

BIBLIOGRAPHY ON CARBOHYDRATE POLYMERS

1 Books, Reviews and Symposia

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Chem, Kyoto 606, Japan
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Neukom H//Swiss Fed Inst Technol, Dept Food
Sci, CH-8092 Zurich, Switzerland
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Kobayashi K//Nagoya Univ, Fac Agr, Chikusa
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Madamwar D, Patel S, Parikh H//Sardar Patel
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Gujarat, India
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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 six sections: 1. Books, Reviews and Symposia; 2. Cellulose; 3. Lignin; 4. Polysaccharides; 5. Starch; 6. Others. 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.

Bulgaria

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Chirkova YA//Acad Sci LaSSR, Inst Wood Chem, Riga 226006 Latvia, USSR

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Kaushik RK, Gur IS, Bhatnagar HL//*Kurukshetra Univ, Dept Chem, Kurukshetra 132119, Haryana, India

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Piskorz J, Radlein DSAG, Scott DS, Czernik S//Univ Waterloo, Dept Chem Engr, Waterloo, Ontario, Canada N2L 3G1
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3 Lignin

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Nerud F, Misurcova Z//Czechoslovak Acad Sci, Dept Exptl Mycol, Inst Microbiol, CS-14220 Prague 4, Czechoslovakia

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Fernandes HL, Tome MM, Lupi FM, Fialho AM, Correia IS, Novais JM//Lab Nucl Engn & Tecnol Ind, Dept Energias Renovaveis, P-1699 Lisboa, Portugal

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Araujo F, Alviano CS, Angluster J, Ricciardi ID**//Univ Fed Rio de Janeiro, Ctr Ciencias Saude, Inst Microbiol, Cidade Univ, BR-21941 Rio de Janeiro, RJ, Brazil

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Mita N, Maeda M, Tominaga H//Geol Survey Japan, Tsukuba, Ibaraki 305, Japan

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Barbakadze VV, Gakhokidze RA, Shengeliya ZS, Usov AI//Tbilisi State Univ, Tbilisi, Georgia, USSR

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Dankert MA, Ielpi L//Inst Invest Bioquim Fdn Campomar, Patricias Argentinas 435, RA-1405 Buenos Aires, Argentina

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Dea ICM//Leatherhead Food RA, Leatherhead KT22 7RY, Surrey, England

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Gruppen H, Marseille JP, Voragen AGJ*, Hamer RJ, Pilnik W//**Agr Univ Wageningen, Dept Food Sci, POB 8129, 6700 EV Wageningen, The Netherlands*

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Harrison LH, Broome CV, Hightower AW//*Ctr Dis Control, Ctr Infect Dis, Div Bacterial Dis, Publ Hlth Serv, Atlanta, Ga 30333, USA*

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Iinuma H, Okinaga K//*Teikyo Univ, Sch Med, Dept Surg 2, 2-11-1 Kaga, Itabashi ku, Tokyo 173, Japan*

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Jansson P-E, Kenne L, Widmalm//*Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden*

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Jones DNM, Sanders JKM//**Univ Cambridge, Chem Lab, Lensfield Rd, Cambridge CB2 1EW, England*

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Degradation of carrot (*Daucus carota*) fibres with cell-wall polysaccharide-degrading enzymes

Mattila T//*Tech Res Ctr, Food Res Lab, Biologinkuja 1, SF-02150 Espoo, Finland*

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Nilsson S, Piculell L//*Univ Lund, Ctr Chem, Box 124, S-2210 Lund, Sweden*

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Nishide E//*Nihon Univ, Coll Agr & Vet Med, Setagaya ku, Tokyo 154, Japan*

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Parekh RG, Doshi YA, Chauhan VD//*Pontifica Univ Catolica Chile, Dept Biol, Sede Reg Temuco, Casilla 15-D, Temuco, Chile*

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Quintero E, Ishida K, Gordon G, Geesey G//**Calif State Univ Long Beach, Dept Microbiol, Long Beach, Ca 90840, USA*

J MICROBIOL METH 1989, 9 (4) 309

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Swinton S, Woods L//*Leatherhead Food Res Assoc, Appl Microbiol Sect, Randalls Rd, Leatherhead KT22 7RY, Surrey, England*

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Tvaroska I//*Slovak Acad Sci, Inst Chem, Ctr Chem Res, CS-84238 Bratislava, Czechoslovakia*

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van Biljon PL, Olivier SP//*Univ Orange Free State, Dept Biochem, POB 339, Bloemfontein 9300, South Africa*

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5 Starch

Bajpai P, Sharma U//Thapar Corp Res & Dev Ctr, Div Chem & Biochem Engr, Patiala 147001, India

