



BIBLIOGRAPHY ON CARBOHYDRATE POLYMERS

1 Books, Reviews and Symposia

Doutremepuich C, Puyal C, Lalanne MC, Dou-
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Hematol Lab, 3 Pl Victoire, F-33076 Bordeaux,
France

ANN BIOL CLIN PARIS 1990, 48 (4) 221

What standardization for low molecular weight
heparin? (Review)

Schoemaker HE//Dutch State Min Res, Bioor-
gan Chem Sect, POB 18, 6160 MD Geleen, The
Netherlands

REC TRAV CHIM-J ROY NETH CHEM 1990,
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On the chemistry of lignin biodegradation (Re-
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Kochetkov NK//ND Zelinskii Organ Chem Inst,
Moscow, USSR

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Microbial polysaccharides: New approaches (Ha-
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2 Cellulose

Aboul-Enein HY, Islam MR//King Faisal Spe-
cialist Hosp & Res Ctr, Dept Radionuclide &
Cyclotron Operat, Drug Dev Lab, POB 3354,
Riyadh 11211, Saudi Arabia

J CHROMATOGR SCI 1990, 28 (6) 307

Isocratic high-performance liquid chromato-
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and their 4-hydroxyglutethimide metabolites
using cellulose tribenzoate chiral stationary
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Alvira E, Delgado V, Plata J, Girardet C//Univ

La Laguna, Dept Fis Fundamental & Exptl, La
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Bataille B, Barrau JP, Rahman L, Ligarski K,
Jacob M, Duru C, Baylac G, Puech A//Univ
Montpellier 1, Fac Pharm, Pharm Galen Lab, 15
Ave Charles Flahault, F-34060 Montpellier,
France

J PHARM BELG 1990, 45 (2) 125

Optimization of the spheronization step in the
manufacture of cellulose-derivative granules
using the extrusion-spheronization process
(French, English Abstract)

Bushin SV, Bezrukova MA//Acad Sci USSR,
Inst Macromolec Cpds, Leningrad, USSR

VYSOKOMOL SOEDIN SER B SSSR 1990, 32
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On temperature dependence of the intrinsic vis-
cosity of cellulose acetobenzoate (Russian)

Daragan VA, Ilina EE, Kuznetsova NY,
Myasoedova VV//Acad Sci USSR, NN Semenov
Inst Chem Phys, Moscow V-71, USSR

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Features of complexing of molecular NMR relax-
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Daragan VA, Ilina EE, Myasoedova VV, Sofron-
kin PG//Acad Sci USSR, NN Semenov Inst
Chem Phys, Moscow V-71, USSR

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¹³C NMR study of the intermolecular interac-
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solvent system

Dernovaya LI, Eltekov YA, Gradil I, Shvets
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71, USSR

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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.

Adsorption of molecules of organic substances on the microspheric cellulose surface (Russian)

Dimitrijevič SD, Tatarko M, Gracy RW*, Wise GE, Oakford LX, Linsky CB, Kamp L// *Univ N Texas, Texas Coll Osteopath Med, Dept Biochem, Tissue Repair Unit, Ft Worth, Tx 76107, USA

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In vivo degradation of oxidized, regenerated cellulose

Edge M, Allen NS*, Hayes M, Riley PNK, Horie CV, Luc-Gardette J// *Manchester Polytech, Ctr Archival Polymer Mat, Manchester M1 5GD, Lancs, England

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Mechanisms of deterioration in cellulose nitrate base archival cinematograph film

Edge M, Allen NS*, Jewitt TS, Horie CV// *Manchester Polytech, Ctr Archival Polymer Mat, Manchester M1 5GD, Lancs, England

POLYM DEGRAD STABIL 1990, 29 (1) 31

The inhibition of oxidative and hydrolytic degradation pathways in archival cellulose-triacetate base cinematograph films

Graczyk T, Hornof V// McGill Univ, Dept Chem, 801 Sherbrook W, Montreal, Quebec, Canada H3A 2K5

J APPL POLYM SCI 1990, 40 (3-4) 317

The effect of agitation, purge time, and nonsimultaneous addition of acid and initiator on xanthated cellulose-polystyrene graft copolymer

Guyonnet T, Brossard C*, Desylouses DL// *Univ Limoges, UFR Pharm, Pharm Galen Lab, 2 Rue Dr Marcland, F-87025 Limoges, France

