

BIBLIOGRAPHY ON CARBOHYDRATE POLYMERS

1 Books, Reviews and Symposia

Holmstedt B, Frank H, Testa B (Eds)

Alan R Liss Inc (New York), 1990, 283pp, \$120.00 Hardbound, ISBN: 0-471-56226-2

Chirality and Biology Activity

International Symp on Chirality and Biological Activity, Tubingen, Fed Rep Ger, Apr 5-8, 1988

Includes chapters on: Gas chromatographic enantiomer separation with modified cyclodextrins; Enantiomeric separation of some useful phenoxypyridyl and phenoxyphenyl biocide intermediates by chromatography on cellulose triacetate and tribenzoate

Kumpft VJ, Holland EG//Christ Hosp, Dept Pharm, 4440 W 95th St, Oak Lawn, IL 60453, USA

DICP ANN PHARMACOTHERAPY 1990, 24 (2) 162

Parenteral iron dextran therapy (Review)

Ohashi S, Iida H, Nishinari K//San Ei Chem Ind Ltd, Sanwacho 1 chome, Toyonaka, Osaka 561, Japan

J JPN SOC FOOD SCI TECHNOL 1990, 37 (2) 167

The 5th International Conference on Gums and Stabilisers for the Food Industry (Japanese, English Abstract) (Conference News)

Bourne GH (Ed)

S Karger AG (Basel), 1989, 260pp, \$166.75/SFR 250.00/DM 299.00 Hardbound, ISBN: 3-8055-4992-X

Nutritional Value of Cereal Products, Beans and Starches

World Review of Nutrition and Dietetics, Vol 60

2 Cellulose

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

POLYMER 1990, 31 (2) 348

Conformation of carboxymethylcellulose in calcium-water solutions

Avramova N, Fakirov S//Univ Sofia, Struct & Properties Polymers Lab, BU-1126 Sofia, Bulgaria

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Study of the healing process in native cellulose

Chanzy H, Paillet M, Hagege R//CNRS, Ctr Rech Macromolec Vegetales, 53X, F-38041 Grenoble, France

POLYMER 1990, 31 (3) 400

Spinning of cellulose from N-methyl morpholine N-oxide in the presence of additives

Cullis CF, Mirschler MM, Khattab MAAM//City Univ London, Dept Chem, London EC1V 0HB, England

EUR POLYM J 1990, 26 (2) 207

Mechanisms of action of some sulphates as flame retardants for cellulose

Dohring D, Raubach H, Singer K, Jakel E, Goering H//Acad Sci GDR, Zent Inst Organ Chem, DDR-1199 Berlin, Ger Dem Rep

ANGEW MAKROMOL CHEM 1990, 174 (JAN) 151

Investigations on the structure of PF/cellulose paper laminates by dynamic-mechanical analysis

Fernandez MJ, Fernandez MD, Casinos I, Guzman GM//Univ Pais Vasco, Fac Ciencias Quim, Dept Ciencia & Tecnol Polimeros, Apdo 1072, E-20080 San Sebastian, Spain

J APPL POLYM SCI 1990, 39 (5) 1101

Thermal behavior of cellulosic graft copolymers. 2. Cotton grafted with binary mixtures of vinyl acetate and methyl acrylate

Flink P, Stenberg B//Royal Inst Technol, Dept Polymer Technol, S-10044 Stockholm 70, Sweden

BRIT POLYM J 1990, 22 (3) 193

An indirect method which ranks the adhesion in

As a service to subscribers, each issue of the Journal contains a bibliography of newly published material in the field of carbohydrate polymers. The bibliography is divided into ten sections: 1 Books, Reviews and Symposia; 2 Cellulose; 3 Cellulose-degrading Enzymes; 4 Cyclodextrins; 5 Lignin; 6 Polysaccharides - Named; 7 Polysaccharides - Other; 8 Lipopolysaccharides; 9 Starch; 10 Starch-degrading Enzymes. Within each section, articles are listed in alphabetical order with respect to the subject. When there are no publications to appear under one of these headings, that section will be omitted.

natural rubber filled with different types of cellulose fibres by plots of $E(t)/E_{t=0}$ versus $\log t$

Furcht PW, Sila H//Stevens Inst Technol Lab, Dept Chem Engr, Castle Point Stn, Hoboken, NJ 07030, USA

BIOTECHNOL BIOENG 1990, 35 (6) 630

Comparison of the simultaneous wet milling and enzymatic hydrolysis of cellulose in ball mill and attrition mill reactors

Harkness BR, Gray DG*//McGill Univ, Pulp & Paper Res Inst Canada, 3420 Univ St, Canada H3A 2A7

MACROMOLECULES 1990, 23 (5) 1452

Preparation and chiroptical properties of tritylated cellulose derivatives

Jing S-B, Yamaguchi T//Chiba Inst Technol, Narashino, Chiba 275, Japan

NIPPON KAGAKU KAISHI 1990, (1) 104

Selective chemisorption of urea by chitosan coated dialdehyde cellulose (Japanese, English Abstract)

Kato T, Sato T, Mori K//Tohoku Univ, Coll Gen Educ, Dept Chem, Sendai, Miyagi 980, Japan

ANAL SCI 1990, 6 (1) 103

Analytical sensitivities for 36 elements in cellulose matrix by means of high-energy photon activation and low-energy photon detection

Krylova RG, Shashkov AS, Usov AI//ND Zelin-skii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (10) 1384

Synthesis of 3-bromo-3-deoxy derivatives with allo configuration from corresponding methyl beta-cellobioside and cellulose chlorosulfates and their structure elucidation using ^{13}C NMR spectra (Russian, English Abstract)

Liu C-K, Cuculo JA, Smith B//US Surg Corp, Mat Res Lab, Glover Ave, Norwalk, Ct 06856, USA

J POLYM SCI B-POLYM PHYS 1990, 28 (4) 449

Diffusion competition between solvent and non-solvent during the coagulation process of cellulose/ammonia/ammonium thiocyanate fiber spinning system

Malmsten M, Lindman B//Univ Lund, Ctr Chem, POB 124, S-22100 Lund, Sweden

LANGMUIR 1990, 6 (2) 357

Ellipsometry studies of the adsorption of cellulose ethers

Mamar SAS, Hadjadj A//Haut Commiss Rech, Ctr Dev Tech Nucl, Div Phys Chim Rayonnements, BP 1017, Algiers, Algeria