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Dohmen RJ, Strasser AWM, Zitomer RS, Holtenberg CP*//Univ Dusseldorf, Inst Mikrobiol, Univ Str 1, D-4000 Dusseldorf 1, Fed Rep Ger
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Henry RJ//Queensland Wheat Res Inst, POB 5282, Toowoomba, Qld 4350, Australia

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Rapid alpha-amylase assays for assessment of pre-harvest sprouting damage in wheats

Henson CA, Stone JM//Univ Wisconsin, Dept Agron, Cereal Crops Res Unit, USDA ARS, 1575 Linden Dr, Madison, WI 53706, USA

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Kovaleva IE, Novikova LA, Luzikov VN//AN Belozersky Molec Biol & Bioorgan Chem Lab, Moscow 11989, USSR

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Leah R, Mundy J//Carlsberg Res Lab, Dept Biotechnol, Gamle Carlsberg Vej 10, DK-2500 Valby, Denmark

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Robertson M, Hill RD//Univ Manitoba, Dept Plant Sci, Winnipeg, Manitoba, Canada R3T 2N2
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Sen S, Oriel P//Michigan State Univ, Dept Microbiol & Publ Hlth, E Lansing, MI 48824,

USA

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Tsvetkov VT, Emanuilova EI*//Inst Microbiol, BU-1113 Sofia, Bulgaria

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Fujita S, Glover DV, Okuno K, Fuwa H*//Osaka City Univ, Dept Food & Nutr, 138 3-3 Sugimoto, Sumiyoshi ku, Osaka 558, Japan
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Bon E, Webb C*//Univ Manchester Inst Sci & Technol, Dept Chem Engr, POB 88, Manchester M60 1QD, Lancs, England

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Monma M, Yamamoto Y, Kainuma K//Minist Agr Forestry & Fisheries, Natl Food Res Inst, 2-1-2 Kannondai, Tsukuba, Ibaraki 305, Japan

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Staedt U, Leweling H//Univ Heidelberg, Klinikum Mannheim, Med Klin 1, Theodor Kutzer UFR, D-6800 Mannheim 1, Fed Rep Ger

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Delcour JA, Hennebert MME, Dondeyne P, Moermann E//Catholic Univ Leuven, Toegepaste Organ Scheikunde Lab, Kardinaal Mercierlaan 92, B-3030 Heverle, Belgium

J INST BREW 1989, 95 (4) 271

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Fankhauser JJ, Volenec JJ*, Brown GA//Purdue Univ, Dept Agron, W Lafayette, In 47907, USA

PLANT PHYSIOL 1989, 90 (3) 1189

Composition and structure of starch from taproots of contrasting genotypes of *Medicago sativa* L.

Herrerasaldana R, Huder JT//Colegio Postgrad, Ctr Ganaderia, Chapingo 56230, Mexico

J DAIRY SCI 1989, 72 (6) 1477

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Hoshino K, Taniguchi M, Marumoto H, Dujii M//Niigata Univ, Grad Sch Nat Sci & Technol, Niigata 95021, Japan

AGR BIOL CHEM TOKYO 1989, 53 (7) 1961

Repeated batch conversion of raw starch to ethanol using amylase immobilized on a reversible soluble-autoprecipitating carrier and flocculating yeast cells

Kennedy JF, Stevenson DL, White CA//Univ Birmingham, Dept Chem, Chem Bioact Carbohydrates & Prot Res Lab, POB 363, Birmingham B15 2TT, W Midlands, England

STARCH 1989, 41 (6) 215

A critical assessment of the parameters affecting the official EC "Ewers" method for the

determination of starch

Lelievre J, Husbands J//Acadia Univ, Dept Food Sci, Wolfville, NS, Canada B0P 1X0

STARCH 1989, 41 (6) 236

Effects of sodium caseinate on the rheological properties of starch pastes

Lorenz K//Colorado State Univ, Coll Food Sci & Human Nutr, Ft Collins, Co 80523, USA

STARCH 1989, 41 (6) 211

Starch characteristics of aphid (*Metopolophium dirhodum*) infested barley

Meuser F, Wittig J, Huster H//Tech Univ Berlin, Inst Lebensmitteltechnol Seestr 11, D-1000 Berlin 65, Fed Rep Ger

STARCH 1989, 41 (6) 225

Effects of high pressure disintegration of steeped maize grits on the release of starch granules from the protein matrix

Mica B, Vokal B//Oseva, Res & Breeding Inst Potato Growing, Dobrovskeho 2366, CS-58003 Havilickuv Brod, Czechoslovakia

ROSTL VYROBA 1989, 35 (6) 611

Effect of calcium and potassium on starch content and yield in industrial potatoes (Czech, English Abstract)

Miyamoto J, Ishigami T, Hayashi T, Nakajima T*, Ichishima E, Matsuda K//Tohoku Univ, Fac Agr, Dept Agr Chem, Sendai, Miyagi 980, Japan

