean products

Livesey G, Davies IR, Brown JC, Faulks RM, Southon S//Inst Food Res, Norwich Lab, Colney Lane, Norwich NR4 7UA, England

BRIT J NUTR 1990, 63 (3) 467

Energy balance and energy values of alpha-amylase (EC3.2.1.1)-resistant maize and pea (Pisum sativum) starches in the rat

Marsman JH, Pieters RT, Janssen LPBM, Beenaekers AACM//State Univ Groningen, Dept Chem Engn, Neuenborgh 16, 9747 AG Groningen, The Netherlands

STARCH 1990, 42 (5) 191

Determination of degree of substitution of extruded benzylated starch by H-NMR and UV-spectrometry

McAllister TA, Cheng KJ, Rode LM, Buchanan-Smith JG//Agr Canada Res Stn, POB 3000, Lethbridge, Alberta, Canada T1J 4B1

CAN J ANIM SCI 581

Use of formaldehyde to regulate digestion of barley starch

Millet, Sicard P//Address not available
BIOFUTUR 1990, (90) 76

The starch industry - From speciality to commodity

Murakami M, Yokoyama SY, Ogi T, Koguchi K//Ebara Corp, Kohnan 1-6-27, Minato ku, Tokyo 108, Japan

BIOMASS 1990, 23 (3) 215

Direct liquefaction of activated sludge from aerobic treatment of effluents from the corn-starch industry

Neszmelyi A, Hollo J//Hungarian Acad Sci, Cent Res Inst Chem, Pusztaszeri Ut 59, H-1025 Budapest, Hungary

STARCH 1990, 42 (5) 167

Conformation and flexibility of starch polysaccharides in solution

Okieimen FE, Egharevba F, Jideonwo A//Univ Benin, Dept Chem, Benin City, Nigeria

ACTA POLYM 1990, 41 (4) 222

Grafting of ethyl acrylate onto starch

Patel MV, Raval DK, Patel RG, Patel VS//Sardar Patel Univ, Dept Chem, Vallabh Vidyanagar 388120, Gujarat, India

STARCH 1990, 42 (6) 226

Modification and characterization of *Leucaena glauca* seed gum by graft copolymerization with acrylonitrile

Rasmussen TS, Henry RJ//Queensland Dept Primary Ind, Agr Chem Branch, Meiers Rd, Indooroopilly, Qld 4068, Australia

J SCI FOOD AGR 1990, 52 (2) 159

Starch determination in horticultural plant material by an enzymic-colorimetric procedure

Reyes FGR, Goia CH, Sgarbieri VC//State Univ Campinas, Sch Food Engn, Campinas, SP, Brazil

ARCH LATINOAMER NUTR 1989, 39 (1) 36
Comparative study of maize cultivars 30 days after pollination (30 DAP) - Characterization of starch

Sievert D, Pomeranz Y//Washington State Univ, Dept Food Sci & Human Nutr, Pullman, Wa 99164, USA

CEREAL CHEM 1990, 67 (3) 217

Enzyme-resistant starch. II. Differential scanning calorimetry studies on heat-treated starches and enzyme-resistant starch residues

Stute R//Maizena GmbH, CPC Europe Con-

sumer Foods Ltd, Ctr Res & Dev, Knorrstr 1, W-7100 Heilbronn, FRG

STARCH 1990, 42 (5) 178

Properties and applications of pea starches. Part I: Properties (German, English Abstract)

Stute R//Maizena GmbH, CPC Europe Consumer Foods Ltd, Ctr Res & Dev, Knorrstr 1, W-7100 Heilbronn, FRG

STARCH 1990, 42 (6) 207

Properties and applications of pea starches. Part II. Applications (German, English Abstract)

Sutton KH, Mouat CL//DSIR, Wheat Res Inst, POB 29-182, Christchurch, New Zealand

J CEREAL SCI 1990, 11 (3) 235

Determination of damaged starch in wheat flours by reversed-phase high-performance liquid chromatography

Tsuge H, Hishida M, Iwasaki H, Watanabe S, Goshima G//Gifu Univ, Fac Agr, Inst Food Sci, 1-1 Yanagido, Gifu 50111, Japan

STARCH 1990, 42 (6) 213

Enzymatic evaluation for the degree of starch retrogradation in foods and foodstuffs

Weaver MO//USDA, ARS, Midwest Area No Reg Res Ctr, 1815 N Univ St, Peoria, Il 61604, USA

