



Bibliography on carbohydrate polymers

1 BOOKS, REVIEWS & SYMPOSIA

Friedman RB (Ed)
Biotechnology of Amylodextrin Oligosaccharides
ACS Symposium Series, Vol 458
Symp at the 198th National Meeting of the American Chemical Soc,
Sept, 1989
Amer Chemical Soc (Washington), 1991, 341pp, \$84.95 Hardbound,
ISBN: 0-8412-1993-1

Chen CL//Address not available
HOLZFORSCHUNG 1991, 45 (5) 340
Symposium: Cellulose and lignocellulosics chemistry May, 1991,
Guangzhou (Canton), China (Congress Report)

ADVAN DRUG DELIVERY REV 1991, 7 (2)
Special issue: Hyaluronic acid in controlled drug delivery

HOLZFORSCHUNG 1991, 45 (SEPT) SUPPL
Special Issue: Lignin and pulping chemistry

Stscherbina D, Philipp B//Inst Polymerenchem Erich Correns, O-1530
Teltow, FRG
ACTA POLYM 1991, 42 (8) 345
New results on isolation, modification and application of xylans (Lit-
erature Review) (German, English Abstract)

2 CELLULOSE

Teodorovic M, Danhelka J, Majdanac L//Univ Belgrade, Fac Technol
& Met, Karadjicjeva 4, YU-11000 Belgrade, Yugoslavia
ACTA POLYM 1991, 42 (9) 458
Polydispersity of regenerated alkali celluloses during oxidative degra-
dation

Jovanovic M, Rakic R, Djuric Z, Zivanovic L//Belgrade & Med Ctr,
Fac Pharm, Krusevac, Yugoslavia
INT J PHARM 1991, 75 (2-3) 155
Effect of surfactants on the rheological and electrical properties of
carboxymethylcellulose aqueous solution

Lavrenko PN, Okatova OV, Dautzenberg H, Philipp B//Acad Sci, Inst
Macromolec Cpds, Leningrad, Russia
VYSOKOMOL SOEDIN SER A SSSR, 1991, 33 (5) 1026
Diffusion and sedimentation of monosubstituted carboxymethyl cellu-
lose in deca-diluted aqueous cadoxen (Russian, English Abstract)

Avtjanov ZK, Zakirov AS//Acad Sci, Inst Polymer Chem & Phys,
Tashkent, Uzbekistan

VYSOKOMOL SOEDIN SER B SSSR 1991, 33 (6) 429

Structural changes in mixtures of cellulose diacetate with poly-2-
methyl-5-vinylpyridine in the course of diffusion of nitromethane
(Russian)

Emelyanova GI, Gorlenko LE, Malykh OA, Kovaleva NV//MV Lo-
monosov State Univ, Dept Chem, Moscow 117234, Russia
ZH FIZ KHM SSSR 1991, 65 (6) 1668
Adsorption properties of carbon materials based on hydrated cellulose
(Russian)

Goetzky P, Gnauck R//Zent Inst Organ Chem, Bereich Makromolek
Verbindungen, W-1199 Berlin, FRG
ACTA POLYM 1991, 42 (8) 375
Studies on the thermal behaviour of phenolic resin bonded cellulose
paper laminates. 2. The effect of composite formation on thermal and
combustion behaviour (German, English Abstract)

Kamusewitz H, Malsch G, Paul D//Inst Polymerenchem, O-1530 Tel-
tow, FRG
ACTA POLYM 1991, 42 (9) 454
Contact angle measurements on surface modified cellulose mem-
branes

Kumar PKR, Singh A, Schugerl K*//Univ Hanover, Inst Tech Chem,
W-3000 Hanover 1, FRG
PROCESS BIOCHEM 1991, 26 (4) 209
Fed-batch culture for the direct conversion of cellulosic substrates to
acetic acid ethanol by *Fusarium oxysporum*

Majdanac LD, Poleti D, Teodorovic MJ//Univ Belgrade, Fac Technol
& Met, POB 494, YU-11001 Belgrade, Yugoslavia
ACTA POLYM 1991, 42 (8) 351
Determination of the crystallinity of cellulose samples by x-ray diffrac-
tion

Maldas D, Kokta BV//Univ Quebec, Ctr Rech Pates & Papiers, CP
500, Trois Rivières GA9 5H7, Quebec, Canada
POLYM J 1991, 23 (10) 1163
Influence of organic peroxide on the performance of maleic anhydride
coated cellulose fiber-filled thermoplastic composites

Masson JF, Manley RS*//McGill Univ, Pulp & Paper Res Ctr, 3420
Univ St, Montreal, Quebec, Canada H3A 2A7
MACROMOLECULES 1991, 24 (22) 5914
Cellulose/poly(4-vinylpyridine) blends

McBride BW//DSIR Grasslands, Palmerston North, New Zealand
N Z J AGR RES 1991, 257

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

¹³C CP-MAS NMR spectroscopy of cellulose and forages

Novikov DV, Varlamov AV, Mnatsakanov SS, Panarin YF//Leningrad Cine Photo Engn Inst, Leningrad, Russia

DOKL AKAD NAUK SSSR 1991, 318 (6) 1406

Surface structure periodicity of cellulose triacetate film (Russian)

Pautov VP//Pereslavl'sky Filial Gosniichimfotoprojekt, Pereslavl Zalessky Rus A Ya 47, Jaroslavl 152140, Russia

NUCL TRACK RADIAT MEAS 1991, 19 (1-4) 105

On the development of experimental technology for manufacturing the cellulose nitrate detector (CND)

Pekarovicova A, Mikulasova M, Kozankova J, Cernakova L//Slovak Tech Univ, Inst Biotechnol, Kollarova Nam 9, CS-81237 Bratislava, Czech & Slovak Fed Rep

HOLZFORSCHUNG 1991, 45 (5) 333

Optimization the freezing conditions of cellulose for enhanced ethanol production

Pramar Y, Dasgupta V//Univ Houston, Dept Pharmaceut, 1441 Mour-sund St, Houston, Tx 77030, USA

DRUG DEVELOP IND PHARM 1991, 17 (17) 2401

Quantitation of scopalamine hydrobromide when adsorbed onto microcrystalline cellulose and sodium carboxymethylcellulose in tablets

Seves A, Romano M, Dubinipaglia E, Beltrame PL, Marcandalli B//Stn Sperimentale, Cellulosa Carta & Fibre Tessili Vegetali Artificiali, I-20133 Milan, Italy

J APPL POLYM SCI 1991, 43 (10)1821

Thermal cis-trans isomerization of axo dye chrysophenine in cellulose matrices - Effect of morphology

Shama G//Loughborough Univ Technol, Dept Chem Engn, Loughbo-rough LE11 3TU, England

BIOTECHNOL LETT 1991, 13 (10) 761

Prospects for ethanol production from cellulose with Clostridium ther-mocellum-Bacillus stearothermophilus co-cultures

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

J MATER SCI LETT 1991, 10 (20) 1217

Optical properties of pure and iron-doped cellulose acetate

Shukla AJ, Price JC*//Univ Georgia, Coll Pharm, Athens, Ga 30602, USA

PHARMACEUT RES 1991, 8 (11) 1396

Effect of drug loading and molecular weight of cellulose acetate pro-pionate on the release characteristics of theophylline microspheres

Singh A, Padmakar*//Narendra Dev Univ Agr & Technol, Dept Bio-phys, Faizabad 224229, India

NAHRUNG 1991, 35 (8) 887

Enhanced production of glucose by enzymatic hydrolysis of chemical and irradiation-pretreated cellulosic materials

Tsysin GI, Mikhura IV, Formanovsky AA, Zolotov YA//Acad Sci, Inst Geochem & Analyt Chem, GSP-1, Moscow 117975, Russia

MIKROCHIM ACTA 1991, 3 (1-3) 53

Cellulose fibrous sorbents with conformationally flexible aminocarbox-ylic groups for preconcentration of metals