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Radiation pretreatments of cellulose materials for the enhancement of enzymatic hydrolysis

Margolin AL, Menendes MA, Tomashevich, Shlyapintokh VY//Acad Sci USSR, Inst Chem Phys, Moscow V-71, USSR

VYSOKOMOL SOEDIN SER A SSSR 1990, 32 (2) 259

Kinetics of formation and decay of radicals in photooxidation of cellulose (Russian, English Abstract)

Moore P, Poslusny M, Daugherty KE*, Venables BJ, Okuda T//Univ N Texas, Denton, Tx 76203, USA

APPL SPECTROSC 1990, 44 (2) 326

Detection of cellulose embrittlement by infrared spectroscopy

Parkhomenko VV, Kudra LA, Lesene IV, Tre-tinnik VY//Acad Sci UkSSR, Inst Colloid Chem & Water Chem, Kiev, Ukraine, USSR

IZV VYSSH UCH ZAV KHIM KHIM T 1989, 32 (9) 81

Physical-chemical properties of cellulose modified esters as cross-linking agents of mineral dispersion (Russian)

Parshina NI, Kasymov SK, Veshkurova ON, Takanayev AA, Salikhov SI//Acad Sci UzSSR, Inst Bioorgan Chem, Tashkent, Uzbekistan, USSR

KHIM PRIR SOEDIN SSSR 1989, (6) 860

Use of different modifiers for administration of isotopic label to cellulose (Russian)

Pesonen T, Paronen P//Univ Kuopio, Dept Pharmaceut Technol, POB 6, SF-70211 Kuopio, Finland

DRUG DEVELOP IND PHARM 1990, 16 (4) 591

Compressional behaviour of an agglomerated cellulose powder

Renganathan V, Usha SN, Lindenburg F//Oregon Grad Inst Sci & Technol, Dept Chem & Biol Sci, 19600 NW von Neumann Dr, Beaverton, Or 97006, USA

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Cellulose-oxidizing enzymes from the lignocellulose-degrading basidiomycete *Phanerochaete chrysosporium* - Interaction with microcrystalline cellulose

Sprey B//KFA Julich GmbH, Inst Biotechnol, Postfach 1913, D-5170 Julich 1, Fed Rep Ger
FEMS MICROBIOL LETT 1990, 67 (5) 301

Adhesion of cellulose to cell walls to *Trichoderma reesei*

Torgashov VI, Gert YV, Bildyukevich AV, Kaputskii FN//VI Lenin State Univ, Phys Chem Problems Res Inst, Minsk, Belorussia, USSR
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Study of heterophase O-nitrosation of cellulose (Russian, English Abstract)

Tvorogova MG, Lipitskaya IY, Volkova EI, Kotkina TI, Titov VN//AL Myasnikov Cardiol Inst, Moscow B-142, USSR
LAB DELO 1989, (12) 61

Separation of alpha-amylase isozymes by cellulose acetate electrophoresis (Russian, English Abstract)

Ueno M, Ugajin Y, Horie K, Nishimura T//Sci Univ Tokyo, Fac Sci, Dept Appl Chem, 1-3 Kagazaka, Shinjuku ku, Tokyo 162, Japan
J APPL POLYM SCI 1990, 39 (4) 967

Antifogging effect of cellulose films by chemical modification of the surface using nonionic fluorocarbon surfactant

Yamagishi T, Fukuda T, Miyamoto T, Ichizuka T, Watanabe J//Univ Dortmund, Fachbereich Mat, D-4600 Dortmund 50, Fed Rep Ger
LIQ CRYST 1990, 7 (2) 155

Thermotropic cellulose derivatives with flexible substituents. III. Temperature dependence of cholesteric pitches exhibiting a cholesteric sense inversion

Yamashiki T, Matsui T, Saitoh M, Matsuda Y, Okajima K, Kamide K*, Sawada T//*Asahi Chem Ind Co Ltd, Fundamental Res Lab Fibers & Fiber Forming Polymers, 11-7 Hacchonawate, Takatsuki, Osaka 569, Japan
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Characterisation of cellulose treated by the steam explosion method. Part 3: Effect of crystal forms (cellulose I, II and III) of original cellulose on changes in morphology, degree of polymerisation, solubility and supermolecular structure by steam explosion

Yang S-Y, Liu A-M//Acad Sinica, Guangzhou Inst Chem, Guangzhou 510650, Peoples R China
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Side chain isolation of grafted cellulose

Zakhvatova ND, Tulupov GV, Gladilov VV//IM Sechenov Med Inst, Moscow, USSR
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Rapid electrophoretic analysis of the blood proteins on cellulose acetate films (Russian, English Abstract)

Kamberov E, Ivanov A*//Paisij Hilendarski Univ Plovdiv, Dept Biochem & Microbiol, Tsar Assen St 24, BU-4000 Plovdiv, Bulgaria
J CHROMATOGR-BIOMED APPL 1990, 525 (2) 307

Purification of phospholipase-C from *Bacillus cereus* by affinity chromatography on 2-(4-aminophenylsulphonyl)ethyl-cellulose

Suto S, Hayasaka S-I//Yamagata Univ, Fac Chem, Jonan 4-3-16, Yonezawa, Yamagata 992, Japan
BRIT POLYM J 1990, 22 (3) 185

Viscometric behaviour of kevlar fibre filled liquid crystalline solutions of ethyl cellulose in m-cresol

Tsujiyama T, Suzuki N, Kuriki T, Kawata M, Goto S//Hoechst Japan Ltd, Pharma Res Labs, 1-3-2 Minamidai, Kawagoe, Saitama 350, Japan
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Pharmacological evaluation of hydroxypropylcellulose-ethylcellulose microcapsules containing piretanide

Tezuka Y, Imai K, Oshima M*, Chiba T//Shin Etsu Chem Co Ltd, Special Chem Res Ctr, 28-1 Nishifukushima, Kubiki, Niigata 942, Japan
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Determination of substituent distribution in cellulose ethers by ¹³C- and ¹H-n.m.r. studies of their acetylated derivatives: O-(2-hydroxypropyl)cellulose