STARCH 1990, 42 (6) 223

Some commercial polymer emulsions and their combination with starch dispersions for stabilization of soil particles in water

Wem L-F, Rodis P, Wasserman BP//Rutgers State Univ, Cook Coll, New Jersey Agr Ext Stn, Dept Food Sci, New Brunswick, NJ 08903, USA

CEREAL CHEM 1990, 67 (3) 268

Starch fragmentation and protein insolubilization during twin-screw extrusion of corn meal

Yamada T, Suzuki K, Katuzaki H, Hisamatsu M, Tsu TK//Mie Univ, Fac Bioresources, Dept Food Sci, Food Chem Lab, 1515 Kamihama, Tsu, Mie 514, Japan

STARCH 1990, 42 (6) 217

GPC profile change of potato starch with extrusion processing

10 Starch-degrading Enzymes

Brown SH, Costantino HR, Kelly RM//Johns Hopkins Univ, Dept Chem Engn, Baltimore, Md

21218, USA

APPL ENVIRON MICROBIOL 1990, 56 (7) 1985

Characterization of amylolytic enzyme activities associated with the hyperthermophilic archaeobacterium *Pyrococcus furiosus*

Leclerc C, Cherbut C, Guillon F, Champ M// INRA, Technol Appl Nutr Lab, BP 527, F-44026 Nantes 03, France

SCI ALIMENT 1990, 10 (2) 309

The effect of soluble fibre content of beet pulp on the in vitro alpha-amylolysis of a semi-synthetic meal

Miranda EA, Berglund KA*//Michigan State Univ, Dept Agr, E Lansing, Mi 48824, USA

BIOTECHNOL PROGR 1990, 6 (3) 214

Recovery of *Clostridium thermosulfurogenes* produced beta-amylase by (hydroxypropyl) methylcellulose partition

Moot DJ, Every DA//DSIR, Wheat Res Inst, POB 29-182, Christchurch, New Zealand

J CEREAL SCI 1990, 11 (3) 225

A comparison of bread baking, falling number, alpha-amylase assay and visual method for the assessment of pre-harvest sprouting in wheat

Okafor N, Ejiofor AO//Anambra State Univ Technol, Independence Layout, PMB 01660, Enugu, Nigeria

PROCESS BIOCHEM 1990, 25 (3) 82

Rapid detoxification of cassava mash fermenting for garri production following inoculation with a yeast simultaneously producing linamarase and amylase

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

STARCH 1990, 42 (6) 233

Characteristics and novel features of thermostable alpha-amylase produced by *Bacillus licheniformis* M27 under solid state fermentation

Schwardt E//Miles Kali Chem GmbH & Co KG, Biochem Werk, W-3000 Hanover 69, FRG

FOOD BIOTECHNOL 1990, 4 (1) 337

Production and use of enzymes degrading starch and some other polysaccharides

Sunna A, Hashwa F*//Univ Jordan, Dept Biol Sci, Amman, Jordan

BIOTECHNOL LETT 1990, 12 (6) 633

Thermostable amylase from an aerobic, gram-negative, non-spore-forming thermophilic bacterium

Takeo K, Nakagen M, Teramoto Y, Nitta Y// Kyoto Prefectural Univ, Dept Agr Chem, Kyoto 606, Japan

CARBOHYD RES 1990, 201 (2) 261

Synthesis of O-alpha-D-glucopyranosyl-(1-4)-O-alpha-D-xylopyranosyl-(1-4)-O-alpha-D-xylopyranosyl-(1-4)-D-glucopyranose as a substrate analogue of alpha amylase

Azad MAK, Lebenthal E*//Hahnemann Univ, Dept Pediat, Inst Infant Nutr & Gastrointestinal Dis, Broad & Vine, Philadelphia, Pa 19102, USA
PEDIAT RES 1990, 28 (2) 166

Role of rat intestinal glucoamylase in glucose polymer hydrolysis and absorption

Federici F, Petruccioli M*, Miller MW*//Univ Basilicata, Ist Microbiol & Tecnol Agrarie & Forestali, Via N Sauro 85, I-85100 Potenza, Italy
APPL MICROBIOL BIOTECHNOL 1990, 33 (4) 407

Enhancement of stabilization of the production of glucoamylase by immobilized cells of *Aureobasidium pullulans* in a fluidized-bed reactor

Savelev AN, Sergeev VR, Firson LM//MI Kalinin Polytech Inst, Fac Physicomech, Leningrad 195251, USSR

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