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Prolongation of theophylline compound release with cellulose acetate based tablets (French, English Abstract)

Koba Y, Ishizaki A// Kyushu Univ, Fac Agr, Dept Food Sci & Technol, Higashi ku, Fukuoka 812, Japan

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Kuzina SI, Mikhailov AI// Acad Sci USSR, Inst Chem Phys, Chernogolovka 142432, USSR

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Nada AMA, Shabaka AA, Yousef MA, Abd-El-Nour KN// Natl Res Ctr, Dept Cellulose & Paper, Cairo, Egypt

J APPL POLYM SCI 1990, 40 (5-6) 731

Infrared spectroscopic and dielectric studies of swollen cellulose

Nurgalieva FF, Sagdieva ZG, Tillaev RS// VI Lenin State Univ, Tashkent, Uzbekistan, USSR

VYSOKOMOL SOEDIN SER A SSSR 1990, 32

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Complex-forming properties of polymethacrylic acid grafted to cellulose acetate towards N-oxide of polyvinylpyridine and copper ions (Russian, English Abstract)

Polotskaya GA, Turkova LD, Kuznetsov YP, Nesterov VV// Acad Sci USSR, Inst Macromolec Cpd, Leningrad, USSR

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Study of gas permeability of cellulose diacetate membranes plasticized with polyethylene glycol (Russian, English Abstract)

Sand ID// Eastman Kodak Co, Eastman Chem Div, Res Labs, Kingsport, Tn 37662, USA

J APPL POLYM SCI 1990, 40 (5-6) 943

The dependence of properties of cellulose acetate propionate on molecular weight and the level of plasticizer

Sharma AK, Ramu C// Sri Venkateswara Univ, Coll Engr, Dept Phys, Tirupati 517502, Andhra Pradesh, India

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Pyroelectric behaviour of solution-grown cellulose acetate polymer films

Sprockel OL, Prapaitrakul W, Shivanand P// Univ Cincinnati, Med Ctr, Coll Pharm, Div Pharmaceut & Drug Delivery Syst, Cincinnati, Oh 45267, USA

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Permeability of cellulose polymers: Water vapour transmission rates

Starobinets GL, Burd GA, Vinarsky VA// VI Lenin State Univ, Minsk, Belorussia, USSR

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Sugiyama J, Okano T, Yamamoto H, Horii F// CNRS, CERMAV, BP 53X, F-38041 Grenoble, France

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Sultanov K//Cent Asia Food Ind Res & Dev Inst, Tashkent, Uzbekistan, USSR

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Dynamic viscoelasticity of isoprene rubber reinforced with short cellulose fibers

Puterman M, Fitch RM//Technion Israel Inst Technol, Bldg Res Stn, Haifa, Israel

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Latex preparation and stabilization by hydrophobically modified hydroxyethyl celluloses

Chumbley LC, Morgan AM, Musallam I//Kottwitz Str 16, D-2000 Hamburg 20, Fed Rep Ger

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Hydroxypropyl methylcellulose in extracapsular cataract surgery with intraocular lens implantation: Intraocular pressure and inflammatory response

Sapieha S, Verreault M, Klemberg-Sapieha JE, Sacher E, Wertheimer MR//Pulp & Paper Res Inst Canada, 570 St Johns Blvd, Pointe Claire, Quebec, Canada H9R 3J9

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Vojdani F, Torres JA//Oregon State Univ, Dept Food Sci & Technol, Corvallis, Or 97331, USA

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Potassium sorbate permeability of methylcellulose and hydroxypropyl methylcellulose coatings

Effect of fatty acids

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Duran N, Gomez E, Huan M//Univ Estadual Campinas, Inst Quim, Biol Chem Lab, CP 6154, BR-13081 Campinas, SP, Brazil

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Biomass photochemistry. XIV: Photosensitized pre-treatment of cellulose and its role on cellulase efficiency

Erlandsson P, Marle I, Hansson L, Isaksson R*, Pettersson C, Pettersson G//Univ Lund, Ctr Chem, Div Organ Chem, POB 124, S-22100 Lund, Sweden

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Immobilized cellulase (CBH I) as a chiral stationary phase for direct resolution of enantiomers

Kirmura K, Itohiya Y, Matsuo Y, Zhang ML, Usami S//Waseda Univ, Sch Sci & Engr, Dept Appl Chem, Shinjuku ku, Tokyo 169, Japan