Weimer PJ, French AD, Calamari TA//USDA ARS, US Dairy Forage Res Ctr, Madison, Wi 53706, USA

APPL ENVIRON MICROBIOL 1991, 57 (11) 3101

Differential fermentation of cellulose allomorphs by ruminal cellulo-

lytic bacteria

Weimer PJ, Shi Y, Odt CL//USDA ARS, US Dairy Forage Res Ctr, Madison, Wi 53706, USA

APPL MICROBIOL BIOTECHNOL 1991, 36 (2) 178

A segmented gas liquid delivery system for continuous culture of microorganisms on insoluble substrates and its use for growth of Ruminococcus flavefaciens on cellulose

Akbuga J//Univ Marmara, Fac Pharm, Dept Pharmaceut Technol, Ni-santasi, Turkey

INT J PHARM 1991, 76 (3) 193

Furosemide-loaded ethyl cellulose microspheres prepared by spherical crystallization technique - Morphology and release characteristics

Huang Y, Zhou JY//Acad Sinica, Guangzhou Inst Chem, POB 1122, Guangzhou 510650, Peoples R China

J APPL POLYM SCI 1991, 43 (9) 1693

Textures of ethyl cellulose dichloroacetic acid mesomorphic solution

Bart B, Biliaderis CG*, Murray ED, MacGregor AW//Univ Manito-ba, Dept Food Sci, Winnipeg, Manitoba, Canada R3T 2N2

J SCI FOOD AGR 1991, 56 (2) 195

Combined chemical and enzymic treatments of corn husk lignocellulo-sics

Bilbao R, Murillo MB, Millera A, Mastral JF//Univ Zaragoza, Fac Sci, Dept Chem & Environm Engn, E-50009 Zaragoza, Spain

THERMOCHIM ACTA 1991, 190 (2) 163

Thermal decomposition of lignocellulosic materials - Comparison of the results obtained in different experimental systems

Simkovic I, Balog K, Micko MM//Slovak Acad Sci, Inst Chem, CS-84238 Bratislava, Czech & Slovak Fed Rep

HOLZFORSCHUNG 1991, 45 (5) 367

Flame retardancy effect of elemental sulphur caused by covering the lignocellulose materials

Bell DA, Steinke LW//Dow Chem Co USA, Larkin Lab, Cellulos Grp, Food Applicat, Midland, Mi 48674, USA

CEREAL FOOD WORLD 1991, 36 (11) 941

Evaluating structure and texture effects of methylcellulose gums in microwave-baked cakes

Koda S, Hori T, Nomura H, Kawaizumi F//Nagoya Univ, Sch Engn, Dept Chem Engn, Chikusa ku, Nagoya 46401, Japan

POLYMER 1991, 32 (15) 2806

Hydration of methyl cellulose

Burroughs JA, Chrambach A//NICHHD, Theoret & Phys Biol Lab, Macromolec Anal Sect, Bethesda, Md 20892, USA

BIOCHEM BIOPHYS RES COMMUN 1991, 180 (2) 1070

Size separation of polystyrene sulfate particles (189 to 1085 nm radius) in solutions of methyl-hydroxypropyl-cellulose of different chain lengths

3 CELLULOSE-DEGRADING ENZYMES

Darmwal NS, Gaur AC*//Indian Agr Res Inst, Div Microbiol, New Delhi 11012, India

ZBL MIKROBIOL 1991, 146 (7-8) 467

Isolation of cellulolytic fungi for cellulase and protein production from rice straw

Deshpande MV//Natl Chem Lab, Div Biochem Sci, Poona 411008, Maharashtra, India

APPL BIOCHEM BIOTECHNOL 1991, 31 (1) 75

Factors affecting stability of *Sclerotium rolfsii* UV-8 mutant cellulase complex under saccharification conditions

Maes PC, Nagels LJ*, De Waele C, Alderweireldt FC//Antwerp State Univ Ctr, Gen & Organ Chem Lab, Groenenborgerlaan 171, B-2020 Antwerp, Belgium

J CHROMATOGR 558, (2) 343

Characterization of cellulase-based enzyme reactors for the high-performance liquid chromatographic determination of beta-D-glucan oligosaccharides

Nigam P, Prabhu KA//Univ Ulster, Dept Biol & Biomed Sci, Coleraine BT52 1SA, Northern Ireland

J BASIC MICROB 1991, 31 (4) 285

Effect of cultural factors on cellulase biosynthesis in submerged bagasse fermentation by basidiomycetes cultures

Ogawa K, Toyama D, Fujii N//Keio Univ, Sch Med, Dept Otolaryngol, 35 Shinanomachi, Shinjuku ku, Tokyo 160, Japan

J GEN APPL MICROBIOL TOKYO 1991, 37 (3) 249

Microcrystalline cellulose-hydrolyzing cellulase (endo-cellulase) from *Trichoderma reesei* CDU-11

Rajor A, Dhala SA//Bhavans Coll, Dept Microbiol, Bombay 400058, India

J MICROBIAL BIOTECHNOL 1991, 6 (1) 38

Effect of addition of sulfate, sulfate reducing bacteria and cellulolytic cultures on biogas formation from cabbage waste

Sahasrabudhe NA//Nat'l Chem Lab, Dept Biochem Sci, Poona 411008, Maharashtra, India

APPL BIOCHEM BIOTECHNOL 1991, 31 (1) 37

Immunological and molecular genetic analysis of the cellulase component from *Penicillium funiculosum*

Sharma DK, Niwas S, Behera BK//Indian Inst Technol, Ctr Energy Studies, New Delhi 110016, India

J MICROBIAL BIOTECHNOL 1991, 6 (1) 7

Solid state fermentation of bagasse for the production of cellulase enzyme from cellulolytic fungi and extent of simultaneous production of reducing sugars in the fermenter

Tokatlidis K, Salamitou S, Begiun P*, Dhurjati P, Aubert JP//Inst Pasteur, Dept Biotechnol, Unite Physiol Cellulaire, 28 rue Dr Roux, F-75724 Paris 15, France

FEBS LETT 1991, 291 (2) 185

Interaction of the duplicated segment carried by *Clostridium thermocellum* cellulases with cellosome components

Zeltina MO, Leite MP, Apine AJ, Bariss UA, Shvinka JE//August Kirchenstein Microbiol Inst, Riga 226067, Latvia

FOLIA MICROBIOL PRAGUE 1991, 36 (3) 263

Determination of the cellulolytic activity of micromycetes by an express method

Nieves RA, Ellis RP, Todd RJ, Johnson TJA, Grohmann K, Himmel ME//Solar Energy Res Inst, Div Fuels & Biotechnol Res Branch, 1617 Cole Blvd, Golden, Co 80401, USA

APPL ENVIRON MICROBIOL 1991, 57 (11) 3163

Visualization of *Trichoderma reesei* cellobiohydrolase-I and endoglucanase-I on aspen cellulose by using monoclonal antibody-colloidal gold conjugates

Uzcategui E, Johansson G, Ek B, Pettersson G*//Univ Uppsala, Dept Biochem, POB 576 BMC, S-75123 Uppsala, Sweden

J BIOTECHNOL 1991, 21 (1-2) 143

The 1,4-beta-D-glucan glucanohydrolases from *Phanerochaete chrysosporium* - Re-assessment of their significance in cellulose degradation mechanisms

4 CYCLODEXTRINS

Abe S, Nagamine Y, Omichi K*, Ikenaka T//Osaka Univ, Coll Sci, Dept Chem, Toyonaka, Osaka 560, Japan

J BIOCHEM TOKYO 1991, 110 (5) 756

Investigation of the active site of *Bacillus macerans* cyclodextrin glucanotransferase by use of modified maltooligosaccharides

