

Bibliography of carbohydrate polymers

(Seven weeks journals. Search completed at 11th Dec 1996)

1 BOOKS, REVIEWS & SYMPOSIA

- Clark T, Budde A, Cole N, Day T, Hancock I, Hassinger T, Iverson W, Langrell D, Maurice M, Smart J *et al* Address not available.
J Amer Soc Brew Chemist 1996 **54** (4) 249
 Review of β -glucan in wort by fluorescence
- Easton CJ, Lincoln SF// Australian Natl Univ, Res Sch Chem, GPO Box 4, Canberra, ACT 0200, Australia
Chem Soc Rev 1996 **25** (3) 163
 Chiral discrimination by modified cyclodextrins
- Hugouvieux-Cotte-Pattat N, Condemine G, Nasser W, Reverchon S// Inst Natl Sci Appl, UMR CNRS 5577, Lab Genet Mol Microorganismes, Bat 406, F-69621 Villeurbanne, France
Annu Rev Microbiol 1996 **50** 213
 Regulation of pectinolysis in *Erwinia chrysanthemi*
- Lofsson T, Brewster ME// Univ Iceland, Dept Pharm, POB 7210, Is-127 Reykjavik, Iceland
J Pharm Sci 1996 **85** (10) 1017
 Pharmaceutical applications of cyclodextrins. I. Drug solubilization and stabilization (Review)
- Maruska A, Liesiene J, Serys A// Kaunas Univ Technol, Dept Organ Technol, Radvilenu 19, LT-3028 Kaunas, Lithuania
J Chromatogr A 1996 **746** (2) 147
 Regulation of cellulose-based adsorbent granule morphology (Review)
- Ray RR, Nanda G// *Bose Inst, Dept Microbiol, P-1-12 CIT Scheme VII-M, Calcutta 700054, India
Crit Rev Microbiol 1996 **22** (3) 181
 Microbial β -amylases: Biosynthesis, characteristics, and industrial applications (Review)
- Roberts IS// Univ Manchester, Sch Biol Sci, Manchester M13 9PT, England
Annu Rev Microbiol 1996 **50** 285
 The biochemistry and genetics of capsular polysaccharide production in bacteria
- Wallentin L// Univ Uppsala Hosp, Dept Cardiol, S-75185 Uppsala, Sweden
Eur Heart J 1996 **17** (10) 1470
 Low molecular weight heparins: A valuable tool in the treatment of acute coronary syndromes (Review)
- Wang YC, McNeil B// Univ Strathclyde, Dept Biosci & Biotechnol, 204 George St, Glasgow G1 1XW, Scotland
Crit Rev Biotechnol 1996 **16** (3) 185
 Scleroglucan
- Warren RAJ// Univ British Columbia, Dept Microbiol & Immunol, Vancouver, Brit Columbia, Canada V6T 1Z3
Annu Rev Microbiol 1996 **50** 183
 Microbial hydrolysis of polysaccharides
- The biosynthesis of cellulose
- Converti A, Del Borghi M// Univ Genova, Ist Ingn Chim & Proc GB Bonino, via Opera Pia 15, I-16145 Genoa, Italy
Acta Biotechnol 1996 **16** (2-3) 133
 Selection of hemicellulosic hydrolysate pretreatments and fermentation conditions to stimulate xylitol production by ethanol-producing yeasts
- Frey MW, Cuculo JA*, Khan SA// *Nth Carolina State Univ, Dept Text Engr Chem & Sci, Raleigh, NC 27695, USA
J Polym Sci-B-Polym Phys 1996 **34** (14) 2375
 Rheology and gelation of cellulose/ammonia/ammonium thiocyanate solutions
- Ganster J, Blackwell J// Fraunhofer Inst Appl Polymer Res, Kantstr 55, D-14513 Teltow, Germany
J Mol Model 1996 **2** (9) 278
 NpH-MD-simulations of the elastic moduli of cellulose II at room temperature
- Gordon BR, Saal SD// New York Hosp, Cornell Med Ctr, Rogosin Inst, 505 East 70th St, New York, NY 10021, USA
J Clinical Apheresis 1996 **11** (3) 128
 Low-density lipoprotein apheresis using the liposorber dextran sulfate-cellulose system for patients with hypercholesterolemia refractory to medical therapy
- Gren T, Bjerre C, Camber O, Ragnarsson G// Univ Uppsala, Dept Pharmaceut, S-75123 Uppsala, Sweden
Int J Pharm 1996 **141** (1-2) 53
In vitro drug release from porous cellulose matrices
- Gross D, Vennat B, Bos MA, Quan ZQ, Pourrat A*// *Fac Pharm, Lab Pharm Galen & Pharmacotech, 28 Pl Dunant, F-63001 Clermont Ferrand, France
STP Pharma Sciences 1996 **6** (2) 129
 Topical tormentil hydrogels based on cellulosic derivatives, carrageenans and alginates: A comparative study of physical stability
- Grundke K, Bogumil T, Werner C, Janke A, Poschel K, Jacobasch HJ// Address not available.
Colloid Surface A 1996 **116** (1-2) 79
 Liquid-fluid contact angle measurements on hydrophilic cellulosic materials
- Hamdani H, Acquier R, Fabregue E, Maillols H*// *Fac Pharm Montpellier, Lab Tech Pharmaceut Ind, F-34060 Montpellier, France
STP Pharma Sciences 1996 **6** (5) 353
 Hydroxypropylcelluloses: Dissolution process of tablets and dynamic viscoelastic behaviour of solutions
- Hao JH, Dai HP, Yang PC, Wang Z// Tsing Hua Univ, Dept Chem Engr, Beijing 100084, Peoples Rep China
J Appl Polym Sci 1996 **62** (1) 129
 Spinning of cellulose acetate hollow fiber by dry-wet technique of 3C-shaped spinneret
- Heinze T, Rahn K// Univ Jena, Humboldtstr 10, D-07743 Jena, Germany
Macromol Rapid Commun 1996 **17** (10) 675
 The first report on a convenient synthesis of novel reactive amphiphilic polysaccharides
- Hongo T, Yamane C, Saito M, Okajima K// Asahi Chem Ind Co Ltd, Fund Res Lab Nat & Synthet Polymers, 11-7 Hachonawate, Takatsuki, Osaka 569, Japan
Polym J 1996 **28** (9) 769
 Super-molecular structures controlling the swelling behavior of regenerated cellulose membranes
- Iijima H, Sogawa K, Kamide K// Asahi Chem Ind Co Ltd, Fund Res Lab Nat & Synthet Polymers, 11-7 Hachonawate, Takatsuki, Osaka 569, Japan
Polym J 1996 **28** (9) 808
 Thermodynamics of formation of porous polymeric membrane by phase separation method. VI. Supermolecular structure and virus separability of porous regenerated cellulose membrane prepared by phase separation method
- Kadokawa JI, Karasu M, Tagaya H, Chiba K// Yamagata Univ, Dept Mat Sci & Engr, Yonezawa, Yamagata 992, Japan
J Macromol Sci Pure Appl Chem 1996 **A33** (11) 1735
 Synthesis of a block copolymer consisting of oligocellulose and oligochitin