AGR BIOL CHEM TOKYO 1990, 54 (5) 1281

Production of cellulase and citric acid by the intergeneric fusants obtained via protoplast fusion between *Aspergillus niger* and *Trichoderma viride*

Petit MA, Joliff G, Mesas JM, Klier A, Rapoport G, Ehrlich SD//INSERM, U131, Ctr Rech, 32 Rue Carnets, F-92140 Clamart, France

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Hypersecretion of a cellulase from *Clostridium thermocellum* in *Bacillus subtilis* by induction of chromosomal DNA amplification

Singh A, Goel R*, Johri BN//Govind Ballabh Pant Univ Agr & Technol, CBSH, Dept Microbiol, Pantnagar 263145, Uttar Pradesh, India

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Worsfold PJ, Whiteside IRC, Pfeiffer HF, Waldhoff H//Univ Hull, Sch Chem, Hull HU6 7RX, N Humberside, England

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An automated spectrophotometric flow-injection procedure for the determination of cellulase activity in bioreactor preparations

Gilbert HJ, Hall J, Hazlewood GP, Ferreira LMA//Univ Newcastle upon Tyne, Dept Agr Biochem & Nutr, Newcastle Tyne NE1 7RU, Tyne & Wear, England

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The N-terminal region of an endoglucanase from *Pseudomonas fluorescens* subspecies *cellulosa* constitutes a cellulose-binding domain that is distinct from the catalytic centre

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Backenfeld T, Muller BW*, Wiese M, Seydel JK//Univ Kiel, Dept Pharmaceut, Gutenbergstr 76-78, D-2300 Kiel 1, Fed Rep Ger

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Bergmark WR, Davis A, York C, MacIntosh A, Jones G//Ithaca Coll, Dept Chem, Ithaca, NY 14850, USA

J PHYS CHEM 1990, 94 (12) 5020

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Blyshak LA, Warner IM*, Patonay G//Emory Univ, Dept Chem, Atlanta, Ga 30322, USA

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Claudy P, Germain P, Letoffe JM, Bayol A, Gonzalez B//Inst Natl Sci Appl, Thermochim Minerale Lab, URA 116, F-69621 Villeurbanne, France

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Thermodynamic study of the hydration reaction of beta-cyclodextrin

de Namor AFD, Traboulssi R, Lewis DFV//Univ Surrey, Dept Chem, Guildford GU2 5XH, Surrey, England

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Divakar S//Cent Food Technol Res Inst, Dept Food Chem, Organ Chem Sect, Mysore 570013, Karnataka, India

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Structure of a beta-cyclodextrin-vanillin inclusion complex

Fujita K, Tahara T, Koga T//Fukuyama Univ, Fac Pharmaceut Sci, Higashimura, Fukuyama 72902, Japan

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Enzymatic preparation of specifically modified linear maltooligosaccharides through porcine pancreatic amylase-catalyzed hydrolyses of substituted gamma-cyclodextrins

Guichard E, Hollnagel A, Mosandl A, Schmarr HG//INRA, Rech Aromes Lab, BV 1540, F-21034 Dijon, France

HRC-J HIGH RES CHROMATOGR 1990, 13 (4) 299

Stereoisomeric flavor compounds. 40. Stereodifferentiation of some chiral volatiles on a permethylated beta-cyclodextrin phase

Haginaka J, Wakai J//Mukogawa Womens Univ, Fac Pharmaceut Sci, 11-689 Koshien Kyubancho, Nishinomiya, Hyogo 663, Japan

ANAL CHEM 1990, 62 (1) 997

Beta-cyclodextrin bonded silica for direct injection analysis of drug enantiomers in serum by liquid chromatography

Harata K//Res Inst Polymers & Textiles, 1-1-4 Higashi, Tsukuba, Ibaraki 305, Japan

J CHEM SOC PERKIN TRANS II 1990, (5) 799

Role of hydrogen bond and spacial fitting in the chiral recognition by cyclodextrins. Crystal structures of hexakis(2,3,6-tri-O-methyl)-alpha-cyclodextrin inclusion complexes with (R)- and (S)-1-phenylethanol

Hu Y, Uno M, Harada A, Takahashi S//Osaka Univ, Inst Sci & Ind Res, Ibaraki, Osaka 567, Japan

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Selective ring-opening reaction of epoxides with sodium borohydride in the presence of cyclodextrins in aqueous media