Winnik FM//Xerox Res Sess Ctr Canada Ltd, 2660 Speakman Dr, Mississauga, Ontario, Canada L5K 2L1
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Interaction of fluorescent dye labeled (hydroxypropyl)cellulose with nonionic surfactants

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

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The rate of isothermal heat evolution between 150°C and 230°C of lignocellulosic sheet materials in an air stream. I. Principal experimental results

Barnet D, Excoffier G, Vignon M//CNRS, Ctr Rech Macromolec Vegetales, BP 53X, F-38041 Grenoble, France

BULL SOC CHIM FRANCE 1989, (6) 836

Valorisation of lignocellulosic biomass - Fast autohydrolysis of poplar wood chips (French, English Abstract)

Piccaglia R, Galletti GC, Traldi P//CNR, Ctr Studio Conservaz Foraggi, Via F Re 8, I-40126 Bologna, Italy

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Characterization of lignocellulosics by pyrolysis-gas chromatography-ion trap detection

Muhle R, Gotz G//Univ Jena, Sect Phys, Max Wien Pl 1, DDR-6900 Jena, Ger Dem Rep
NUCL INSTRUM METH PHYS RES B 1990, 46 (1-4) 347

Ion beam exposure characteristics of nitrocellulose

Korneeva YV, Shtennikova IN, Shibaev VP, Klenin SI, Kolbina GF, Yekaeva IV, Didenko SA//Acad Sci USSR, Inst Macromolec Cpds, Leningrad, USSR

VYSOKOMOL SOEDIN SER A SSSR 1990, 32 (1) 43

Hydrodynamic properties and equilibrium rigidity of oxypropylcellulose molecules (Russian, English Abstract)

Shtennikova IN, Kolbina GF, Shibaev VP, Yekaeva IV//Acad Sci USSR, Inst Macromolec Cpds, Leningrad, USSR

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Optical anisotropy of oxypropylcellulose macromolecules (Russian, English Abstract)

Isaksson R, Erlandsson P, Hansson L, Holmberg A, Berner S//Univ Lund, Ctr Chem, Div Organ

Chem 3, POB 124, S-22100 Lund, Sweden
J CHROMATOGR 1990, 498 (2) 257

Triacetylcellulose as a chiral stationary phase for high-performance liquid chromatography

3 Cellulose-degrading Enzymes

Hogan CM, Meshartree M, Saddler JN, Kushner DJ//Forintek Canada Corp, Dept Biotechnol & Chem, 800 Montreal Rd, Ottawa, Ontario, Canada K1G 3Z5

APPL MICROBIOL BIOTECHNOL 1990, 32 (5) 614

Assessment of methods to determine minimal cellulase concentrations for efficient hydrolysis of cellulose

Marek J, Tumova E, Skrivan M, Splitek M//Vyzkumny Ustav Zivocisne Vyroby, CS-10400 Prague 10, Czechoslovakia

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Changes in nitrogen retention and digestibility in fattened cockerels with administration of the cellulolytic complex of *Trichoderma viride* (Czech, English Abstract)

Ofuya CO, Nwajiuba CJ//Univ Port Harcourt, Dept Microbiol, PMB 5323, Port Harcourt, Nigeria

J APPL BACTERIOL 1990, 68 (2) 171

Fermentation of cassava peels for the production of cellulolytic enzymes

Philipp B, Mietz M//Acad Sci GDR, Inst Polymerenchem Erich Correns, Krantstr 55, DDR-1530 Teltow, Ger Dem Rep

ZBL MIKROBIOL 1990, 145 (2) 73

Relationships between swelling, in vitro digestibility by cellulase and nutritional value of different treated straw

Shoseyov O, Doi RH//Univ Calif Davis, Dept Biochem & Biophys, Davis, Ca 95616, USA

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Essential 170-kDa subunit for degradation of crystalline cellulose by *Clostridium cellulovorans* cellulase

Storey KB, Chakrabarti AC//Carleton Univ, Inst Biochem, Ottawa, Ontario, Canada K1S 5B6

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One-step conversion of cellulose to fructose using coimmobilized cellulase, beta-glucosidase, and glucose isomerase

Szczodrak J//Marie Curie Skłodowska Univ,
Dept Appl Microbiol, 19 Akademicka St, PL-
20033 Lublin, Poland

ACTA BIOTECHNOL 1989, 9 (6) 555

Simultaneous saccharification and fermentation
of cellulose: Effect of ethanol and cellulases on
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Bezukladnikov PW, Elyakova LA, Mirgorod-
skaya OA//Acad Sci USSR, Far E Sci Ctr, Pacific
Bioorgan Chem Inst, Vladivostok, USSR

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L3 from *Chlamys albidus* using glycerol as ac-
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Bhat KM, Hay AJ, Claeysens M, Wood TM*//
*Rowett Res Inst, Bucksburn AB2 9SB, Aber-
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Yamanobe T, Mitsuishi Y//Minist Int Trade &
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Purification of endo-1,4-beta-glucanase compo-
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Yamanobe T, Mitsuishi Y//Minist Int Trade &
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Improvement of fungal strain Y-94, a cellulolytic
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cation of exploded wood

4 Cyclodextrins

Armstrong DW, Jin HL//Univ Missouri, Dept
Chem, 142 Schrenk Hall, Rolla, Mo 65401, USA

J CHROMATOGR 1990, 502 (1) 154

Acylation effects on chiral recognition of
racemic amines and alcohols by new polar and
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graphic phases

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Frederick Canc Res Facil, Program Res Inc,
POB B, Frederick, Md 21701, USA

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Effect of alcohol chain length, concentration and
polarity on separations in high-performance liq-
uid chromatography using bonded cyclodextrin
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Breslow R, Chung S//Columbia Univ, Dept
Chem, NY 10027, USA

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Additional flexibility solves the leaving group
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Bright FV, Catena GC, Huang J//SUNY Coll
Buffalo, Dept Chem, Acheson Hall, Buffalo, NY
14214, USA

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Kijima T//Natl Inst Res Inorgan Mat, Tsukuba,
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Konig WA, Krebber R, Wenz G//Univ Ham-
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Miyashita M, Yamashita S*//Hoshi Coll Pharm,
Dept Clin Chem, 2-4-21 Ebara, Shinagawa ku,
Tokyo 142, Japan