AGR BIOL CHEM TOKYO 1989, 53 (7) 1987

Some properties of granule-bound starch synthase in suspension-cultured soybean cells

Paredes-Lopez O, Schevenin ML, Hernandez-Lopez D, Carabez-Trejo A//Pontifica Univ Catolica Chile, Dept Biol, Sede Reg Temuco, Casilla 15-D, Temuco, Chile

STARCH 1989, 41 (6) 205

Amaranth starch - isolation and partial characterization

Soni PL, Sharma HW, Bisen SS, Srivastva HC, Gharia MM//Forest Res Inst & Coll, Chem Forest Prod Branch, PO New Forest, Dehra Dun 248006, India

STARCH 1989, 41 (6) 208

Physicochemical properties of *Careya arborea* and *Aesculus assamica* starches

Srijesdark V, Tulyathan V, Thunpithayakul C//Chulalongkorn Univ, Fac Sci, Dept Food Technol, Bangkok 10500, Thailand

J SCI SOC THAILAND 1989, 15 (1) 39

Modification of potato (*Solanum tuberosum* var Spunta) starch for partial substitution of mung bean starch in vermicelli

Sukara E, Doelle HW*//Univ Queensland, Dept Microbiol, Mircen Biotechnol, St Lucia, Qld 4067, Australia

ACTA BIOTECHNOL 1989, 9 (2) 99

Optimization of single cell protein production from cassava starch (*Rhizopus oligosporus*)

Tripathi RN, Nath N//Govind Ballabh Pant Univ Agr & Technol, Dept Food Sci & Technol, Pantnagar 263145, Uttar Pradesh, India

J FOOD SCI TECHNOL-MYSORE 1989, 26 (3) 137

Effect of starch dipping on quality of dehydrated tomato slices

6 Others

Gotlib AM, Plashchina IG, Braudo EE, Titova EF, Belavtseva EM, Tolstoguzov VB//AN Nesmeyanov Organoelement Cpds Inst, Moscow, USSR

COLLOID J USSR-ENGL TR 1988, 50 (5) 846

Mixed agarose and gelatin gels

Foord SA, Atkins EDT*//Univ Bristol, HH Wills Phys Lab, Tyndall Ave, Bristol BS8 1TL, Avon, England

BIOPOLYMERS 1989, 28 (8) 1345

New X-ray diffraction results from agarose: extended single helix structures and implications for gelation mechanism

Griess GA, Moreno ET, Easom RA, Serwer P//Univ Texas, Hlth Sci Ctr, Dept Biochem, San Antonio, Tx 78284, USA

BIOPOLYMERS 1989, 28 (8) 1475

The sieving of spheres during agarose gel electrophoresis: quantitation and modeling

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

J PHYS CHEM 1989, 93 (14) 5596

Anion-specific salt effects in aqueous agarose systems. 1. Effects on the coil-helix transition and gelation of agarose

Presecan E, Porumb H, Lascu I*//Med & Pharmaceut Inst, Dept Biochem, 6 Pasteur St, R-3400 Cluj Napoca, Romania

J CHROMATOGR 1989, 469 (MAY) 396

Simple method for the preparation of spherical agarose and composite gel particles

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

J PHYS CHEM 1989, 93 (14) 5602

Anion-specific salt effects in aqueous agarose systems. 2. Nuclear spin relaxation of ions in agarose gels and solutions

Ak MM, Nussinovitch A, Campanella OH, Peleg M//Univ Massachusetts, Dept Food Engr, Amherst, Ma 01003, USA

BIOTECHNOL PROGR 1989, 5 (2) 75

Crosslinking rates of thermally preset alginate gels

Attwood AI//RAF Halton, Princess Marys Hosp, Burns & Plast Surg Unit, Aylesbury HP22 5PS, Bucks, England

BRIT J PLAST SURG 1989, 42 (4) 373

Calcium alginate dressing accelerates split skin graft donor site healing

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

SCAND J DENT RES 1989, 97 (4) 375

Accuracy of alginate and elastomeric impression materials

Richter K, Ruhlemann I, Becker U, Berger R//Acad SW Louisiana, Dept Biol, Box 42451, Lafayette, La 70504, USA

ACTA BIOTECHNOL 1989, 9 (2) 123

A comparison between the fermentative activities of free and Ca-alginate-entrapped cells of *Saccharomyces cerevisiae*

Trout GR//Auburn Univ, Dept Anim & Dairy Sci, Auburn, Al 36849, USA

MEAT SCI 1989, 25 (3) 163

The effect of calcium carbonate and sodium alginate on the color and bind strength of restructured beef steaks

Uragami T, Sato M//Kansai Univ, Fac Engr, Chem Branch, Suita, Osaka 564, Japan

SEPAR SCI TECHNOL 1989, 24 (7-8) 541

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cial polymer membranes. 68. Analysis of permeation and separation characteristics and new technique for separation of aqueous alcoholic solutions through alginic acid membranes