Kano K, Mori K, Uno B, Kubota T//Gifu Coll Pharm, 5-6-1 Mitahora higashi, Gifu 502, Japan
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Electrochemical and electron spin resonance study on the interaction between alpha-cyclodextrin and the electrochemically generated radical intermediate of p-nitrophenolate anion

Lee B-J, Cho I//Korea Adv Inst Sci & Technol, Dept Chem, Seoul 131650, South Korea
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Enantioselective inhibition effect on esterolytic activity of beta-cyclodextrin by inclusion with N-benzoyl-L-histidine

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

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An approach to the regioselective introduction of functional groups on alpha-(1-4) linked cyclomannohexaose: Alkylation at O-2

Mori M, Ito Y, Uzawa J, Ogawa T**//Inst Phys & Chem Res, Wako, Saitama 35101, Japan

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Stereoselectivity of cycloglycosylation in mannoilgose series depends on carbohydrate chain length: Syntheses of manno isomers of beta- and gamma-cyclodextrins

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

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New methods of preparing cyclodextrin inclusion compounds. III. Preparation of heptakis-(2,6-di-O-methyl)-beta-cyclodextrin-benzoic acid inclusion compound by sealed heating

Paleologou M, Li S, Purdy WC**//McGill Univ, Dept Chem, 801 Sherbrooke St W, Montreal, Quebec, Canada H3A 2K6

J CHROMATOGR SCI 1990, 28 (6) 311

Liquid chromatographic retention behavior and separation of chlorophenols on a beta-cyclodextrin bonded-phase column. Part I. Monoaromatic chlorophenols: Retention behavior

Paleologou M, Li S, Purdy WC**//McGill Univ, Dept Chem, 801 Sherbrooke St W, Montreal, Quebec, Canada H3A 2K6

J CHROMATOGR SCI 1990, 28 (6) 319

Liquid chromatographic retention behavior and

separation of chlorophenols on a beta-cyclodextrin bonded-phase column. Part II. Monoaromatic chlorophenols: Separation

Pitha J, Rao CT, Lindberg B, Seffers P//NIA, GRC, Baltimore, Md 21224, USA

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Distribution of substituents in 2-hydroxypropyl ethers of cyclomaltoheptaose

Rao KR, Bhanumathi N, Sattur PB//Indian Inst Cgem Technol, Organ Chem, Hyderabad 500007, India

TETRAHEDRON LETT 1990, 31 (22) 3201

Baker's yeast catalyzed asymmetric cycloaddition of nitrileoxides to C=C bond: Improved chiral recognition by using beta-cyclodextrin

Sakurai M, Kitagawa M, Hoshi H, Inoue Y*, Chujo R//Tokyo Inst Technol, Dept Biomelec Engr, 12-1 Ookayama 2-chome, Meguro ku, Tokyo 152, Japan

CARBOHYD RES 1990, 198 (2) 181

A molecular orbital study of cyclodextrin (cyclomalto-oligosaccharide) inclusion complexes. III. Dipole moments of cyclodextrins in various types of inclusion complex

Shimada K, Komine Y, Mitamura K//Kanazawa Univ, Fac Pharmaceut Sci, 13-1 Takara machi, Kanazawa, Ishikawa 920, Japan

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Retention behavior of bile acid derivatives using cyclodextrin in the mobile phase in high-performance liquid chromatography

Takeo K//Kyoto Prefectural Univ, Dept Agr Chem, Kyoto 606, Japan

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A convenient preparation of per-2,6,di-O-methylcyclomalto-oligosaccharides

Tee OS, Mazza C, Du X-X//Concordia Univ, Dept Chem & Biochem, Montreal, Quebec, Canada H3G 1M8

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Chain length effects in the cleavage of aryl esters by cyclodextrins. Different transition states for m- and p-nitrophenyl alkanoates

Thomason M, Mwakibete H, Wyn-Jones E**//Univ Salford, Dept Chem & Appl Chem, Salford M5 4WT, Lancs, England

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Ultrasonic and electrochemical studies of the interactions of the drug chlorocyclizine hydrochloride with alpha cyclodextrin and surfactant micelles

Vigh G, Quintero G, Farkas G//Texas A&M Univ Syst, Dept Chem, College Stn, Tx 77843, USA