Andini S, Castronuovo G*, Elia V, Gallotta E//Univ Federico II Naples, Dept Chem, via Mezzocannone 4, I-80134 Naples, Italy

CARBOHYD RES 1991, 217 (SEP) 87

Inclusion compounds in water - Calorimetric and spectroscopic studies of the interaction of cyclomaltohexaose (alpha-cyclodextrin) with alcohols at 25-degrees

Bekers O, Kettenes-Van den Bosch JJ, Van Helden SP, Seijkens D, Beijnen JH, Bult A, Underberg WJM//State Univ Utrecht, Fac Pharm, POB 80082, 3508 TB Utrecht, The Netherlands

J INCLUSION PHENOM MOL RECOGN 1991, 11 (2) 185

Inclusion complex formation of anthracycline antibiotics with cyclodextrins - A proton nuclear magnetic resonance and molecular modelling study

Ding JP, Steiner T, Saenger W*//Free Univ Berlin, Inst Kristallog, Takustr 6, W-1000 Berlin 33, FRG

ACTA CRYSTALLOGR B-STRUCT SCI 1991, 47 (OCT) 731

Topography of cyclodextrin inclusion complexes. 26. Structure of the gamma-cyclodextrin 1-propanol-17H₂O inclusion complex

Fornasier R, Marcuzzi F, Parmagnani M, Tonellato U//Univ Padua, Dipartimento Chim Organ, CNR, Ctr Meccanismi Reazioni Organ, I-35131 Padua, Italy

CARBOHYD RES 1991, 217 (SEP) 245

Stereoselective reduction of (R)-(-)-carvone with sodium dithionite in the presence of cyclomaltoheptaose (beta-cyclodextrin) and its heptakis(2,6-di-O-methyl) derivative

Keim W, Kohnes A, Meltzow W, Romer H//Rhein Westfal Th Aachen, Inst Techn Chem & Petrochem, Worringerg Weg 1, W-5100 Aachen, FRG

HRC-J HIGH RES CHROMATOGR 1991, 14 (8) 507

Enantiomer separation by gas chromatography on cyclodextrin chiral stationary phases

Konig WA, Icheln D, Runge T, Pfaffenberger B, Ludwig P, Huhnerfuss H//Univ Hamburg, Inst Organ Chem, W-2000 Hamburg 13, FRG

HRC-J HIGH RES CHROMATOGR 1991, 14 (8) 530

Gas chromatographic enantiomer separation of agrochemicals using modified cyclodextrins

Lipkowitz KB//Indiana Purdue Univ, Dept Chem, 1125 E 38th St, Indianapolis, In 46205, USA

J ORG CHEM 1991, 56 (22) 6357

Symmetry breaking in cyclodextrins - A molecular mechanics investigation

Mentzafos D, Mavridis IM, Lebas G, Tsoucaris G//Agr Univ Athens, Phys Lab, Iera Odos 75, GR-11855 Athens, Greece

ACTA CRYSTALLOGR B-STRUCT SCI 1991, 47 (OCT) 746

Structure of the 4-tert-butylbenzyl alcohol beta-cyclodextrin complex - Common features in the geometry of beta-cyclodextrin dimeric complexes

Sakuraba H, Tananaka Y, Toda F//Kanto Gakuin Univ, Fac Engr, Dept Ind Chem, 4834 Kanazawa Mitsuura, Yokohama, Kanagawa 236, Japan

J INCLUSION PHENOM MOL RECOGN 1991, 11 (2) 195

Asymmetric Michael addition of aromatic thiols to 2-cyclohexenone and maleic acid esters via formation of crystalline cyclodextrin complexes

Seo T, Kajihara T, Miwa K, Iijima T//Tokyo Inst Technol, Dept Polymer Sci, Meguro ku, Tokyo 152, Japan

MAKROMOL CHEM-MACRO CHEM PHYS 1991, 192 (10) 2357

Catalytic hydrolysis of phenyl esters in cyclodextrin/poly(allylamine) systems

Snopek J, Soini H, Novotny M, Smolkova-Keulemansova E, Jelinek I//Indiana Univ, Dept Chem, Bloomington, In 47405, USA

J CHROMATOGR 1991, 559 (1-2) 215

Selected applications of cyclodextrin selectors in capillary electrophoresis

Villette JR, Looten PJ, Bouquelet SJL*//Univ Lille 1, Chim Biol Lab, F-59655 Villeneuve d'Ascq, France

CHROMATOGRAPHIA 1991, 32 (7-8) 341

Fast purification of cyclodextrin-glucosyltransferase from *Bacillus circulans* E-192 by affinity chromatography using an epichlorhydrin-reticulated copolymer of beta-cyclodextrin

Walhagen A, Edholm LE//Univ Lund, POB 124, S-22100 Lund, Sweden

CHROMATOGRAPHIA 1991, 32 (5-6) 215

Chiral separation on achiral stationary phases with different functionalities using beta-cyclodextrin in the mobile phase and application to bioanalysis and coupled columns

5 LIGNIN

Delange M, Trummer JA, Roberts RS*, Muzzy JD, Gelbaum LT//Georgia Inst Technol, Sch Chem Engr, Atlanta, Ga 30332, USA

HOLZFORSCHUNG 1991, 45 (5) 361

¹³C NMR characterization of tulip poplar lignin solubilized by buffered solvent pulping

Hatakka AI, Lundell TK, Tervilawilo ALM, Brunow G//Cultor Ltd, SF-02460 Kantvik, Finland

APPL MICROBIOL BIOTECHNOL 1991, 36 (2) 270

Metabolism of non-phenolic beta-O-4 lignin model compounds by the white-rot fungus *Phlebia radiata*

Jakab E, Faix O*, Till F, Szekely T//Bundesforsch Anstalt Forst & Holzchem & Chem Technol Holzes, Leuschnerstr 91, W-29050 Hamburg 80, FRG

HOLZFORSCHUNG 1991, 45 (5) 355

Thermogravimetry mass spectrometry of various lignosulfonates as well as of Kraft and acetosolv lignin

Popp JL, Kirk TK, Dordick JS*//Univ Iowa, Dept Chem & Biochem Engr, Iowa City, Ia 52242, USA

ENZYME MICROB TECHNOL 1991, 13 (12) 964

Incorporation of para-cresol into lignins via peroxidase-catalysed copolymerization in nonaqueous media

Wariishi H, Huang J, 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 1991, 266 (31) 2069

Reactions of lignin peroxidase compound-I and compound-II with veratryl alcohol - Transient-state kinetic characterization

6 POLYSACCHARIDES - NAMED

Armisen R//Hispanagar SA, Poligono Ind Villalonquejar, Calle Lopez Bravo 1, Apartado Postal 392, E-09080 Burgos, Spain

HYDROBIOLOGIA 1991, 221 (AUG) 157

Agar and agarose biotechnological applications

Friedlander M//Natl Inst Oceanog, Israel Oceanog & Limnol Res, POB 8030, IL-31080 Haifa, Israel

BIORESOURTECHNOL 1991, 38 (2-3) 203

Growth rate, epiphyte biomass and agar yield of *Gracilaria conferta* in an annual outdoor experiment. 1. Irradiance and nitrogen

Lahaye M, Rochas C//INRA, Biochim & Technol Glucides Lab, BP 527, F-44026 Nantes 03, France

HYDROBIOLOGIA 1991, 221 (AUG) 137

Chemical structure and physico-chemical properties of agar

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

HYDROBIOLOGIA 1991, 221 (AUG) 149

Agars from Chilean Gelidiaceae

Motsch SR, Leemiss MH, Schomburg G//Max Planck Inst Coal Res, Dept Chromatog, W-4330 Mulheim, FRG

HRC-J HIGH RES CHROMATOGR 1991, 14 (9) 629

Production and application of capillaries filled with agarose gel for electrophoresis

Yamaura I, Matsumoto T, Funatsu M, Shigeiri H, Shibata T//Kumamoto Univ, Dept Appl Microbial Technol, Kumamoto 860, Japan