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Mohseni RM, Hurtubise RJ*//Univ Wyoming,
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Rao KR, Srinivassan TN, Bhanumathi N, Sattur PB//Indian Inst Chem Technol, Hyderabad 500007, India

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Artificial enzymes: Synthesis of imidazole substituted at C(2) of beta-cyclodextrin as an efficient enzyme model of chymotrypsin

Rao VP, Han N, Turro NJ**/Columbia Univ, Dept Chem, New York, NY 10027, USA

TETRAHEDRON LETT 1990, 31 (5) 835

A fine-tuning of photoreactivity of large ring 2-phenylcycloalkanones adsorbed in cyclodextrins

Sawada H, Suzuki T, Akiyama S, Nakao Y//Takeda Chem Ind Ltd, Div Res & Dev, Microbiol Res Labs, Yodogawa ku, Osaka 532, Japan

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Mechanism of the stimulatory effect of cyclodextrins on lankacidin-producing *Streptomyces*

Stalcup AM, Jin HL, Armstrong DW*, Mazur P, Derguini F, Nakanishi K//Univ Missouri, Dept Chem, Rolla, Mo 65401, USA

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Separation of carotenes on cyclodextrin-bonded phases

Szente L, Magisztrak H, Szejtli J//Chinoin Chem & Pharmaceut Works Ltd, Cyclodextrin Lab, Endrodi S 38-40, Budapest, Hungary

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Formulation of insect controlling agents with beta-cyclodextrin

Takeuchi T, Murayama M, Ishii D//Nagoya Univ, Resource & Energy Conservat Res Ctr, Chikusa ku, Nagoya, Aichi 464, Japan

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Indirect detection of cyclodextrins in micro-HPLC

Uekama K, Arima H, Irie T, Matsubara K, Kuriaki T//Kumamoto Univ, Fac Pharmaceut Sci, 5-1 Oe Honmachi, Kumamoto 862, Japan

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Sustained release of buserelin acetate, a luteinizing hormone-releasing hormone agonist, from an injectable oily preparation utilizing ethylated beta-cyclodextrin

Uekama K, Matsubara K, Abe K, Horiuchi Y, Hirayama F, Suzuki N//Kumamoto Univ, Fac Pharmaceut Sci, 5-1 Oe Honmachi, Kumamoto 862, Japan

J PHARM SCI 1990, 79 (3) 244

Design and in vitro evaluation of slow-release dosage form of piretanide: Utility of beta-cyclodextrin:cellulose derivative combination as a modified-release drug carrier

Wang M, Ueda H*, Nagai T//Hoshi Univ, Fac Pharmaceut Sci, 4-41 Ebara 2 chome, Shinagawa ku, Tokyo 142, Japan

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Simple prediction of stability constants for inclusion complexes of beta-cyclodextrin with various drug molecules using beta-cyclodextrin bonded phases (Cyclobond^(R)I column)

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Utility of 2-hydroxypropyl-beta-cyclodextrin in an intramuscular injectable preparation of nimo-dipine

5 Lignin

Asther M, Bellon-Fontaine M-N, Capdevila C, Corrieu G//INRA, CBA, Genie Procedes Biotechnol Agroalimentaires Lab, F-78850 Thiverval Grignon, France

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A thermodynamic model to predict *Phanerochaete chrysosporium* INA-12 adhesion to various solid carriers in relation to lignin peroxidase production

Fernandez N, Morck R, Johnsrud SC, Kringstad KP//Cuban Sugar Cane Byprod Res Inst, POB 4026, Havana, Cuba

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Carbon-13 NMR study on lignin from bagasse

Funazukuri T, Wakao N, Smith JM//Yokohama Natl Univ, Dept Chem Engn, Yokohama, Kana-

gawa 240, Japan

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Liquefaction of lignin sulphonate with subcritical and supercritical water

Galliano H, Gas G, Boudet AM//Univ Toulouse 3, Ctr Physiol Vegetale, CNRS, URA 241, 118 Route Narbonne, F-31062 Toulouse, France

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Lignin biodegradation by cultures of *Rigidoporus lignosus* in solid state conditions

Habu N, Matsumoto Y, Ishizu A, Nakano J//Univ Tokyo, Fac Agr, Wood Chem Lab, Yayoi 1-1, Bunkyo ku, Tokyo 113, Japan

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The role of the diarylpropane structure as a minor constituent in spruce lignin

Higuchi T//Kyoto Univ, Wood Res Inst, Uji, Kyoto 611, Japan

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Lignin biochemistry: Biosynthesis and biodegradation

Himmel ME, Tatsumoto K, Grohmann K, Johnson DK, Chum HL//Solar Energy Res Inst, Div Solar Fuels Res, Biotechnol Res Branch, Appl Biol Sci Sect, Golden, Co 80401, USA

J CHROMATOGR 1990, 498 (1) 93

Molecular weight distribution of aspen lignins from conventional gel permeation chromatography, universal calibration and sedimentation equilibrium

Jokerst RW//US Forest Serv, Forest Prod Lab, 1 Gifford Pinchot Dr, Madison, Wi 53705, USA

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Hydroxymethylated lignin-bonded Douglas fir flakeboard

Kondo T, Hiroi T, Mizuno K, Kato T//Nippon Kayaku Co Ltd, Ageo Res Lab, Div Agrochem, Fine Chem Grp, Ageo 362, Japan

CAN J PLANT SCI 1990, 70 (1) 193

Characterization of lignin-carbohydrate complexes of Italian ryegrass and alfalfa

Kosikova B, Mlynar J, Joniak D//Slovak Acad Sci, Inst Chem, Dubravska Cesta 9, CS-84238 Bratislava, Czechoslovakia

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Effect of lignin derivatives on the macromolecular properties of lignin in NSSC cooking

Kuusela TA, Laantera MLA, Lindberg JJ, Stubb H, Karhunen P//Univ Helsinki, Dept Wood & Polymer Chem, SF-00170 Helsinki 17, Finland

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Compounding of sulphur lignin

Michalowicz G, Robert A, Barnoud F//Ecole Francaise Papeterie & Art Graph, BP 65, F-38402 St Martin Dehres, France

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The application of transmission electron microscopy for topochemical studies on Aspen wood (*Populus tremula*) delignification during soda and soda/AQ pulping