Arnaud JP, Choplin L, Lacroix C//Univ Laval, Dept Genie Chim, Quebec City, Quebec, Canada G1K 7P4

J TEXTURE STUD 1989, 19 (4) 419

Rheological behavior of kappa-carrageenan/locust bean gum mixed gels

Spiegel Y, Cohn E, Chet I//ARO, Volcani Ctr, Dept Nematol, Bet Dagan 50250, Israel

J NEMATOL 1989, 21 (3) 419

Use of chitin for controlling *Heterodera avenae* and *Tylenchulus semipenetrans*

Sukhanova TY, Sidorovich AV, Goryainov GI, Mikhailov GM, Mitterpakhova M//Acad Sci USSR, Inst Macromolec Cpd, Leningrad, USSR
VYSOKOMOL SOEDIN SER B SSSR 1989, 31 (5) 381

Study of morphology of chitin fiber (Russian)

Takiguchi Y, Shimahara K//Seikei Univ, Fac Engr, Dept Ind Chem, Musashino, Tokyo 180, Japan

AGR BIOL CHEM TOKYO 1989, 53 (6) 1537

Isolation and identification of a thermophilic bacterium producing N,N' -diacetylchitobiose from chitin

Takiguchi Y, Shimahara K//Seikei Univ, Fac Engr, Dept Ind Chem, Musashino, Tokyo 180, Japan

NIPPON NOGEIKAGAKU KAISHI 1989, 63 (7) 1199

Culture conditions of the thermophilic bacterium *Bacillus licheniformis* X-7u for N,N' -diacetylchitobiose (GlcNAc)₂ production from chitin (Japanese, English Abstract)

Aleksandrova TA, Vasserman AM, Rogozhin SV, Gamzazade AI, Nasibov SM, Titova YF, Simenel IA//Acad Sci USSR, Inst Chem Phys, Moscow V-71, USSR

VYSOKOMOL SOEDIN SER A SSSR 1989, 31 (7) 1441

Intramolecular mobility of chitosan derivatives in solutions and complexes with polyelectrolytes (Russian, English Abstract)

Chandy T, Sharma CP**//Sree Chitra Tirunal Inst Med Sci & Technol, Div Biosurface Tech-

nol, Biomed Technol Wing, Trivandrum 695012, India

J COLLOID INTERFACE SCI 1989, 130 (2) 331

Bioactive molecules immobilized to liposome modified albumin-blended chitosan membranes - antithrombotic and permeability properties

Nikolaev AF, Prokopov AA, Shulgina ES, Vinogradov MV//Lensovet Technol Inst, Chair Plastics Chem Technol, Leningrad, USSR

IZV VYSSH UCH ZAV KHIM KHIM T 1989, 32 (2) 74

Compatibility of polyvinyl alcohol and chitosan (Russian)

Shimabayashi S, Itoi K//Univ Tokushima, Fac Pharmaceut Sci, Tokushima 770, Japan

CHEM PHARM BULL TOKYO 1989, 37 (6) 1437

Interaction of hydroxyapatite with sodium chondroitin sulfate and calcium chondroitin sulfate in an aqueous phase

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

J AMER CHEM SOC 1989, 111 (14) 5138

Recognition ability of cyclodextrin for alkyl groups in nitroxides as studied by electron spin resonance

Fujiwara T, Tanaka N, Hamada K, Kobayashi S//Shimane Univ, Fac Sci, Matsue, Shimane 690, Japan

CHEM LETT 1989, (7) 1131

Structure of 6-O- α -D-glucopyranosyl α -cyclodextrin.8H₂O

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

J MACROMOL SCI-CHEM 1989, A26 (2-3) 373

Preparation and properties of inclusion compounds of cyclodextrins with organotransition metal complexes

Hisamatsu M et al//Mie Univ, Bioresources, 1515 Kamihama, Tsu, Mie 514, Japan

STARCH 1989, 41 (6) 239

Production of maltosyl beta-cyclodextrin by a bioreactor system with pullulanase immobilized on partially deacetylated chitin

Ikeda H, Toda F//Tokyo Inst Technol, Fac Engn, Dept Bioengn & Biosci, Meguro ku, Tokyo 152, Japan

J SYN ORG CHEM JPN 1989, 47 (6) 503

Chemistry of modified cyclodextrins

Murai H, I'Haya YJ//Univ Electrocommun, Dept Mat Sci, Chofu, Tokyo 182, Japan

CHEM PHYS 1989, 135 (1) 131

Time-resolved ESR study of the triplet state of xanthone and the triplet-triplet energy transfer in cyclodextrins

Patoia L, Clausi G, Farroni F, Alberti P, Fugiani P, Bufalino L//Policlin Monteluçe, Ist Clin Med 1, I-06100 Perugia, Italy