2 CELLULOSE

- Barbut S, Mittal GS// Univ Guelph, Sch Engr, Guelph, Ontario, Canada N1G 2W1
Int J Food Sci Technol 1996 **31** (3) 241
 Effects of three cellulose gums on the texture profile and sensory properties of low fat frankfurters
- Beck MI, Tomka I*, Waysek EF// *Hoffmann La Roche & Co Ltd, Dept Vitamins & Fine Chem Prod Form Dev, CH-4002 Basel, Switzerland
Int J Pharm 1996 **141** (1-2) 137
 Physico-chemical characterization of zein as a film coating polymer: A direct comparison with ethyl cellulose
- Brown RM// Univ Texas, Dept Bot, Austin, Tx 78713, USA
J Macromol Sci Pure Appl Chem 1996 **A33** (10) 1345

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 thirteen sections: 1 Books, Reviews & Symposia; 2 Cellulose; 3 Cellulose-degrading Enzymes; 4 Chitin/Chitosan; 5 Cyclodextrins; 6 Lignin; 7 Lipopolysaccharides; 8 Pectin; 9 Starch; 10 Starch-degrading Enzymes; 11 Polysaccharides - Microbial; 12 Polysaccharides - Plant; 13 Polysaccharides - Other. Within each section, articles are listed in alphabetical order with respect to author. When there are no publications to appear under one of these headings, that section will be omitted.