Perestelo F, Falcon MA, de la Fuente G//Univ La Laguna, Dept Microbiol & Biol Cellular, La Laguna, Spain

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Biotransformation of Kraft lignin fractions by *Serratia marcescens*

Seelenfreund D, Vicuna R//Catholic Univ Chile, Fac Ciencias Biol, Unidad Microbiol & Genet Molec, Casilla 1145-D, Santiago, Chile

J IND MICROBIOL 1990, 5 (1) 17

Effect of *Streptomyces viridosporus* T7A on Kraft lignin

Siochi EJ, Ward TC*, Haney MA, Mahn B//*Virginia Polytech Inst & State Univ, Dept Chem, Blacksburg, Va 24061, USA

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The absolute molecular weight distribution of hydroxypropylated lignins

Suzuki H, Iiyama K, Yoshida O, Yamazaki S, Yamamoto N, Toda S//Univ Tokyo, Dept Agr Chem, Bunkyo ku, Tokyo 113, Japan

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

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Tsutsumi Y, Islam A, Anderson CD, Sarkanen KV//Kowaryo A-213, Jyokoji 4-2-1, Amagasaki,

Hyogo 606, Japan

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Zimmermann W//Swiss Fed Inst Technol, Inst Biotechnol, CH-8093 Zurich, Switzerland

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6 Polysaccharides - Named

Victoria L, Ortega MG, Ibanez JA//Univ Murcia, E-30071 Murcia, Spain

J CHEM EDUC 1990, 67 (2) 179

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Peutzfeldt A, Asmussen E//Royal Dent Coll, Dept Dent Mat & Technol, Norre Alle 20, DK-2200 Copenhagen N, Denmark

SCAND J DENT RES 1990, 98 (1) 74

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Siddiqui IR, Emery JP//Agr Canada, Food Res Ctr, Ottawa, Ontario, Canada K1A 0C6

J AGR FOOD CHEM 1990, 38 (2) 387

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Yoshida S, Kusakabe I*, Matsuo N, Shimizu K, Yasui T, Murakami K//*Univ Tsukuba, Inst Appl Biochem, Sakura, Ibaraki 305, Japan

AGR BIOL CHEM TOKYO 1990, 54 (2) 449

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Ishii T, Hiroi T//Forestry & Forest Prod Res Inst, POB 16, Ibaraki 305, Japan

CARBOHYD RES 1990, 196 (FEB) 175

Isolation and characterization of feruloylated arabinoxylan oligosaccharides from bamboo shoot cell-walls

Brito E, Juan JD, Dominguez F, Casas LT//Univ Laval, Dept Genie Chim, Quebec City, Quebec, Canada G1K 7P4

J FERMENT BIOENG 1990, 69 (2) 135

Diffusion coefficients of carbohydrates in modified kappa carrageenan gels with and without *Escherichia coli* immobilized

Casas LT, Dominguez F, Brito E//Univ Nacl Autonoma Mexico, Dept Bioingn, Ctr Invest Sobre Ingn Genet & Biotechnol, POB 510-3, Cuernavaca 62271, Morelos, Mexico

J FERMENT BIOENG 1990, 69 (2) 98

Characterization and optimization of a new immobilized system of kappa carrageenan through interaction with carob bean gum and polyols

Delben F, Lapasin R*, Prici S//*Univ Trieste, Inst Appl & Ind Chem, I-34127 Trieste, Italy

INT J BIOL MACROMOL 1990, 12 (1) 9

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McKay G, Blair HS, Findon A//Queens Univ Belfast, Belfast BT9 5AG, Antrim, Northern Ireland

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Nishimura SI, Kohgo O, Kurita K, Vittavatvong C, Kuzuhara H//Seikei Univ, Fac Engr, Dept Ind Chem, Musashino, Tokyo 180, Japan

CHEM LETT 1990, (2) 243

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Prokopov AA, Shulgina ES//Lensovet Technol Inst, Leningrad, USSR

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Shiraishi S, Arahira M, Imai T, Otagiri M//*Kumamoto Univ, Fac Pharmaceut Sci, 5-1 Oe Honmachi, Kumamoto 862, Japan

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Fredin H, Bergqvist D, Cederholm C, Lindblad B, Nyman U//Univ Lund, Malmo Gen Hosp, Dept Orthoped, S-21401 Malmo, Sweden
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Glander HJ, Schaller J, Ladusch M//Karl Marx Univ, Hautkrankheiten Bereichs Med Klin, Liebigstr 21, DDR-7010 Leipzig, Ger Dem Rep
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Horton JW, White DJ, Baxter CR//Univ Texas, SW Med Ctr, Dept Surg, 5323 Harry Hines Blvd, Dallas, Tx 75235, USA
 ANN SURG 1990, 211 (3) 301

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Klar E, Herfarth C, Messmer K//Univ Heidelberg, Chirurg Klin, Dept Gen Surg, Kirschnestr 1, D-6900 Heidelberg, Fed Rep Ger
 ANN SURG 1990, 211 (3) 346

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Landon RS, Webb C//Union Carbide Corp, Bound Brook, NJ 08805, USA
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Manosroi A, Bauer KH//Chang Mai Univ, Fac Pharm, Chiang Mai, Thailand
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Speirs J, Lee E, Brady CJ, Robertson J, McGlasson WB//MacQuarie Univ, Sch Biol Sci, Sydney Labs, CSIRO, Div Hort, N Ryde, NSW 2109, Australia
 J PLANT PHYSIOL 1990, 135 (5) 576

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Hammer H, Morgenlie S//Agr Univ Norway, Dept Chem, POB 30, N-1432 AS, Norway
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Carbonell JV, Sendra JM, Todo V//Inst Agroquim & Tecnol Alimentos, Jaime Roig 11, E-46010 Valencia, Spain
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Narziss L, Reicheneder E, Edney MJ//Tech Univ Munich, Lehrstuhl Technol Brauerei 1, D-8050 Freising, Fed Rep Ger
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Imberty A, Gerber S, Tran V, Perez S//INRA, Physicochim Macromolec Lab, BP527, F-44026 Nantes 03, France
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Zang L-H, Rothman DL, Shulman RG//Yale Univ, Dept Molec Biophys & Biochem, New Haven, Ct 06510, USA
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 Structure of the oligosaccharide chains of riboflavin-binding glycoproteins from hen egg white. 2. ^1H NMR 500-MHz spectroscopy of the main neutral oligosaccharides (Russian, English Abstract)