AGR BIOL CHEM TOKYO 1991, 55 (10) 2531

Purification and some properties of agarase from *Pseudomonas* sp PT-5

Arutyunyan BN, Tolstykh PI, Simonov AV, Komissarova AL, Petushkov VV//Moscow Laser Surg Res Inst, Moscow, Russia

KHIRURGIYA 1991, (7) 44

Spongy materials from alginic acid salts in treatment of septic wounds (Russian, English Abstract)

Hassan RM, Abdalla MA//Univ Assiut, Fac Sci, Dept Chem, Assiut, Egypt

ACTA POLYM 1991, 42 (9) 447

Ionotropic gels of alginate polyelectrolyte. 1. Potentiometric determination of the ionization constant of alginic acid polyelectrolyte in relation to sol-gel transformation mechanisms

Takeshita S, Oda T, Muramatsu T*//Nagasaki Univ, Fac Fisheries, Div Biochem, Nagasaki 852, Japan

AGR BIOL CHEM TOKYO 1991, 55 (10) 2637

An improved plate method, in the presence of calcium chloride or sulfuric acid, for simultaneous detection of alginate lyases

Ishii T//Forestry & Forest Prod Res Inst, POB 16, Tsukuba norin, Kenkyu danchinai, Ibaraki 305, Japan

CARBOHYD RES 1991, 219 (OCT) 15

Isolation and characterization of a diferuloyl arabinoxylan hexasaccharide from bamboo shoot cell-walls

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

CARBOHYD POLYM 1991, 17 (3) 237

Influence of structure on the physicochemical properties of wheat arabinoxylan

- Arnaud JP, Lacroix C*//Univ Laval, Ctr Rech Stella, Pavillon Paul Comtois, St Foy, Quebec, Canada G1K 7P4
BIOTECHNOL BIOENG 1991, 38 (9) 1041
Diffusion of lactose in kappa-carrageenan locust bean gum gel beads with or without entrapped growing lactic acid bacteria
- Slootmaekers D, Van Dijk JAPP, Varkevisser FA, Van Treslong CJB, Reynaers H*//Univ Louvain, Macromolec Struct Chem Lab, Celestijnenlaan 200 F, B-3001 Heverlee, Belgium
BIOPHYS CHEM 1991, 41 (1) 51
Molecular characterisation of kappa-carrageenan and lambda-carrageenan by gel permeation chromatography, light scattering, sedimentation analysis of osmometry
- Fukamizo T, Ohtakara A, Mitsutomi M, Goto S//Kinki Univ, Fac Agr, Dept Biophys, Nara 631, Japan
AGR BIOL CHEM TOKYO 1991, 55 (10) 2653
NMR spectra of partially deacetylated chitotrisaccharides
- Hirano S, Inui H, Mikami T, Ishigami Y, Hisamori H//Tottori Univ, Dept Agr Biochem & Biotechnol, Koyama, Tottori 680, Japan
AGR BIOL CHEM TOKYO 1991, 55 (10) 2627
An alkaline chitin solution and some O-alkylchitin derivatives
- Takahashi T, Muroi N, Irie M, Ikegami Y//Hoshi Univ, Inst Med Chem, Ebara 2-4-41, Shinagawa ku, Tokyo 142, Japan
CHEM PHARM BULL TOKYO 1991, 39 (9) 2387
Different binding behavior to chitin of multiple forms of glucoamylases from *Aspergillus saitoi* and *Rhizopus* sp
- Takiguchi Y, Shimahara K//Seikei Univ, Fac Engr, Dept Ind Chem, Musashino, Tokyo 189, Japan
NIPPON NOGEIKAGAKU KAISHI 1991, 65 (11) 1655
Forms of chitin substitutable for colloidal chitin on fermentative production of N,N'-diacetylchitobiose (Japanese, English Abstract)
- Vyas P, Deshpande M*//Nat'l Chem Lab, Div Biochem Sci, Poona 411008, India
J GEN APPL MICROBIOL TOKYO 1991, 37 (3) 267
Enzymatic hydrolysis of chitin by *Myrothecium verrucaria* chitinase complex and its utilization to produce SCP
- Hirano S, Hasegawa M, Kinugawa J//Tottori Univ, Dept Agr Biochem & Biotechnol, Tottori 680, Japan
INT J BIOL MACROMOL 1991, 13 (5) 316
¹³C-NMR analysis of some sulphate derivatives of chitosan
- Hirano S, Iwata M, Yamanaka K, Tanaka H, Toda T, Inui H//Tottori Univ, Dept Agr Biochem & Biotechnol, Koyama, Tottori 680, Japan
AGR BIOL CHEM TOKYO 1991, 55 (10) 2623
Enhancement of serum lysozyme activity by injecting a mixture of chitosan oligosaccharides intravenously in rabbits
- Nudga LA, Petrova VA, Denisov VM, Petropavlovskii GA//Acad Sci, Inst High Molec Cpds, Moscow V-71, Russia
J APPL CHEM-ENGL TR 1991, 64 (1) 220
Alkylation of chitosan
- Pospieszny H, Chirkov S, Atabekov J//Inst Plant Protect, UL Miczurina 20, PL-60318 Poznan, Poland
PLANT SCI 1991, 79 (1) 63
Induction of antiviral resistance in plants by chitosan
- Seo T, Ohtake H, Kanbara T, Yonetake K, Iijima T//Tokyo Inst Technol, Dept Polymer Sci, Meguro ku, Tokyo 152, Japan
MAKROMOL CHEM-MACRO CHEM PHYS 1991, 192 (10) 2447
Preparation and permeability properties of chitosan membranes having hydrophobic groups
- Varum KM, Anthonsen MW, Grasdalen H, Smidsrod O//Univ Trondheim, Norwegian Inst Technol, Div Biotechnol, Norwegian Biopolymer Lab, N-7034 Trondheim, Norway
CARBOHYD RES 1991, 217 (SEP) 19
High-field NMR spectroscopy of partially N-deacetylated chitins (chitosans). 3. ¹³C-NMR studies of the acetylation sequences in partially N-deacetylated chitins (chitosans)
- Wei W, Bo SQ, Li SQ, Wen Q//Acad Sinica, Changchun Inst Appl Chem, Polymer Phys Lab, Changchun 130022, Peoples R China
INT J BIOL MACROMOL 1991, 13 (5) 286
Determination of the Mark-Houwink equation for chitosans with different degrees of deacetylation
- Hamase K, Nakamura H*, Nakajima T//Univ Tokyo, Fac Pharmaceut Sci, Dept Analyt Chem, Tokyo 113, Japan
ANAL SCI 1991, 7 (5) 811
Curdlan gel as a promising support for electrophoresis
- Wang LX, Sakiri N, Kuzuhara H*//Inst Phys & Chem Res, Wako, Saitama 35101, Japan
CARBOHYD RES 1991, 219 (OCT) 133
Peracetylated laminaribiose - Preparation by specific degradation of curdlan and its chemical conversion into N-acetylhyalobiuronic acid
- Ludwig-Baxter KG, Perlin AS//McGill Univ, Dept Chem, Montreal, Quebec, Canada H3A 2A7
CARBOHYD RES 1991, 217 (SEP) 227
Dermatan sulfate of porcine mucosal tissue - NMR observations on its separation from heparin with the aid of heparinase, and its degradation by chondroitinase
- Erllich D, Aubert I, Neel D, Scrobohaci ML, Loreau J, Bussel A, Rouffy J, Dreux C, Goussault Y, Weintraub H//Hop St Louis, Serv Biochim, Unite Lipides & Prot, 1 Ave Claude Vellefaux, 75010 Paris, France
CLIN CHIM ACTA 1991, 201 (3) 169
Some aspects of the use of dextran sulfate-cellulose columns for the treatment of familial hypercholesterolemia
- Jen SCD, Pinto NG*//Univ Cincinnati, Dept Chem Engr, Cincinnati, Oh 45221, USA
J CHROMATOGR SCI 1991, 29 (11) 478
Dextran sulfate as a displacer for the displacement chromatography of pharmaceutical proteins
- Johnsson B, Lofas S, Lindquist G//Pharmacia Biosensor AB, S-75182 Uppsala, Sweden
ANAL BIOCHEM 1991, 198 (2) 268
Immobilization of proteins to a carboxymethyl-dextran-modified gold surface for biospecific interaction analysis in surface plasmon resonance sensors
- Remaud M, Paul F*, Monsan P, Heyraud A, Rinaudo M//Bioeurope, BP 4196, 4 Impasse Didier Daurat, F-31031 Toulouse, France
J CARBOHYD CHEM 1991, 10 (15) 861
Molecular weight characterization and structural properties of controlled molecular weight dextrans synthesized by acceptor reaction using highly purified dextransucrase
- Carpita NC, Housley TL, Hendrix JE//Purdue Univ, Dept Bot & Plant Pathol, W Lafayette, In 47907, USA
CARBOHYD RES 1991, 217 (SEP) 127