J CHROMATOGR 1990, 506 (MAY) 481

Displacement chromatography on cyclodextrin-silicas. III. Enantiomer separations

Yoshida N, Seiyama A, Fujimoto M//Hokkaido Univ, Fac Sci, Dept Chem 2, Coordinat Chem Lab, Sapporo, Hokkaido 060, Japan

J PHYS CHEM 1990, 94 (10) 4254

Stability and structure of the inclusion complexes of alkyl-substituted hydroxyphenylazo derivatives of sulfanilic acid with alpha- and beta-cyclodextrins

Yoshida N, Seiyama A, Fujimoto M//Hokkaido Univ, Fac Sci, Dept Chem 2, Coordinat Chem Lab, Sapporo, Hokkaido 060, Japan

J PHYS CHEM 1990, 94 (10) 4246

Dynamic aspects in host-guest interactions. Mechanism for molecular recognition by alpha-cyclodextrin of alkyl-substituted hydroxyphenylazo derivatives of sulfanilic acid

Yoshida Y, Kawase M, Shiraishi T//NGK Insulators Ltd, Res & Dev Lab, Engr Business Grp, 1 Maegata cho, Handa 475, Japan

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Synthesis of branched cyclodextrin with immobilized enzyme bioreactor (Japanese, English Abstract)

Yoshinari K, Takeshige Y, Komiyama M*// *Univ Tsukuba, Inst Mat Sci, Sakura, Ibaraki 305, Japan

CARBOHYD RES 1990, 198 (2) 392

Regioselective cleavage of ribonucleoside 2',3'-cyclic monophosphates induced by 6-O-alpha-D-glucopyranosyl- and 6-O-alpha-maltosyl-cyclodextrins(cyclomalto-oligosaccharides)

5 Lignin

Castellan A, Colombo N, Vanucci C, Fournier de Violet P, Bouas-Laurent H//Univ Bordeaux 1, Chim Organ Lab, URA 348, F-33405 Talence, France

J PHOTOCHEM PHOTOBIOLOG A-CHEM 1990, 51 (3) 451

A photochemical study of an O-methylated alpha-carbonyl beta-1 lignin model dimer: 1,2-di(3',4'-dimethoxyphenyl)ethanone (deoxyveratrin)

Iiyama K, Lam TBT//Univ Tokyo, Fac Agr, Bunkyo ku, Tokyo 113, Japan

J SCI FOOD AGR 1990, 51 (4) 481

Lignin in wheat internodes. 1. The reactivities of lignin units during alkaline nitrobenzene oxidation

Kris ES, Marlett JA*// *Univ Wisconsin, Dept Nutr Sci, 1415 Linden Dr, Madison, WI 53706, USA

J AGR FOOD CHEM 1990, 38 (5) 1218

Measuring lignin and neutral sugars in neutral detergent soluble and insoluble fractions of human and rat feces

Lam TBT, Iiyama K*, Stone BA*// *Univ Tokyo, Fac Agr, Bunkyo ku, Tokyo 113, Japan

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Natansohn A, LaCasse M, Banu D, Feldman D//Queens Univ, Dept Chem, Kingston, Ontario, Canada K7L 3N6

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CP-MAS NMR spectra of polyurethane-lignin blends

Odier E, Delattre M//Ctr Biotechnol Agroind, Microbiol Lab, F-78850 Thiverval Grignon, France

ENZYME MICROB TECHNOL 1990, 12 (6) 447

Multiple lignin peroxidases of Phanerochaete chrysosporium INA-12

Perez J, Jeffries TW*// *US Forest Serv, Forest Prod Lab, Inst Microbial & Biochem Technol, 1 Gifford Pinchot Dr, Madison, WI 53705, USA

APPL ENVIRON MICROBIOL 1990, 56 (6) 1806

Mineralization of ¹⁴C-ring-labeled synthetic lignin correlates with the production of lignin peroxidase, not of manganese peroxidase or laccase

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

AGR BIOL CHEM TOKYO 1990, 54 (5) 1337

Anti-viral activity of water-solubilized lignin derivatives *in vitro*

Verma KVR, Swaminathan T, Subrahmanyam PVR//Louisiana State Univ, Ctr Wetland Resources, Ctr Agr, Dept Agr Engr, Baton Rouge, La 70803, USA