Agrati AM, Ambrosi G, Ferraro G, Palmieri G*//Osped Policlin, Padiglione Granelli, Via Francesco Sforza 35, I-20122 Milan, Italy
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Horner AA/Univ Toronto, Dept Physiol, Med Sci Bldg, Toronto, Ontario, Canada M5S 1A8
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Linhardt RJ, Turnbull JE, Wang HM, Loganathan D, Gallagher JT/Univ Iowa, Coll Pharm, Div Med & Nat Prod Chem, Iowa City, Ia 52242, USA

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J CATARACT REFRACT SURG 1990, 16 (2) 170

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Uchiyama H, Metori A, Ogamo A, Nagasawa K/Kitasato Univ, Sch Pharmaceut Sci, Minato ku, Tokyo 108, Japan

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Gao Q-P, Kiyohara H, Yamada H/*Kitsato Inst, Oriental Med Res Ctr, Minato ku, Tokyo 108, Japan

CARBOHYD RES 1990, 196 (FEB) 111

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Gupta AK, Rathore P, Kaur N, Singh R/Punjab Agr Univ, Dept Biochem, Ludhiana 141004, Punjab, India

J CHEM TECHNOL BIOTECHNOL 1990, 47 (3) 245

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Haraguchi K, Hayashi K, Kasumi T/MAFF, Natl Food Res Inst, 2-1-2 Kannondai, Tsukuba, Ibaraki 305, Japan

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Kim CH, Rhee SK/*Korea Adv Inst Sci & Technol, Ctr Genet Engrn, POB 131, Seoul, South Korea

APPL BIOCHEM BIOTECH 1990, 23 (2) 171

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Han YW, Clarke MA/USDA, So Reg Res Ctr, 1100 Robert E Lee Blvd, New Orleans, La 70179, USA

J AGR FOOD CHEM 1990, 38 (2) 393

Production and characterization of microbial levan

Tkachenko AA, Sevyugina TV/AA Zhdanov State Univ, Leningrad B-164, USSR

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

CARBOHYD RES 1990, 196 (FEB) 59

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Watanabe R, Ogasawara N/Niigata Univ, Fac Agr, Dept Agr Chem, Niigata 95201, Japan

AGR BIOL CHEM TOKYO 1990, 54 (2) 541

The role of mannan-degrading enzymes in the lysis of some plant pathogenic filamentous fungi, *Glomerella species*

Tanpipat N, Mattice WL/Univ Akron, Inst Polymer Sci, Akron, Oh 44325, USA

BIOPOLYMERS 1990, 29 (2) 377

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Chapman GW, Horvat RJ/USDA ARS, Richard B Russell Agr Res Ctr, POB 5677, Athens, Ga 30613, USA

J AGR FOOD CHEM 1990, 38 (2) 383

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Durand D, Bertrand C, Clark AH, Lips A/Univ Maine, Physicochim Macromolec Lab, CNRS, F-72017 le Mans, France

INT J BIOL MACROMOL 1990, 12 (1) 14

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Kasymalieva KK, Khidoyatov AA, Ashubaeva ZD//Acad Sci KiSSR, Inst Organ Chem, Frunze, Kirghizia, USSR

KHIM PRIR SOEDIN SSSR 1989, (6) 773

Pectin substances of mulberry (Russian)

Markovic O, Kuzelova D//Slovak Acad Sci, Ctr Chem Res, Inst Chem, Dubravska Cesta 9, CS-84238 Bratislava, Czechoslovakia

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Purification and characterization of an *Aspergillus niger* pectinesterase

Seyfried CF, Austermann-Haun U//Univ Hanover, Inst Siedlungswasserwirtschaft & Abfalltech, D-3000 Hanover, Fed Rep Ger

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Large-scale anaerobic/aerobic treatment plants for wastewaters from a molasses distillery, a pectin factory, and starch factories

Grigsby PW, Pilepich MV, Parsons CL//Washington Univ, Sch Med, Edward Mallinckrodt Inst Radiol, Ctr Radiat Oncol, 4939 Audubon, Suite 5500, St Louis, Mo 63110, USA

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Beck G, Benach JL, Habicht GS//SUNY Stony Brook, Hlth Sci Ctr, Dept Pathol, Stony Brook, NY 11794, USA

BIOCHEM BIOPHYS RES COMMUN 1990, 167 (1) 89

Isolation, preliminary chemical characterization, and biological activity of *Borrelia burgdorferi* peptidoglycan

Klaic B, Domenick RL//Rudjer Boskovic Inst, Dept Organ Chem & Biochem, Tracer Lab, POB 1016, YU-41001 Zagreb, Yugoslavia

CARBOHYD RES 1990, 196 (FEB) 19

¹H-n.m.r. studies of a natural immunoadjuvant peptidoglycan monomer: Proposed structure in solution in methyl sulfoxide

Nikolaev AV, Ryabtseva EV, Shibaev VN, Kochetkov NK//ND Zelinskii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (12) 1649

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Yanuschkene NA, Shashkov AS, Naumova IB, Streshinskaya GM//MV Lomonosov State Univ, Dept Biol, Moscow 117234, USSR

BIOORG KHIM 1989, 15 (12) 1634

Poly(galactosylglycerol phosphate) teichoic acid with mannosyl side residues from the cell wall of *Actinoplanes philippinensis* VKM Ac-647 (Russian, English Abstract)

Labat-Robert J, Gruber E, Bihari-Varga M//Univ Paris 12, Sch Med, Connect Tissue Lab, CNRS, UA 1174, 8 Rue Gen Sarrail, F-94010 Creteil, France

INT J BIOL MACROMOL 1990, 12 (1) 50

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Dufresne R, Thibault J*, Leduy A, Lencki R//Univ Laval, Dept Chem Engn, Quebec City, Quebec, Canada G1K 7P4

APPL MICROBIOL BIOTECHNOL 1990, 32 (5) 526

The effects of pressure on the growth of *Aureobasidium pullulans* and the synthesis of pullulan