New features of plant-fructan structure revealed by methylation analysis and ^{13}C NMR spectroscopy

Liu JH, Waterhouse AL*, Chatterton NJ//Univ Calif Davis, Dept Viticulture & Enol, Davis, Ca 95616, USA

CARBOHYD RES 1991, 217 (SEP) 43

Conformational analysis of fructans. 4. Proton and carbon chemical-shift assignments for 6-kestose and neokestose from 2-dimensional NMR measurements

Waterhouse AL, Calub TM, French AD//Univ Calif Davis, Dept Viticulture & Enol, Davis, Ca 95616, USA

CARBOHYD RES 1991, 217 (SEP) 29

Conformational analysis of fructans. 3. Conformational analysis of 1-kestose by molecular mechanics and by NMR spectroscopy

Ganter JLMS, Milas M, Correa JBC, Reicher F, Rinaudo M//Universidade Fed Parana, Dept Bioquim, BP 19046, 81.531 Curitiba, PR, Brazil

CARBOHYD POLYM 1992, 17 (3) 171

Study of solution properties of galactomannan from the seeds of *Mimosa scabrella*

Graham HD//Univ Puerto Rico, Mayaguez Campus, Mayaguez, PR 00709, USA

J FOOD SCI 1991, 56 (5) 1342

Isolation of gellan gum from foods by use of monovalent cations

Gomaa K, Kraus J, Franz G, Roper H//Univ Regensburg, Dept Pharm, W-8400 Regensburg, FRG

CARBOHYD RES 1991, 217 (SEP) 153

Structural investigations of glucans from cultures of *Glomerella cingulata* Spaulding and von Schrenck

Saito H, Yoshioka Y, Uehara N, Aketagawa J, Tanaka S, Shibata Y//Himeji Inst Technol, Dept Life Sci, Himeji, Hyogo 67122, Japan

CARBOHYD RES 1991, 217 (SEP) 181

Relationship between conformation and biological response for (1-3)-beta-D-glucans in the activation of coagulation factor-G from *Limulus* amoebocyte lysate and host-mediated antitumor activity - Demonstration of single-helix conformation as a stimulant

Suganuma T, Kitazono JI, Yoshinaga K, Fujimoto S, Nagahama T//Kagoshima Univ, Fac Agr, Dept Biochem Sci & Technol, Kagoshima 890, Japan

CARBOHYD RES 1991, 217 (SEP) 213

Determination of kinetic parameters for maltotriose and higher malto-oligosaccharides in the reactions catalyzed by alpha-D-glucan phosphorylase from potato

Perret J, Bruneteau M*, Michel G, Marais MF, Joseleau JP, Ricci P//Univ Claude Bernard Lyon I, Lab Biochim Microb, F-69622 Villeurbanne Cedex, France

CARBOHYD POLYM 1992, 17 (3) 231

Effect of growth conditions on the structure of beta-D-glucans from *Phytophthora parasitica* Dastur, a phytopathogenic fungus

Tanaka S, Aketagawa J, Takahashi S, Shibata Y, Tsumuraya Y, Hashimoto Y*//Saitama Univ, Fac Sci, Dept Biochem, 255 Shimo Okubo, Urawa, Saitama 338, Japan

CARBOHYD RES 1991, 218 (SEP) 167

Activation of a *Limulus* coagulation factor-G by (1-3)-beta-D-glucans

Williams DL, McNamee RB, Jone EL, Pretus HA, Ensley HE, Drowder IW, Diluzio NR//Tulane Univ, Sch Med, Glucan Res Lab, New Orleans, La 70112, USA

CARBOHYD RES 1991, 219 (OCT) 203

A method for the solubilization of a (1-3)-beta-D-glucan isolated from *Saccharomyces cerevisiae*

Buhler R//Alko Ltd, Res Labs, POB 350, SF-00101 Helsinki 10, Finland

APPL ENVIRON MICROBIOL 1991, 57 (11) 3317

Double-antibody sandwich enzyme-linked immunosorbent assay for quantitation of endoglucanase-I of *Trichoderma reesei*

Krull LH, Cote GL*//USDA, ARS, Biopolymer Res, Natl Ctr Agr Util Res, 1815 N Univ St, Peoria, IL 61604, USA

CARBOHYD POLYM 1992, 17 (3) 205

Determination of gulose and/or guluronic acid by ion chromatography and pulsed amperometric detection

Ferrando R//107 rue Reuilly, Bat 1, F-75012 Paris, France

BULL ACAD NATL MED 1991, 175 (5) 913

Application for approval of tara gum as a food additive (French, English Abstract)

Ma XH, Mohammad SF, Kim SW*//Univ Utah, Ctr Controlled Chem Delivery, 421 Wakara Way, Room 318, Salt Lake City, UT 84108, USA

J COLLOID INTERFACE SCI 1991, 147 (1) 251

Heparin binding on poly(L-lysine) immobilized surface

Cortivo R, Brun P, Rastrelli A, Abatangelo G*//Univ Padua, Inst Histol, 75 via Tieste, I-35131 Padua, Italy

BIOMATERIALS 1991, 12 (8) 727

In vitro studies on biocompatibility of hyaluronic acid esters

Kery V, Orvisky E, Stancikova M//Res Inst Rheumat Dis, Nabrezie Ivana Krasku 4, 92101 Piestany, Czech & Slovak Fed Rep

CARBOHYD POLYM 1992, 17 (3) 227

An approach for a rapid identification and characterization of hyaluronic acid produced by fermentation of *Streptococcus equi*

Sawada M, Tanaka T, Takai Y, Hanafusa T, Taniguchi T, Kawamura M, Uchiyama T//Osaka Univ, Inst Sci & Ind Res, Ctr Mat Anal, Mihogaoka, Ibaraki, Osaka 567, Japan

CARBOHYD RES 1991, 217 (SEP) 7

The crystal structure of cycloinulohexaose produced from inulin by cycloinulo-oligosaccharide fructanotransferase

Yokota A, Enomoto K, Tomita F//Hokkaido Univ, Fac Agr, Dept Agr Chem, Sapporo, Hokkaido 060, Japan

J FERMENT BIOENG 1991, 72 (4) 262

Purification and properties of an inulin fructotransferase (depolymerizing) from *Arthrobacter* sp H65-7

Yokota A, Hirayama S, Enomoto K, Miura Y, Takao S, Tomita F//Hokkaido Univ, Fac Agr, Dept Agr Chem, Sapporo, Hokkaido 060, Japan

J FERMENT BIOENG 1991, 72 (4) 258

Production of inulin fructotransferase (depolymerizing) by *Arthrobacter* sp H65-7 and preparation of DFA-III from inulin by the enzyme