EUR J CLIN PHARMACOL 1989, 36 (6) 599

Comparison of faecal blood loss, upper gastrointestinal mucosal integrity and symptoms after piroxicam beta-cyclodextrin, piroxicam and placebo administration

Sakuraba H, Inomata N, Tanaka Y//Kanto Gakuin Univ, Fac Engn, Dept Ind Chem, 4834 Kanazawa Mutsuura, Yokohama, Kanagawa 236, Japan

J ORG CHEM 1989, 54 (14) 3482

Asymmetric reduction of ketones with crystalline cyclodextrin complexes of amine-boranes

Sakurai M, Kitagawa M, Hoshi H, Inoue Y, Chujo R//NTT Appl Electr Labs, Tokai, Ibaraki 31911, Japan

BULL CHEM SOC JPN 1989, 62 (6) 2067

A molecular orbital study of cyclodextrin inclusion complexes. II. The structural analysis of alpha-cyclodextrin inclusion complex with m-nitrophenol in aqueous solution based on the quantum-chemical solvation theory

Snopek J, Jelinek I, Smolkova-Keulemansova E//Charles Univ, Inst Biotechnol, Bioseparat & Bioanalyt Methods Lab, Albertov 2030, CS-12843 Prague 2, Czechoslovakia

J CHROMATOGR 1989, 472 (1) 308

Use of cyclodextrins in isotachopheresis. VIII. Two-dimensional chiral separation in isotachopheresis

Tanaka M, Shono T, Zhu D-Q, Kawaguchi Y//Osaka Univ, Fac Engn, Dept Appl Chem, Yamada Oka, Osaka, Osaka 565, Japan

J CHROMATOGR 1989, 469 (MAY) 429

Liquid chromatographic separation of racemates on acetylated or carbamoylated beta-cyclo-

dextrin-bonded stationary phases

Teshima D, Otsubo K, Higuchi S, Hirayama F, Uekama K, Aoyama T//Natl Inst Hyg Sci, Div Radiochem, 1-18-1 Kamiyoga, Setagaya ku, Tokyo 158, Japan

CHEM PHARM BULL TOKYO 1989, 37 (6) 1591

Effects of cyclodextrins on degradations of emetine and cephaeline in aqueous solution

Treder W, Zehavi U, Thiem J, Herchman M//Univ Munster, Inst Organ Chem, Orleansring 23, D-4400 Munster, Fed Rep Ger

BIOTECHNOL APPL BIOCHEM 1989, 11 (4) 362

Disproportionation by immobilized cyclodextrin alpha 1-4 glucosyltransferase reaction with soluble polymeric acceptors

Ueda H, Perrin JH, Nagai T//Hoshi Univ, Fac Pharmaceut Sci, Ebara 2-4-42, Shinagawa ku, Tokyo 142, Japan

J PHARMACEUT BIOMED ANAL 1989, 7 (5) 639

A microcalorimetric investigation of the binding of cinnarizine to cyclodextrins

Vincent CI//Address not available

BIOFUTUR 1989, (80) 33

The cyclodextrins: flavours traps (French, English Abstract)

Yonemura H, Saito H, Matsushima S, Nakamura H, Matsuo T//Kyushu Univ, Fac Engn, Dept Organ Synth, Fukuoka 812, Japan

TETRAHEDRON LETT 1989, 30 (24) 3143

Anomalous stable cyclodextrin complexes of phenothiazine-viologen linked compounds with a long spacer chain

Chaia AP, Monge JC, Recondo EF, Derecondo MEF//Natl Univ Tucuman, Fac Bioquim Quim & Farmacia, Inst Quim Biol, San Miguel Tucuman, Argentina

AN ASOC QUIM ARGENT 1989, 77 (1) 89

Interaction between a dextran sulfate and concanavalin-A

Chudnofsky CR, Dronen SC*, Syverud SA, Zink BJ, Hedges JR//Univ Cincinnati, Coll Med, Dept Diagnost Radiol, 234 Goodman St, Cincinnati, Oh 45267, USA

AMER J EMERG MED 1989, 7 (4) 357

Intravenous fluid therapy in the prehospital management of hemorrhagic shock: improved outcome with hypertonic saline/6% dextran 70 in a swine model

Cudd A, Arvinte T, Schulz B, Nicolau C*//Texas A&M Univ, Biophor Corp, Res Pk, 100 Res Pkwy, College Stn, Tx 77840, USA
FEBS LETT 1989, 250 (2) 293

Dextran protection of erythrocytes from low-pH-induced hemolysis

Dequeiroz JH, Maugeri F//Univ Campinas, Fac Engrn Alimentos, BR-13081 Campinas, SP, Brazil
REV MICROBIOL 1989, 20 (2) 150