J ENVIRON SCI HEALTH A-SCI E 1990, 25 (3) 243

Heavy metal removal with lignin

6 Polysaccharides - Named

Attwood TK, Sellen DB//Univ Leeds, Astbury Det Biophys, Leeds LS2 9JT, W Yorkshire, England

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An x-ray diffraction study of agarose gel as a function of concentration

Nilsson S, Piculell L, Malmsten M//Univ Lund, Ctr Chem, Box 124, S-22100 Lund, Sweden

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Saito H, Yokoi M, Yamada J//Natl Canc Ctr, Res Inst, Div Biophys, Tsukiji 5-chome, Chuo ku, Tokyo 104, Japan

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Tsuji S, Nakatani F//Osaka Shoin Womens Univ, 2-26 Hishyanishi 4 chome, Higashiosaka, Osaka 577, Japan

J JPN SOC FOOD SCI TECHNOL 1990, 37 (5) 331

Research on the differences in physical properties of agar and gelatin gels by using the multi-biting test (Japanese, English Abstract)

Watase M, Nishinari K*, Williams PA, Phillips GO//Natl Food Res Inst, Tsukuba 305, Japan

J AGR FOOD CHEM 1990, 38 (5) 1181

Agarose gels: Effect of sucrose, glucose, urea, and guanidine hydrochloride on the rheological and thermal properties

Boye NP, Salo OP, Hyldebrandt N, Wihl JA,

Bevan A, Harris RI*, Lovely JR//Dome Hollister Stier Miles Ltd, Stoke Court, Stoke Poges SL2 4LY, England

ALLERGY 1990, 45 (4) 241

Immunotherapy of tree pollen allergy with a modified alginate conjugated birch pollen extract compared to an aluminium adsorbed extract

Jones ML, Newcombe RG, Bellis H, Bottomley J//Univ Coll Cardiff, Dept Child Dent Hlth, Heath Pk, Cardiff CF4 4XY, Wales

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The dimensional stability of self-disinfecting alginate impressions compared to various immersion regimes

Mochizuki A, Amiya S, Sato Y, Ogawara H, Yamashita S//Kuraray Co Ltd, Tsukuba Res Lab, Miyukigaoka 41, Tsukuba, Ibaraki 305, Japan

J APPL POLYM SCI 1990, 40 (3-4) 385

Pervaporation separation of water/ethanol mixtures through polysaccharide membranes. IV. The relationships between the permselectivity of alginic acid membrane and its solid state structure

Herath HMTB, Kumar NS*, Wimalasiri KMS// *Univ Peradeniya, Dept Chem, Peradeniya, Sri Lanka

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Structural studies of an arabinoxylan isolated from Litsea glutinosa (Lauraceae)

Nishinari K, Watase M, Williams PA, Phillips GO//Natl Food Res Inst, Tsukuba 305, Japan

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Kappa-carrageenan gels: Effect of sucrose, glucose, urea, and guanidine hydrochloride on the rheological and thermal properties

Gonzalez-Davila M, Santana-Casiano JM, Milleiro FJ// *Univ Miami, Rosenstiel Sch Marine & Atmospher Sci, 4600 Rickenbacker Causeway, Miami, FL 33149, USA

J COLLOID INTERFACE SCI 1990, 137 (1) 102

The adsorption of Cd(II) and Pb(II) to chitin in seawater

Kurita K, Koyama Y, Inoue S, Nishimura S-I//Seikei Univ, Fac Engr, Dept Ind Chem, Musashino, Tokyo 180, Japan

MACROMOLECULES 1990, 23 (11) 2865

((Diethylamino)ethyl)chitins: Preparation and

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Saiki I, Murata J, Nakajima M, Tokura S, Azuma I//Hokkaido Univ, Inst Immunol Sci, Kita-15, Nishi-7, Kita ku, Sapporo, Hokkaido 060, Japan

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Kurita K, Nishimura S, Takeda T//Seikei Univ, Fac Engn, Dept Ind Chem, Musashino, Tokyo 180, Japan

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Longas MO//Purdue Univ, Dept Chem & Phys, Hammond, In 46323, USA

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Kikuchi S, Aramaki Y, Nonaka H, Tsuchiya S*//
*Tokyo Coll Pharm, 1432-1 Horinouchi, Hachioji,
Tokyo 19203, Japan

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Onarheim H, Missavage AE, Kramer GC, Gun-
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Painuli DK, Pagliai M//CNR, Ist Chim Terreno,
I-56100 Pisa, Italy