Maeda YY, Sakaizumi M, Moriwaki K, Yonekawa H//Tokyo Metropolitan Inst Med Sci, 3-18-22 Honkomagome, Bunkyo ku, Tokyo 113, Japan

INT J IMMUNOPHARMACOL 1991, 13 (7) 977

Genetic control of the expression of 2 biological activities of an antitumor polysaccharide, lentinan

Barakat MC, Cristina M, Vanetti D, Dearaujo EF, Silva DO*//Univ

Fed Vicoso, Dept Biol Geral, BR-36570 Vicoso, MG, Brazil
BIOTECHNOL LETT 1991, 13 (10) 693

Growth conditions of a pectinolytic *Aspergillus fumigatus* for de-gumming of natural fibres

Chou TC, Pintauro N, Kokini JL//Rutgers State Univ, Dept Food Sci, POB 231, New Brunswick, NJ 08903, USA

J FOOD SCI 1991, 56 (5) 1365

Conformation of citrus pectin using small amplitude oscillatory rheometry

Garzon CG, Hours RA*//Natl Univ La Plata, Fac Ciencias Exactas, Ctr Invest & Desarrollo Fermentaciones Ind, RA-1900 La Plata, Argentina

BIORESOURCE TECHNOL 1992, 39 (1) 93

Citrus waste - An alternative substrate for pectinase production in solid-state culture

Kennedy JF, Melo EHM, Crescenzi V, Dentini M, Matricardi P//Res Lab Chem Bioactive Carbohydrates & Proteins, Sch Chem, Univ Birmingham, Edgbaston, PO Box 363, Birmingham B15 2TT, England
CARBOHYD POLYM 1992, 17 (3) 199

A rapid quantitative determination of pectin and carboxymethyl cellulose in solution using poly(hexamethyleneguanidinium chloride)

Yamada H, Hirano M, Kiyohara H//Kitasato Inst, Oriental Med Res Ctr, 5-9-1 Shirokane, Minato ku, Tokyo 108, Japan

CARBOHYD RES 1991, 219 (OCT) 173

Studies of anti-ulcer pectic polysaccharides from *Bupleurum falcatum*. 2. Partial structure of an anti-ulcer pectic polysaccharide from the roots of *Bupleurum falcatum* L

Zhao JF, Kiyohara H, Yamada H*, Takemoto N, Kawamura H//Kitasato Inst, Oriental Med Res Ctr, 5-9-1 Shirokane, Minato ku, Tokyo 108, Japan

CARBOHYD RES 1991, 219 (OCT) 149

Heterogeneity and characterisation of mitogenic and anticomplementary pectic polysaccharides from the roots of *Glycyrrhiza uralensis* Fisch et De

Rio S, Beau JM, Jacquinet JC*//Univ Orleans, UFR Fac Sci, Biochim Struct Lab, URA 499, BP 6759, F-45067 Orleans, France

CARBOHYD RES 1991, 219 (OCT) 71

Synthesis of glycopeptides from the carbohydrate protein linkage region of proteoglycans

Puvanesarajah V, Darvill AG*, Albersheim P//Univ Georgia, Complex Carbohydrate Res Ctr, 220 Riverbend Rd, Athens, Ga 30602, USA

CARBOHYD RES 1991, 218 (SEP) 211

Structural characterization of 2 oligosaccharide fragments formed by the selective cleavage of rhamnogalacturonan. 2. Evidence for the anomeric configuration and attachment sites of apiose and 3-deoxy-2-heptulosaric acid

Kakumu S, Ishikawa T, Wakita T, Yoshioka K, Ito Y, Shinagawa T//Nagoya Univ, Sch Med, Dept Internal Med 3, 65 Tsuruma cho, Showa ku, Nagoya, Aichi 466, Japan

INT J IMMUNOPHARMACOL 1991, 13 (7) 969

Effect of sizofiran, a polysaccharide, on interferon gamma, antibody production and lymphocyte proliferation specific for hepatitis-B virus antigen in patients with chronic hepatitis-B

Stokke BT, Elgsaeter A, Bjornestad EO, Lund T//Univ Trondheim, NTH, Norwegian Biopolymer Lab, Dept Phys & Math, N-7034 Trondheim, Norway

CARBOHYD POLYM 1992, 17 (3) 209

Rheology of xanthan and scleroglucan in synthetic seawater

Ozcan S, Kotter P, Ciriacy M*//Univ Dusseldorf, Inst Mikrobiol, Univ Str 1, W-4000 Dusseldorf 1, FRG

APPL MICROBIOL BIOTECHNOL 1991, 36 (2) 190

Xylan-hydrolysing enzymes of the yeast *Pichia stipitis*

Ponder GR, Richard GN*//Univ Montana, Wood Chem Lab, Missoula, Mt 59812, USA

CARBOHYD RES 1991, 218 (SEP) 143

Mechanisms of pyrolysis of polysaccharides. 4. Thermal synthesis and pyrolysis of a xylan

McDougall GJ, Fry SC*//Univ Edinburgh, Dept Bot, Kings Bldg, Mayfield Rd, Edinburgh EH9 3JH, Scotland

CARBOHYD RES 1991, 219 (OCT) 123

Purification and analysis of growth-regulating xyloglucan-derived oligosaccharides by high-pressure liquid chromatography

7 POLYSACCHARIDES - OTHER

Aouadi S, Heyroud A, Seigle-Murandi F*, Steiman R, Fournet B//Univ J Fourier (Grenoble I), Lab Bot Crypt Biol Cell & Genet, Grp Etude Devenir Xenobiotiques Environ GEDEXE, UFR Pharm, BP 138, 38243 Meylan Cedex, France

CARBOHYD POLYM 1992, 17 (3) 177

Structural analysis and rheological behaviour of an extracellular polysaccharide from *Drechslera specifera*

Bagnyuk VM, Balatsenko NK, Levina LA, Oleinik TL//NG Kholodnyi Bot Inst, Kiev, Ukraine

DOKL AKAD NAUK SSSR 1991, 318 (5) 1239

Action of bacterial polysaccharide preparation on some metals (Russian)

Baron A, Massiot P, Prioult C, Marnet N//INRA, Rech Cidricoles Biotransformat Fruits & Legumes Stn, BP 29, F-35650 Le Rheu, France

SCI ALIMENT 1991, 11 (4) 627

Evolution of cell-wall polysaccharides of ready-to-use grated carrots after ionization and or calcium treatment (French, English Abstract)

Cremers HCJC, Stevens K, Lugtenberg BJJ, Wijffelman CA, Batley M, Redmond JW, Breedveld MW, Zevenhuizen LPTM//Rijksinst Volksgezondheid & Milieuhyg, Eco-A7-104, A van Leeuwenhoeklaan 9, 3720 BA Bilthoven, The Netherlands

CARBOHYD RES 1991, 218 (SEP) 185

Unusual structure of the exopolysaccharide of *Rhizobium leguminosarum* bv *viviae* strain-248

Crescenzi V, Dentini M, Coviello T//Univ Rome La Sapienza, Dept Chem, Piazzale Aldo Moro 5, I-00185 Rome, Italy

BIOPHYS CHEM 1991, 41 (1) 61

Solution and gelling properties of polysaccharide polyelectrolytes

Dephilippis R, Sili C, Tassinato G, Vincenzini M, Materassi R//Univ Firenze, Dipartimento Sci & Microbiol, P Casciene 27, I-50144 Florence, Italy

BIORESOURCE TECHNOL 1991, 38 (2-3) 101

Effects of growth conditions on exopolysaccharide production by *Cyanospira capsulata*

Friedman C, Dyubinsky Z, Arad SM//Ben Gurion Univ Negev, Inst Appl Res, POB 1025, IL-84110 Beer Sheva, Israel