Optimization of the production of dextran-sucrase from *Leuconostoc mesenteroides* using molasses as carbon source

Haynes CA, Beynon RA, King RS, Blanch HW, Prausnitz JM*//Univ Calif Berkeley, Dept Chem Engr, Berkeley, Ca 94720, USA
J PHYS CHEM 1989, 93 (14) 5612

Thermodynamic properties of aqueous polymer solutions: Poly(ethylene glycol)/dextran

Iacobelli A, Simeoni A, Vecchi E, Marchionne AM, Vitellone P//Univ Rome, Dept Med, Endocrinol Clin 2, I-00100 Rome, Italy
CLIN TRIALS J 1989, 26 (3) 226

Out-patient treatment of obesity with diethyl-aminoethyl dextran (DEAE-D) - endocrinologic and metabolic modifications

Koenig DW, Day DF*//Louisiana State Univ, Ctr Agr, Audubon Sugar Inst, Baton Rouge, La 70803, USA
EUR J BIOCHEM 1989, 183 (1) 161

The purification and characterization of a dextranase from *Lipomyces starkeyi*

Koenig DW, Day DF*//Louisiana State Univ, Ctr Agr, Audubon Sugar Inst, Baton Rouge, La 70803, USA
APPL ENVIRON MICROBIOL 1989, 55 (8) 2079

Induction of *Lipomyces starkeyi* dextranase

Kurtzhals P, Larsen C*, Johansen M//Royal Danish Sch Pharm, Dept Pharmaceut, 2 Univ Pk, DK-2100 Copenhagen 0, Denmark
J CHROMATOGR-BIOMED APPL 1989, 491 (1) 117

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graphic procedure for the determination of fluoresceinyl isothiocyanate dextrans of various molecular masses in biological media

Nobrega R, de Balmann H*, Aimar P, Sanchez V//CNRS, Chim Phys & Electrochim Lab, La 192, LGC, 118 Route Narbonne, F-31062 Toulouse, France
J MEMBRANE SCI 1989, 45 (1-2) 17

Transfer of dextran through ultrafiltration membranes: A study of rejection data analysed by gel permeation chromatography

Shukla GL, Madhu, Prabhu KA//Natl Sugar Inst, Div Biochem, Kanpur 208017, Uttar Pradesh, India
ENZYME MICROB TECHNOL 1989, 11 (8) 533

Study of some parameters for the production of dextranase by *Penicillium aculeatum*

Kato Y, Nomura J, Mikuni K, Hara K, Hashimoto H, Nakajima T, Kobayashi S//Hirosaki Univ, Fac Educ, Food Sci Lab, Bunyo cho, Hirosaki, Aomori 036, Japan
J FERMENT BIOENG 1989, 68 (1) 14

Chemical characterization dextrans obtained from potato starch by treatment with *Bacillus macerans* enzyme

Kimura T, Yoshida M, Oishi K, Ogata M, Nakakuki T//Chiyoda Corp, Div Engr & Dev, 3-13 Moriya cho, Kanagawa ku, Yokohama 221, Japan
AGR BIOL CHEM TOKYO 1989, 53 (7) 1843
Immobilization of exo-maltotetrahydrolase and pullulanase

Jung KH, Yun JW, Kang KR, Lim JY, Lee JH*//Cheil Sugar & Co Ltd, Ctr Res & Dev, 522-1 Dokpyung Ri, Majang Myon, Ichon Kun, Kyonggi Do, South Korea
ENZYME MICROB TECHNOL 1989, 11 (8) 491

Mathematical model for enzymatic production of fructo-oligosaccharides from sucrose

Baron M, Gorin PAJ, Iacomini M//Univ Fed Parana, Dept Bioquim, POB 19046, BR-81504 Curitiba, Brazil
AGR BIOL CHEM TOKYO 1989, 53 (7) 1751
Structural studies on a galactomannan isolated from the lichen *Stereocaulon ramulosum*

Fujino T, Sukhumavasi J, Sasaki T, Ohmiya K,

Shimizu S//Nagoya Univ, Sch Agr, Dept Food Sci & Technol, Chikusa ku, Nagoya 46401, Japan
J BACTERIOL 1989, 171 (7) 4076

Purification and properties of an endo-1,4-beta-glucanase from *Clostridium josui*

Kishida E, Sone Y, Shibata S, Misaki A*//Osaka City Univ, Fac Sci Living, Dept Food & Nutr, Sumiyoshi ku, Osaka 558, Japan
AGR BIOL CHEM TOKYO 1989, 53 (7) 1849

Preparation and immunochemical characterization of antibody to branched beta-(1-3)-D-glucan of *Volvarella volvacea*, and its use in studies of antitumor actions