- Kandola BK, Horrocks AR, Price D, Coleman GV// Bolton Inst Higher Educ, Sch Text Studies, Deane Rd, Bolton BL3 5AB, England
J Macromol Sci-Rev Macromol 1996 C36 (4) 721
 Flame-retardant treatments of cellulose and their influence on the mechanism of cellulose pyrolysis
- Kawahara H, Ikugawa H, Obata H// Kansai Univ, Dept Biotechnol, Suita, Osaka 564, Japan
Biosci Biotechnol Biochem 1996 60 (9) 1474
 Isolation and characterization of a marine ice-nucleating bacterium, *Pseudomonas* sp KUIN-5, which produces cellulose and secretes it in the culture broth
- Kobayashi S, Okamoto E, Wen X, Shoda S// Tohoku Univ, Dept Mol Chem & Engn, Sendai, Miyagi 98077, Japan
J Macromol Sci Pure Appl Chem 1996 A33 (10) 1375
 Chemical synthesis of native-type cellulose and its analogues via enzymatic polymerization
- Kubota N, Nakagawa Y, Eguchi Y// Oita Univ, Dept Appl Chem, Oita 87011, Japan
J Appl Polym Sci 1996 62 (8) 1153
 Recovery of serum proteins using cellulosic affinity membrane modified by immobilization of Cu^{2+} ion
- Mannan KM, Robbany Z// Univ Dhaka, Dept Phys, Cuzon Hall, Dhaka 1000, Bangladesh
Polymer 1996 37 (20) 4639
 Rotation of a natural cellulosic fibre about its fibre axis to absorption of moisture
- N'Diaye S, Rigal L*, Larocque P, Valdel P// *Ecole Natl Super Chim Toulouse, Lab Chim Agroind, 118 Rte Narbonne, F-31077 Toulouse, France
Bioresource Technol 1996 57 (1) 61
 Extraction of hemicelluloses from poplar, *Populus tremuloides*, using an extruder-type twin-screw reactor: A feasibility study
- Namasivayam C, Muniasamy N, Gayatri K, Rani M, Ranganathan K// Bharathiar Univ, Dept Environm Sci, Coimbatore 641046, Tamil Nadu, India
Bioresource Technol 1996 57 (1) 37
 Removal of dyes from aqueous solutions by cellulosic waste orange peel
- Olaru N, Olaru L, Andriescu A, Tudorachi N// Romanian Acad, Petru Poni Inst Macromol Chem, Aleea Grigore Ghica Voda 41A, Iasi 6600, Romania
Angew Makromol Chem 1996 241 67
 Partial hydrolysis of cellulose acetate in toluene/acetic acid/water system
- Pajulo O, Viljanto J, Lonnberg B, Hurme T, Lonnqvist K, Saukko P// Cent Hosp, Dept Pediat Surg, Kiinamyllynkatu 4-8, FIN-20520 Turku, Finland
J Biomed Mater Res 1996 32 (3) 439
 Viscose cellulose sponge as an implantable matrix: Changes in the structure increase the production of granulation tissue
- Priya R, Singhal RS, Kulkarni PR// Univ Dept Chem Technol, Food & Ferment Technol Div, Matunga, Bombay 400019, India
Carbohydr Polym 1996 29 (4) 333
 Carboxymethylcellulose and hydroxypropylmethylcellulose as additives in reduction of oil content in batter based deep-fat fried biondis
- Saka S, Ohmae K// Kyoto Univ, Dept Socioenvironm Energy Sci, Kyoto 60601, Japan
J Appl Polym Sci 1996 62 (7) 1003
 Thermal properties of cellulose triacetate as prepared from low-grade dissolving pulp
- Sun R, Lawther JM, Banks WB// Univ Wales, BioComposites Ctr, Bangor LL57 2UW, Wales
Carbohydr Polym 1996 29 (4) 325
 Fractional and structural characterization of wheat straw hemicelluloses
- Sung KC, Nixon PR, Skoug JW, Ju TR, Gao P, Topp EM, Patel MV// Chia Nan Jr Coll Pharm, Dept Pharm, Tainan, Taiwan
Int J Pharm 1996 142 (1) 53
 Effect of formulation variables on drug and polymer release from HPMC-based matrix tablets
- Taylor JG, Haigler CH, Kilburn DG, Blanton RL*// *Texas Tech Univ, Dept Biol Sci, Lubbock, Tx 79409, USA
Biotech Histochem 1996 71 (5) 215
 Detection of cellulose with improved specificity using laser-based instruments
- Zahran MK// Helwan Univ, Dept Chem, Helwan, Cairo, Egypt
J Appl Polym Sci 1996 62 (1) 49
 Graft copolymerization of methyl methacrylate and other vinyl monomers onto carbon cotton fabric using ferrous cellulose thiocarbonate-*N*-bromosuccinimide redox initiation system
- 3 CELLULOSE-DEGRADING ENZYMES**
- Aiello C, Ferrer A*, Ledesma A// *Univ Zulia, Dept Quim, Modulo 2, Maracaibo 4011, Venezuela
- Bioresource Technol* 1996 57 (1) 13
 Effect of alkaline treatments at various temperatures on cellulase and biomass production using submerged sugarcane bagasse fermentation with *Trichoderma reesei* QM 9414
- Johnson PE, Tomme P, Joshi MD, McIntosh LP*// *Univ British Columbia, Dept Biochem & Mol Biol, 2146 Hlth Sci Mall, Vancouver, Brit Columbia, Canada V6T 1Z3
Biochemistry-USA 1996 35 (44) 13895
 Interaction of soluble cellooligosaccharides with the *N*-terminal cellulose-binding domain of *Cellulomonas fimi* CenC. II. NMR and ultraviolet absorption spectroscopy
- Khyami-Horani H// Univ Jordan, Dept Biol Sci, Amman 11181, Jordan
World J Microbiol Biotechnol 1996 12 (5) 525
 Partial purification and some properties of an alkaline cellulase from an alkalophilic *Bacillus* sp
- Marten MR, Velkovska S, Khan SA, Ollis DF*// *Nth Carolina State Univ, Dept Chem Engr, Raleigh, NC 27695, USA
Biotechnol Progr 1996 12 (5) 602
 Rheological, mass transfer, and mixing characterization of cellulase-producing *Trichoderma reesei* suspensions
- Pardo AG// Univ Buenos Aires, Lab Micol Expt, Ciudad Univ, RA-1428 Buenos Aires, DF, Argentina
Curr Microbiol 1996 33 (4) 275
 Effect of surfactants on cellulase production by *Nectria catalinensis*
- Reczey K, Szengyel Z, Eklund R, Zacchi G// Tech Univ Budapest, Dept Agr Chem Technol, Gellert ter 4, H-1521 Budapest, Hungary
Bioresource Technol 1996 57 (1) 25
 Cellulase production by *T. reesei*
- Tomme P, Creagh AL, Kilburn DG, Haynes CA// Univ British Columbia, Dept Microbiol & Immunol, 300-6174 Univ Blvd, Vancouver, Brit Columbia, Canada V6T 1Z3
Biochemistry-USA 1996 35 (44) 13885
 Interaction of polysaccharides with the *N*-terminal cellulose-binding domain of *Cellulomonas fimi* CenC. I. Binding specificity and calorimetric analysis
- Tormo J, Lamed R, Chirino AJ, Morag E, Bayer EA, Shoham Y, Steitz TA// CSIC, Ctr Invest & Desarrollo, Jordi Girona 18-26, E-08034 Barcelona, Spain
EMBO J 1996 15 (21) 5739
 Crystal structure of a bacterial family-III cellulose-binding domain: A general mechanism for attachment to cellulose