BIORESOURCE TECHNOL 1991, 38 (2-3) 111

Effect of light intensity on growth and polysaccharide production in

red and blue-green Rhodophyta unicells

Geresh S, Malis SA//Ben Gurion Univ Negev, Inst Appl Res, IL-84105 Beer Sheva, Israel

BIORESOURCE TECHNOL 1991, 38 (2-3) 195

The extracellular polysaccharides of the red microalgae - Chemistry and rheology

Grimmecke HD, Mamat U, Voges M, Lauk W, Shashkov AS, Knirel YA//Akad Wissensch DDR, Inst Biotechnol, Permoser St 15, O-7050 Leipzig, FRG

CARBOHYD RES 1991, 218 (SEP) 247

Structure of the extracellular polysaccharide of *Acetobacter methanolicus* MB-58/4 (IMET-10945)

Jansson PE, Lindberg J, Wimalasiri KMS, Henrichsen J//Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden

CARBOHYD RES 1991, 217 (SEP) 171

The structure of the capsular polysaccharide from *Streptococcus pneumoniae* type-7B

Lang P, Masci G, Dentini M, Crescenzi V*, Cooke D, Gidley MJ, Ganutti C, Reid JSG//Univ Roma 'La Sapienza', Dip Chim, I-10085 Roma, Italy

CARBOHYD POLYM 1992, 17 (3) 185

Tamarind seed polysaccharide: Preparation, characterisation and solution properties of carboxylated, sulphated and alkylaminated derivatives

Muller BM, Roskopf F, Paper DH, Kraus J, Franz G*//Univ Regensburg, Lehrstuhl Pharmzeut Biol, Univ Str 31, W-8400 Regensburg, FRG

PHARMAZIE 1991, 46 (9) 657

Polysaccharides from *Nerium oleander* - Structure and biological activity (German, English Abstract)

Petit C, Grill JP, Maazouzi N, Marczak R*//Univ Nancy 1, Chim Biol Lab 1, BP 239, F-54506 Vandoeuvre Nancy, France

APPL MICROBIOL BIOTECHNOL 1991, 36 (2) 216

Regulation of polysaccharide formation by *Streptococcus thermophilus* in batch and fed-batch cultures

Rao EV, Ramana KS//Andhra Univ, Dept Pharmaceut Sci, Waltair 530003, Andhra Pradesh, India

CARBOHYD RES 1991, 217 (SEP) 163

Structural studies of a polysaccharide isolated from the green seaweed *Chaetomorpha anteninna*

Richards GN, Stevenson TT, Vandenburg J//Univ Montana, Wood Chem Lab, Missoula, Mt 59812, USA

CARBOHYD RES 1991, 219 (OCT) 91

Mechanisms of pyrolysis of polysaccharides. 5. Thermal polymerization of some glucofuranose derivatives

Roesler J, Emmendorffer A, Steinmuller C, Luetig B, Wagner H, Lohmann-Matthes ML//Fraunhofer Inst Toxicol & Aerosol Res, Dept Immunobiol, Nikolai Fuchs Str 1, W-3000 Hannover 61, FRG

INT J IMMUNOPHARMACOL 1991, 13 (7) 931

Application of purified polysaccharides from cell cultures of the plant *Echinacea purpurea* to test subjects mediates activation of the phagocyte system

Rutherford TJ, Jones C*, Davies DB, Elliott AC//Natl Inst Biol Stand & Controls, Div Chem, Blanche Lane, Potters Bar EN6 3QG, Herts, England

CARBOHYD RES 1991, 218 (SEP) 175

Location and quantitation of the sites of O-acetylation on the capsular polysaccharide from *Streptococcus pneumoniae* type-9V by ¹H-NMR spectroscopy - Comparison with type-9A

Shigemasa Y, Sashiwa H, Nakamura K, Takeuchi Y, Saimoto H//Tottori Univ, Fac Engr, Dept Mat Sci, Koyama cho, Tottori 680, Japan

POLYM J 1991, 23 (10) 1279

Ruthenium catalyzed oxidation of polysaccharide

Tong CBS, Hicks KB*//USDA ARS, Eastern Reg Ctr, 600 E Mermaid Lane, Philadelphia, Pa 19118, USA

J AGR FOOD CHEM 1991, 39 (10) 1719

Sulfated polysaccharides inhibit browning of apple juice and diced apples

Zhao JF, Kiyohara H, Sun XB, Matsumoto T, Cyong JC, Yamada H*, Takemoto N, Kawamura H//Kitasato Inst, Oriental Med Res Ctr, 5-9-1 Shirokane, Minato ku, Tokyo 108, Japan

PHYTOTHER RES 1991, 5 (5) 206

In vitro immunostimulating polysaccharide fractions from roots of *Glycyrrhiza uralensis* Fisch et Dc

8 LIPOPOLYSACCHARIDES

Brandenburg K, Seydel U*//Forschungsinstit Borstel, Parkallee 10, W-2061 Borstel, FRG

BIOCHIM BIOPHYS ACTA 1991, 1069 (1) 1

A comment on the preparation of liposomes from and on the beta-alpha acyl chain melting behaviour of rough mutant lipopolysaccharide

Hackland PL, Parolis H*, Parolis LAS//Rhodes Univ, Sch Pharmaceut Sci, Grahamstown 6140, South Africa

CARBOHYD RES 1991, 219 (OCT) 193

Escherichia coli O9-K38 capsular antigen - Another ribofuranose-containing glycan

Holst O, Brade H//Forschungsinstit Borstel, Inst Exptl Biol & Med, Parkallee 22, W-2061 Borstel, FRG

CARBOHYD RES 1991, 219 (OCT) 247

Structural studies of the core region of the lipopolysaccharide from *Salmonella minnesota* strain R7 (rough mutant chemotype Rd1)

Kol O, Wieruszkeski JM, Strecker G, Montreuil J, Fournet B*, Zaliz R, Smets P//Univ Sci & Tech Lille Flandres Artois, Chim Biol Lab, CNRS, UA 111, F-59655 Villeneuve Dascq, France

CARBOHYD RES 1991, 217 (SEP) 117

Structure of the O-specific polysaccharide chain from *Klebsiella pneumoniae* O1K2 (NCTC-5055) lipopolysaccharide

Vinogradov EV, Shashkov AS, Knirel YA*, Kochetkov NK, Sidorczyk Z, Swierzko A//ND Zelinskii Organ Chem Inst, Moscow, Russia

CARBOHYD RES 1991, 219 (OCT) C1

The structure of *Proteus penneri* strain 14 O-specific polysaccharide containing D-alanine and L-alanine

9 STARCH

Coogan MM, Jones RL, Manchester KL, Viljoen HW//Univ Witwatersrand, Dept Oral Pathol, Johannesburg, 2050, South Africa

CARBOHYD RES 1991, 218 (SEP) 201

Structural studies of amyloglucan and a soluble glucan produced from starch by *Streptococcus sanguis* 1-MC-204

Hizukuri S//Kagoshima Univ, Fac Agr, Dept Appl Biochem & Technol, Kagoshima 890, Japan

CARBOHYD RES 1991, 217 (SEP) 251

Properties of hot-water-extractable amylose

Lowary TL, Richards GN*//Univ Montana, Wood Chem Lab, Missoula, Mt 59812, USA

CARBOHYD RES 1991, 218 (SEP) 157

Mechanisms in pyrolysis of polysaccharides. 3. Cycloheptaamylose as a model for starch in the pyrolysis of polysaccharides

Hiippala S, Linko K, Myllylä G, Lalla M, Makelainen A//Univ Helsinki, Cent Hosp, Dept Anaesthesiol, Haartmaninkatu 4, SF-00290 Helsinki, 29, Finland

ACTA ANAESTHESIOLOGICA SCAND 1991, 35 (7) 654

Albumin, HES-120 and dextran-70 as adjuvants to red blood cell concentrates - A study on colloid osmotic pressure changes in vitro