Nakajima T, Aoyama K, Ichishima E, Matsuda K//Tohoku Univ, Fac Agr, Dept Agr Chem, Sendai, Miyagi 980, Japan
AGR BIOL CHEM TOKYO 1989, 53 (7) 1983

Structural analysis of beta-glucans from a killer toxin sensitive yeast, *Saccharomyces cerevisiae*, and a killer-resistant mutant

Narziss L, Reicheneder E, Edney MJ//Tech Univ Munich, Lehrstuhl Technol Brauere 1, D-8050 Freising, Fed Rep Ger
MONATSSCHR BRAUWISSEN 1989, 42 (7) 277

Studying beer filtration with an accurate beta-glucan assay (German, English Abstract)

Olveratrevino MD, Wachterrodarte MD, Canales AL*//Natl Autonomous Univ Mexico, Fac Quim, Div Ingn, Dept Alimentos, Mexico City 04510, DF, Mexico
APPL MICROBIOL BIOTECHNOL 1989, 31 (2) 146

An endoglucanase from an isolated strain of *Bacillus circulans*

Williams DL, Yaeger RG, Pretus HA, Browder IW, McNamee RB, Jones EL//Tulane Univ, Sch Med, Dept Physiol, New Orleans, La 70112, USA
INT J IMMUNOPHARMACOL 1989, 11 (4) 403

Immunization against *Trypanosoma cruzi* adjuvant effect of glucan

Turdumambetov K, Plekhanova NV, Rakhimov DA, Yagudaev MR//Acad Sci KiSSR Inst Organ Chem, Frunze Kirghizia, USSR
KHIM PRIOR SOEDIN SSSR 1989, (3) 427

Glucrofructans of *Cousinia polycephala* (Russian)

Wilson JA, Scott MM, Gray RS//Bangour Gen Hosp, Dept Med, Broxburn, W Lothian, Scotland

HORMONE METAB RES 1989, 21 (6) 317

A comparison of metformin versus guar in combination with sulphonylureas in the treatment of non insulin dependent diabetes

Duvallet S, Fenyo JC*, Vandeveld MC//Univ Rouen, Fac Sci & Tech, CNRS, Unite 203, Scueor, Echanges Cellulaires, BP 118, F-76134 Mt St Aignan, France
POLYM BULL 1989, 21 (5) 517

Meaning of molecular weight measurements of gum arabic

Baumgartner A, Jacot N, Moser G, Krahenbuhl B*//Hop Cantonal Univ, Policlin Med, CH-1211 Geneva 4, Switzerland
VASA-J VASC DIS 1989, 18 (2) 152

Prevention of postoperative deep vein thrombosis by one daily injection of low molecular weight heparin and dihydroergotamine

Briant L, Caranobe C, Saivin S, Sie P, Bayrou B, Houin G, Boneu B*//Ctr Transfus, Hemostase Lab, F-31052 Toulouse, France
THROMB HAEMOST 1989, 61 (3) 348

Unfractionated heparin and CY 216: Pharmacokinetics and bioavailabilities of the antifactor Xa and IIa effects after intravenous and subcutaneous injection in the rabbit

Grant D, Long WF*, Moffat CF, Williamson FB*//Univ Aberdeen Marischal Coll, Dept Biochem, Aberdeen AB9 1AS, Scotland
BIOCHEM J 1989, 261 (3) 1035

Infrared spectroscopy of chemically modified heparins

Harenberg J, Giese C, Dempfle CE, Stehle G, Heene DL//Univ Heidelberg Klinikum Mannheim, Dept Med 1, Theodor Kutzer Ufer, D-6800 Mannheim, Fed Rep Ger
THROMB HAEMOST 1989, 61 (3) 357

Biological activity and safety of the subcutaneous administration of high doses of low molecular weight heparin for 8 days in human volunteers

Hollander G, Rothenberg R, Greengart A, Shani J, Lichstein E//SUNY Hlth Sci Ctr Brooklyn, Maimonides Med Ctr, Div Cardiol, 4802 10th Ave, Brooklyn, NY 11219, USA
N Y STATE J MED 1989, 89 (7) 387

Full dose subcutaneous heparin therapy

Mallis LM, Wang HM, Loganathan D, Linhardt RJ//Univ Iowa, High Resolut Mass Spectrometry Facil, Iowa City, Ia 52242, USA
 ANAL CHEM 1989, 61 (13) 1453

Sequence analysis of highly sulfated, heparin-derived oligosaccharides using fast atom bombardment mass spectrometry

Monreal M, Lafoz E, Navarro A, Granero X, Caja V, Caceres E, Salvador R, Ruiz J//Univ Autonoma Barcelona, Hosp Badalona Germans Trias & Pujol, Dept Med, Serv Med Interna, Bellaterra Barcelona, Spain
 J TRAUMA 1989, 29 (6) 873