Milas M, Tinland B//Ctr Rech Macromolecules Vegetales (CERMAV-CNRS), Lab CNRS Univ Joseph Fourier de Grenoble, BP 53X-38041 Grenoble Cedex, France

CARBOHYD POLYM 1990, 13 (1) 47

Behaviour of xanthan in cadoxen

Millane RP, Wang B//Whistler Ctr Carbohydrate Res, Smith Hall, Purdue Univ, W Lafayette, Ia 47907, USA

CARBOHYD POLYM 1990, 13 (1) 57

A cellulose-like conformation accessible to the xanthan backbone and implications for xanthan synergism

Shu C-H, Yang ST*//140 W 19th Ave, Columbus, Oh 43210, USA

BIOTECHNOL BIOENG 1990, 35 (5) 454

Effects of temperature on cell growth and xanthan production in batch cultures of *Xanthomonas campestris*

Torrestiana B, Fucikovsky L, Galindo E*//Univ Nacl Automa Mexico, Ctr Invest Ingn Genet & Biotecnol, Dept Bioingn, Apdo Post 510-3, Cuernavaca 62271, Mexico

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Broderick A, Rhodes L//Cawthron Inst, Private Bag, Nelson, New Zealand

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Debeire P, Priem B, Strecker G, Vignon M//INRA, Technol Alimentaire Stn, BP 39, F-59651 Villeneuve Dasque, France

EUR J BIOCHEM 1990, 187 (3) 573

Purification and properties of an endo-1,4-xylanase excreted by a hydrolytic thermophilic anaerobe, *Clostridium thermolacticum* - A proposal for its action mechanism on larchwood 4-O-methylglucuronoxylan

Sakka K, Kojima Y, Yoshikawa K, Shimada K//Mie Univ, Fac Bioresources, Dept Biosci, Tsu, Mie 514, Japan

AGR BIOL CHEM TOKYO 1990, 54 (2) 337

Cloning and expression in *Escherichia coli* of *Clostridium stercorarium* strain F-9-genes related to xylan hydrolysis

7 Polysaccharides - Other

Baszkin A, Rosilio V, Puisieux F, Albrecht G, Sunamoto J//Univ Paris Sud, CNRS Physicochim Surfaces & Innovat Pharmaco, UA 1218, 5 Rue JB Clement, F-92296 Chatenay Malabry, France

CHEM LETT 1990, (2) 299

The effect of polysaccharide adsorption on surface potential of phospholipid monolayers spread at water-air interface

Bettler B, Amado R*, Neukom H//Swiss Fed Inst Technol, Dept Food Sci, CH-8092 Zurich, Switzerland

J CHROMATOGR 1990, 498 (1) 213

Electrophoretic separation of sugars and hydrolysates of polysaccharides on silylated glass-fibre paper

Bettler B, Amado R*, Neukom H//Swiss Fed Inst Technol, Dept Food Sci, CH-8092 Zurich, Switzerland

J CHROMATOGR 1990, 498 (1) 223

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Bradbury AGW, Halliday DJ//Gen Foods Res, Tarrytown, NY 10591, USA

J AGR FOOD CHEM 1990, 38 (2) 389

Chemical structures of green coffee bean polysaccharides

Chernyak AY, Demidov IV, Kochetkov NK//ND Zelinskii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (12) 1673

Synthesis of the trisaccharide fragment from O-specific polysaccharides of *Salmonella* (serological groups C-2 and C-3) and its conversion into the artificial antigen of copolymer type (Russian, English Abstract)

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

AGR BIOL CHEM TOKYO 1990, 54 (2) 419

Beta-eliminative cleavage of the acidic polysaccharide of *Fusarium* sp M7-1 by an enzyme preparation of *Cellulomonas* sp

Lagergard T, Shiloach J, Robbins JB, Schneerson R//NICHHD, Bethesda, Md 20892, USA

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Synthesis and immunological properties of conjugates composed of group B *Streptococcus* type III capsular polysaccharide covalently bound to tetanus toxoid

Lipkind GM, Shashkov AS, Kochetkov//ND Zelinskii Organ Chem Inst, Moscow, USSR
BIOORG KHIM 1989, 15 (11) 1534

A computer-assisted structural analysis of the branched O-specific polysaccharide of *Salmonella arizonae*-063 (Arizona-08) on the basis of ^{13}C NMR data (Russian, English Abstract)

Lvov VL, Yakovlev AP, Shashkov AS//NF Gamaleya Epidemiol & Microbiol Res Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (12) 1660

Study of the structure of the O-specific polysaccharide from *Salmonella anatum* using ^1H and ^{13}C NMR spectroscopy (Russian, English Abstract)

Mabusela WT, Stephen AM//Univ Cape Town, Dept Chem, Private Bag, Rondebosch 7700, South Africa

S AFR J CHEM 1989, 42 (4) 151

Fractionation and structural studies of polysaccharides from sisal (*Agave sisalana*) leaves

MacFarlane GT, Hay S, MacFarlane S, Gibson GR//MRC, Dunn Clin Nutr Ctr, 100 Tennis Court Rd, Cambridge CB2 1QL, England
J APPL BACTERIOL 1990, 68 (2) 179

Effect of different carbohydrates on growth, polysaccharidase and glucosidase production by *Bacteroides ovatus*, in batch and continuous culture

Mody BR, Bindra MO, Modi VV//Maharaja Sayajirao Univ Baroda, Fac Sci, Ctr Biotechnol, Baroda 390002, Gujarat, India

CURR MICROBIOL 1990, 20 (3) 145

Capsule development of structural characterization of acidic extracellular polysaccharides secreted by cowpea rhizobia

Morris ER//Dept Food Res & Technol, Cranfield Inst Technol, Silsoe Coll, Silsoe, Bedford MK45 4DT, England

CARBOHYD POLYM 1990, 13 (1) 85

Shear-thinning of 'random coil' polysaccharides: Characterisation by two parameters from a simple linear plot

Nelson WL, Granoff DM//Washington Univ,

Sch Med, Edward Mallinckrodt Dept Pediat-F13T, 400 S Kingshighway Blvd, St Louis, Mo 63110, USA

AMER J DIS CHILD 1990, 144 (3) 292

Protective efficacy of *Haemophilus influenzae* type b polysaccharide-diphtheria toxoid-conjugate vaccine