Bour H, Ferrando R//Address not available

BULL ACAD NATL MED 1991, 175 (5) 751

Application for approval of hydroxypropyl starches and hydroxypropyl starch phosphates in food (French, English Abstract)

Fu DT, Robyut JF*//Iowa State Univ Sci & Technol, Dept Biochem & Biophys, Ames, Ia 50011, USA

CARBOHYD RES 1991, 217 (SEP) 201

Maltodextrin acceptor reactions of Streptococcus mutans 6715 glucosyltransferases

Barichello V, Yada RY*, Coffin RH//Univ Guelph, Dept Food Sci, Guelph, Ontario, Canada N1G 2W1

J SCI FOOD AGR 1991, 56 (3) 385

Starch properties of carious potato (Solanum tuberosum L) cultivars susceptible and resistant to low-temperature sweetening

Bos CE, Bolhuis GK, Lerk CF//Univ Groningen, Dept Pharmaceut Technol & Biopharm, Ant Deusinglaan 2, 9713 AW Groningen, The Netherlands

DRUG DEVELOP IND PHARM 1991, 17 (17) 2373

Optimization of tablet formulations based on starch lactose granulations for use in tropical countries

Chrastil J//USDA ARS, South Reg Res Ctr, New Orleans, La 70179, USA

J AGR FOOD CHEM 1991, 39 (10) 1729

Influence of storage on supercooling of rice starch and flour gels

Christianson DD, Fanta GF, Bagley EB//USDA, ARS, Food Phys Chem Res, Natl Ctr Agr Util Res, 1815 N Univ St, Peoria, Il 61604, USA

CARBOHYD POLYM 1992, 17 (3) 221

Complexes between starch and poly(ethylene-co-acrylic acid) - Viscosity and gel rheology of jet-cooked dispersions

Hamaker BR, Griffin VK, Moldenhauer KAK//Univ Arkansas, Dept Food Sci, Fayetteville, Ar 72703, USA

J FOOD SCI 1991, 56 (5) 1327

Potential influence of a starch granule-associated protein on cooked rice stickiness

Hayakawa I, Sakamoto K, Hagita H, Fujio Y//Kyushu Univ, Fac Agr, Dept Food Sci & Technol Lab, 6-10-1 Chome, Higashi ku, Fukuoka 812, Japan

J JPN SOC FOOD SCI TECHNOL 1991, 38 (10) 945

Studies on the production of hydrolyzable starchy material in high concentrated substrate by 2-stage extrusion cooking method (Japanese, English Abstract)

Liu H, Lelievre J*//Acadia Univ, Dept Food Sci, Wolfville, NS, Canada B0P 1X0

nada B0P 1X0

CARBOHYD RES 1991, 219 (OCT) 23

A differential scanning calorimetry study of glass and melting transitions in starch suspensions and gels

Nirdosh I, Ostaff RM//Lakehead Univ, Dept Chem Engr, Thunder Bay, Ontario, Canada P7B 5E1

WATER AIR SOIL POLLUT 1991, 59 (3-4) 369

Thickening of a starch anaerobic digester effluent

Okechukwu PE, Rao MA*, Ngoddy PO, McWatters KH//Cornell Univ, Dept Food Sci & Technol, Geneva, NY 14456, USA

J FOOD SCI 1991, 56 (5) 1311

Flow behavior and gelatinization of cowpea flour and starch dispersions

Salomonsson ACB, Andersson RE, Torneport LJ, Theander O//Swedish Univ Agr Sci, Dept Chem, POB 7016, S-75007 Uppsala, Sweden

CARBOHYD RES 1991, 217 (SEP) 221

A ¹H-NMR and ¹³C-NMR study of bromine-oxidised potato starch

Sharma A, Sehgal S*//Haryana Agr Univ, Coll Home Sci, Dept Foods & Nutr, Hissar 125004, Haryana, India

NAHRUNG 1991, 35 (8) 891

Protein and starch digestibility of faba bean in dependence on processing and cooking methods

Zhang DX, Cheryan M*//Univ Illinois, Dept Food Sci, Agr Bioproc Lab, 1302 W Penn Ave, Urbana, Il 61801, USA

BIOTECHNOL LETT 1991, 13 (10) 733

Direct fermentation of starch to lactic acid by Lactobacillus amylovorus

10 STARCH-DEGRADING ENZYMES

Behnke U, Taufel A*, Emmer I//Cent Inst Nutr, Arthur Scheunert Allee 114-116, W-1505 Bergholz Rehbrügge, FRG

Z EBENSMITTEL-UNTERSUCH FORS 1991, 193 (5) 423

Studies on the germination specific alpha-amylase and its inhibitor of rye (Secale cereale) 3. Estimation of alpha-amylase inhibitor activity

Burgess-Cassler A, Imam S//USDA ARS, Natl Ctr Agr Utilizat Res, Biopolymer Res Unit, Peoria, Il 61604, USA

CURR MICROBIOL 1991, 23 (4) 207

Partial purification and comparative characterization of alpha-amylase secreted by Lactobacillus amylovorus

Fogarty WM, Bealin-Kelly F, Kelly CT*, Doyle EM//Natl Univ Ireland Univ Coll Dublin, Dept Ind Microbiol, Belfield, Dublin 4, Ireland

APPL MICROBIOL BIOTECHNOL 1991, 36 (2) 184

A novel maltohexaose-forming alpha-amylase from Bacillus caldovelox

- Patterns and mechanisms of action

Juhász O, Lukacova V, Vollek V, Skarka B//Slovak Tech Univ, Fak Chem Tech Mikrobiol & Biochem, CS-81237 Bratislava, Czech & Slovak Fed Rep

BIOLOGIA 1991, 46 (7) 627

Purification and characteristic of amylase system Aspergillus oryzae CCM8005 (Czech, English Abstract)

Morand P, Biellmann JF*//Univ Strasbourg 1, Dept Chim Organ Biol Lab, CNRS, URA 31, 1 rue Blaise Pascal, F-67008 Strasbourg, France

FEBS LETT 1991, 289 (2) 148

Modification of alpha-amylase from Bacillus licheniformis by the polyaldehyde derived from beta-cyclodextrin and alpha-amylase thermo-

stability

Ogawa K, Nakakuki T, Usui T*//*Shizuoka Univ, Fac Agr, Dept Appl Biol Chem, Oya, Shizuoka 422, Japan*

J CARBOHYD CHEM 1991, 10 (5) 877

Maltopentaose-forming amylase-mediated p-nitrophenyl alpha-maltohexaoside formation in an aqueous-organic solvent system - A substrate for human amylase in serum

Ponzo JH, Weigand WA*//*Univ Maryland, Dept Chem Engr, College Pk, Md 20742, USA*

BIOTECHNOL BIOENG 1991, 38 (9) 1065

Simple structured model for alpha-amylase synthesis by *Bacillus amyloliquefaciens*

Somers W, Rozie H, Bonte A, Visser J, Rombouts FM, Van Triet K//*Wageningen Univ Agr, Dept Food & Bioproc Engr, POB 8129, 6700 EV Wageningen, The Netherlands*

ENZYME AND MICROB TECHNOL 1991, 13 (12) 997

On the interaction of alpha-amylase with crosslinked starch - Evaluation of process conditions

Takekawa S, Uozumi N, Tsukagoshi N*, Uchida S//*Nagoya Univ, Fac Agr, Dept Food Sci & Technol, Nagoya 46401, Japan*

J BACTERIOL 1991, 173 (21) 6820

Proteases involved in generation of beta-amylase and alpha-amylases from a large amylase precursor in *Bacillus polymyxa*

Dalmia BK, Nikolov ZL*//*Iowa State Univ Sci & Technol, Dept Food Sci & Human Nutr, 102 Dairy Ind Bldg, Ames, Ia 50011, USA*

ENZYME MICROB TECHNOL 1991, 13 (12) 982

Characterization of glucoamylase adsorption to raw starch