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Inst, 1301 E Ann St, Ann Arbor, MI 48109, USA

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*Rutgers State Univ, Dept Chem & Biochem
Engn, POB 909, Piscataway, NJ 08855, USA

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Sch Hosp, Dept Orthopaed Surg, 4301 W Mark-
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C//Hiroshima Univ, Fac Appl Biol Sci, Dept
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S//Gifu Coll Pharm, Mitahora Higashi 5 chome,
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Univ Munich, Inst Mikrobiol, Arcisstr 21, D-
8000 Munich 2, Fed Rep Ger

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Anim Sci, 126 Anim Sci Lab, 1207 W Gregory
Dr, Urbana, IL 61801, USA

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Ma CB, Hart LL//*Univ Calif San Francisco*, Sch Pharm, San Francisco, Ca 94143, USA

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BIOCHEM SYST ECOL 1990, 18 (1) 43

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Bruhn HD//*Univ Kiel*, Med Klin 1, Innere Med Abt, D-2300 Kiel 1, Fed Rep Ger

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Khan MY, Newman SA//*NE Hill Univ*, Dept Biochem, Shillong 793014, India

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Rej RN, Perlin AS//McGill Univ, Dept Chem, Montreal, Quebec, Canada H3A 2A7

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Sharma CP, Jayasree G//Sree Chitra Tirunal Inst Med Sci & Technol, Div Biosurface Technol, BMT Wing, Satelmond Palace, Trivandrum 695012, India

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Le Cerf D, Irinei F, Muller G//URA 500 CNRS Polym Biopolym Membranes, Fac Sci Univ Rouen, 76134 Mont Saint Aignan Cedex, France

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Painter TJ//Univ Trondheim, Inst Biotechnol, N-7034 Trondheim, Norway

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Williamson G, Faulds CB, Matthew JA, Archer DB, Morris VJ, Brownsey GJ, Ridout MJ// AFRC Inst Food Res, Norwich Lab, Colney Lane, Norwich NR4 7UA, England

CARBOHYD POLYM, 1990 13 (4) 387

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J PHARM SCI 1990, 79 (5) 463

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Klingeberg M, Hippe H, Antranikian G// *Univ Gottingen, Inst Mikrobiol, Griesbachstr 8, D-3400 Gottingen, Fed Rep Ger

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CARBOHYD RES 1990, 199 (1) 83

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CARBOHYD RES 1990, 198 (2) 375

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de Lederkremer RM, Marina C, Varela O//Univ Buenos Aires, Fac Ciencias Exactas & Nat, Dept Quim Organ, Ciudad Univ, Pabellon 2, RA-1428 Buenos Aires, Argentina

CARBOHYD RES 1990, 200 (APR) 227

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Ferroni GD//Laurentian Univ, Dept Biol, Sudbury, Ontario, Canada P3E 2C6

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The conditions required for exopolymer production by a psychrotrophic bacterium

Fuchigami M//Okayama Prefectural Jr Coll, Dept Food Sci, 3-1-1 Ishima cho, Okayama 700, Japan

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Her G-R, Glazebrook J, Walker GC, Reinhold VN*//Harvard Univ, Sch Publ Hlth, Div Biol Sci, Boston, Ma 02115, USA
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Jackson GE, Ravenscroft N, Stephen AM//Univ Cape Town, Dept Chem, Rondebosch 7700, South Africa
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Jones C//Nat'l Inst Biol Stand & Controls, Potters Bar EN6 3QG, Herts, England
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Lipkind GM, Shashkov AS, Kochetkov NK//ND Zelinskii Organ Chem Inst, Moscow, USSR
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Maeda YY//Tokyo Metropolitan Inst Med Sci,

Dept Exptl Anim Sci, Tokyo 113, Japan
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McNeil B, Kirstiansen B//Univ Strathclyde, Dept Biosci & Biotechnol, Glasgow G1 1XW, Scotland
ENZYME MICROB TECHNOL 1990, 12 (7) 521

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Murano E, Paoletti S, Cesaro A, Rizzo R//Univ Trieste, Dipartimento Biochim Biofis & Chim Macromolec, Piazzale Europa 1, I-34127 Trieste, Italy
ANAL BIOCHEM 1990, 187 (1) 120

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Nakahara Y, Ogawa T//Inst Phys & Chem Res, Wako, Saitama 35101, Japan
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