A prospective double-blind trial of a low molecular weight heparin once daily compared with conventional low-dose heparin three times daily to prevent pulmonary embolism and venous thrombosis in patients with hip fracture

Palareti G et al//Univ Hosp S Orsola, Dept Angiol & Blood Coagulat, I-40138 Bologna, Italy
 INT ANGIOL 1989, 8 (1) 47

Pharmacodynamic effects on blood coagulation of a new low molecular weight heparin (alfa-LMWH) in healthy volunteers and gynecological surgery patients

Rej R, Jaseja M, Perlin AS//McGill Univ, Dept Chem, Montreal, Quebec, Canada H3A 2A7
 THROMB HAEMOST 1989, 61 (3) 540

Importance for blood anticoagulant activity of a 2-sulfate group on L-iduronic acid residues in heparin (Letter)

Saari H, Konttinen YT//Univ Helsinki, Cent Hosp, Dept Med 4, Unioninkatu 38, SF-00170 Helsinki 17, Finland
 ANN RHEUM DIS 1989, 48 (7) 565

Determination of synovial fluid hyaluronate concentration and polymerisation by high performance liquid chromatography

Shimada E, Matsumura G//Showa Univ, Sch Pharmaceut Sci, 1-5-8 Hatanodai, Shinagawa ku, Tokyo 142, Japan
 J CHROMATOGR 1989, 472 (1) 145

Determination of Stokes radii of hyaluronate oligosaccharides by Sephadex gel chromatography

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

BIOL WASTE 1989, 29 (1) 73

Fructose and inulinase production from waste Cichorium intybus roots

Sutcliffe IC, Shaw N*//Univ Newcastle Upon Tyne, Sch Med, Dept Biochem & Genet, Newcastle Tyne NE2 4HH, England
 FEMS MICROBIOL LETT 1989, 59 (3) 249

An inositol containing lipomannan from *Propionibacterium freudenreichii*

de Waard P, Vliegthart JFG*, Kozutsumi Y, Kawasaki T, Yamashina I*//Utrecht Univ, Dept Bioorgan Chem, Transitorium 3, POB 80075, 3508 TB Utrecht, The Netherlands
 J BIOL CHEM 1989, 264 (21) 12141

Structural studies on phosphorylated oligosaccharides derived from yeast mannan by $^1\text{H}\{^{31}\text{P}\}$ relayed spin-echo difference spectroscopy (RESED)

Rakhimov DA, Nikonovich GV//Acad Sci UzSSR, Inst Bot Chem, Tashkent, Uzbekistan, USSR

KHIM PRIR SOEDIN SSSR 1989, (3) 327

Polysaccharides of Ungernia. 17. Study of mannan from Ungernia oligostroma bulbs (Russian)

Ferandez-Santana V, Marino-Albernas JR, Verez-Bencomo V*, Perez-Martinez CS//Univ Havana, Fac Quim, Carbohydrate Chem Lab, Havana, Cuba
 J CARBOHYD CHEM 1989, 8 (3) 531

Glycosides of monoallyl diethylene glycol. A new type of spacer group for synthetic oligosaccharides

Carbonell E, Costell E, Duran L//CSIC, Inst Agroquim & Tecnol Alimentos, Jaime Roig II, E-46010 Valencia, Spain

J ASSN OFFIC ANAL CHEM 1989, 72 (4) 689

Evaluation of various methods for measurement of pectin content in jam

King K, Norton G, Mitchell JR, Caygill J//Dept Agr Northern Ireland, Div Agr & Food Chem, Newforge Lane, Belfast BT9 5PX, Northern Ireland

J SCI FOOD AGR 1989, 49 (1) 75

In-situ pectin de-esterification of alkali-treated fruit waste materials

Kratchanov C, Denev P, Kratchanova M//Higher Inst Food & Flavour Ind, 26 Lenin Blvd, BU-4002 Plovdiv, Bulgaria

INT J FOOD SCI TECHNOL 1989, 24 (3) 261

Reaction of apple pectin with ammonia

McFeeters RF, Fleming HP//USDA ARS, Food
Fermentat Lab, Raleigh, NC 27695, USA

J AGR FOOD CHEM 1989, 37 (4) 1053

Inhibition of cucumber tissue softening in acid
brines by multivalent cations: inadequacy of the
pectin "egg box" model to explain textural effects

Racape E, Thibault JF*, Reitsma JCE, Pilnik
W//*Ctr Rech Nantes, INRA, Biochim & Tech-
nol Glucides Lab, rue Geraudiere, F-44072 Nan-
tes 03, France

BIOPOLYMERS 1989, 28 (8) 1435

Properties of amidated pectins. II. Polyelectro-
lyte behavior and calcium binding of amidated
pectins and amidated pectic acids

Branca M, Micera G*, Dessi A, Kozlowski
H//*Univ Sassari, Dipartimento Chim, via Vien-
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