Pinto BM, Reimer KB, Morissette DG, Bundle DR//Simon Fraser Univ, Dept Chem, Burnaby, BC, Canada V5A 1S6

CARBOHYD RES 1990, 196 (FEB) 156

Synthesis of 2D-n.m.r. analysis of a pentasaccharide glycoside of the biological repeating units of *Shigella flexneri* variant Y polysaccharide and the preparation of a synthetic antigen

Pinto BM, Reimer KB, Morissette DG, Bundle DR//Simon Fraser Univ, Dept Chem, Burnaby, BC, Canada V5A 1S6

J CHEM SOC PERKINS TRANS I 1990, (2) 293

Oligosaccharides corresponding to biological repeating units of *Shigella flexneri* variant Y polysaccharide. Part 3. Synthesis and 2D-nuclear magnetic resonance analysis of a heptasaccharide hapten

Ranjbar-Hamghawandi M//Tech Univ Clausthal, Inst Tiefbohrtech Erdol & Erdgasgewinnung, Lagerstattentech Abt, D-3392 Clausthal Zellerfe, Fed Rep Ger

FRESENIUS J ANAL CHEM 1990, 336 (1) 41

Photometrische Bestimmung von Biopolysacchariden in salinen Lösungen

Ray AK, Roy N//Indian Assoc Cultivat Sci, Dept Biol Chem, Calcutta 700032, W Bengal, India

CARBOHYD RES 1990, 196 (FEB) 95

Synthesis of the tetrasaccharide repeating-unit of the polysaccharide from *Klebsiella* type 23

Rodriguez M-L, Jann B, Jann K//Max Planck Inst Immunbiol, Stubeweg 51, D-7800 Freiburg, Fed Rep Ger

CARBOHYD RES 1990, 196 (FEB) 101

Structure and serological properties of the capsular K11 antigen of *Escherichia coli* O13:K11:H11

Simonin J-P, Tivant P, Turq P, Soualhia E//Univ Paris 06, Electrochim Lab, Bat F, Tour 74, 8 Rue Cuvier, F-75230 Paris 05, France

J PHYS CHEM 1990, 94 (5) 2175

Collective ionic diffusion in polysaccharide solutions

Soloveva TF, Khomenko VA, Uvarova NI, Konstantinova NA, Faustov VS, Elyakov GB//Acad Sci USSR, Far E Sci Ctr, Pacific Oceanol Inst, Inst Bioorgan Chem, Vladivostok, USSR

KHIM PRIR SOEDIN SSSR 1989, (6) 771

Chemical investigation of culture biomass of ginseng cells. 3. Polysaccharides of ginseng callus culture (Russian)

Thibault J-F, Rouau X//Lab Biochim & Technol Glucides, INRA, Rue Geraudiere, BP 527, F-44026 Nantes Cedex 03, France

CARBOHYD POLYM 1990, 13 (1) 1

Studies on enzymic hydrolysis of polysaccharides in sugar beet pulp

Torgov VI, Shibaev VN, Shashkov AS, Rozhnova SS//ND Zelinskii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (12) 1664

The structure of the O-antigenic polysaccharide of gram negative bacteria *Salmonella kentucky* strain 98/39 (O:8, H:i,Z6) (Russian, English Abstract)

Turecek PL, Pittner F*, Birkner F//Univ Vienna, Inst Allgemeine Biochem, A-1090 Vienna, Austria

INT J FOOD SCI TECHNOL 1990, 25 (1) 1

Degradation of polysaccharides by immobilized depolymerizing enzymes

Utkina NS, Danilov LL, Druzhinina TN, Shibaev VN//ND Zelinskii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (10) 1375

Synthesis of cytidine diphosphate 3,6-dideoxyhexoses, glycosyl donors in biosynthesis of O-specific polysaccharides of *Salmonella* serogroup-A, serogroup-B and serogroup-C (Russian, English Abstract)

Vinogradov EV, Kaca W, Shashkov AS, Pietrasik D, Rozalski A, Knirel YA, Kochetkov NK//ND Zelinskii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (10) 1431

Structure of *Proteus mirabilis* O3 O-specific polysaccharide containing N-(2-hydroxyethyl)-D-alanine (Russian, English Abstract)

8 Lipopolysaccharides

Gorshkova RP, Isakov VV, Zubkov VA, Ovodov YS//Acad Sci USSR, Far E Sci Ctr, Pacific Oceanol Inst, Vladivostok, USSR

BIOORG KHIM 1989, 15 (12) 1626

Structural studies of side chains of the O-specific polysaccharide from lipopolysaccharide of *Yersinia frederiksenii*, serovar-O:16,29 (Russian, English Abstract)

Kalmykova EN, Gorshkova RP, Ovodov YS//Univ Sofia, Struct & Properties Polymers Lab, BU-1126 Sofia, Bulgaria

KHIM PRIR SOEDIN SSSR 1989, (6) 743

Unusual monosaccharides in O-factors of lipopolysaccharides from gram-negative bacteria (Russian)

Knirel YA, Zdorovenko GM, Veremeychenko SN, Shashkov AS, Zakharova IY, Kochetkov NK//ND Zelinskii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (11) 1538

Antigenic polysaccharides of bacteria. 36. Structural study of O-specific polysaccharide chain of *Pseudomonas fluorescens* IMV-2763 (Biovar-G) lipopolysaccharide (Russian, English Abstract)

Kondo S, Zahringer U//Forschungsinstitut Borstel, Inst Exptl Biol & Med, Parkallee 22, D-2061 Borstel, Fed Rep Ger

CARBOHYD RES 1990, 196 (FEB) 191

Identification of 2-acetamido-3-O-(3-acetamido-3,6-dideoxy-beta-D-glucopyranosyl)-2-deoxy-D-galactopyranose isolated after degradation of the lipopolysaccharide from *Vibrio parahaemolyticus* serotype O12

Nepogodev SA, Backinowsky LV, Kochetkov NK//ND Zelinskii Organ Chem Inst, Moscow, USSR

BIOORG KHIM 1989, 15 (11) 1555

Synthesis of a bacterial galactofuranan, the component of T1 lipopolysaccharide (Russian, English Abstract)

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

CARBOHYD RES 1990, 196 (FEB) 127

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