4 CHITIN/CHITOSAN

- Andrady AL, Torikai A, Kobatake T// Res Triangle Inst, Camille Dreyfus Lab, POB 12194, Res Triangle Pk, NC 27709, USA
J Appl Polym Sci 1996 62 (9) 1465
 Spectral sensitivity of chitosan photodegradation
- Aoyagi H, Okada M, Akimoto C, Katsuyama H, Yoshida S, Kusakabe I, Tanaka H// Univ Tsukuba, Inst Appl Biochem, Tsukuba, Ibaraki 305, Japan
Biotechnol Technique 1996 10 (9) 649
 Promotion effect of alginate on chitinase production by *Wasabia japonica*
- Berthold A, Cremer K, Kreuter J*// *Univ Frankfurt, Biozentrum Niederursel, Inst Pharmazeut Technol, Marie Curie Str 9, D-60439 Frankfurt, Germany
STP Pharma Sciences 1996 6 (5) 358
 Influence of crosslinking on the acid stability and physicochemical properties of chitosan microspheres
- Butler BL, Vergano PJ, Testin RF, Bunn JM, Wiles JL// WR Grace & Co Conn, Cryovac Div, Duncan, SC 29334, USA
J Food Sci 1996 61 (5) 953
 Mechanical and barrier properties of edible chitosan films as affected by composition and storage
- Chen RH, Hwa HD// Natl Taiwan Ocean Univ, Dept Marine Food Sci, Keelung 20224, Taiwan
Carbohydr Polym 1996 29 (4) 353
 Effect of molecular weight of chitosan with the same degree of deacetylation on the thermal, mechanical, and permeability properties of the prepared membrane
- Chu CH, Kumagai H*, Sakiyama T, Ikeda S, Nakamura K// *Univ Tokyo, Dept Appl Biol Chem, Bunkyo ku, 1-1-1 Yayoi, Tokyo 113, Japan
Biosci Biotechnol Biochem 1996 60 (10) 1627
 Development of a model for analyzing the swelling rate of ionic gels on the basis of the diffusion of mobile ions: Application to the pH-sensitive swelling of a polyelectrolyte complex gel prepared from xanthan and chitosan
- Denuziere A, Ferrier D, Domard A*// *Lab Etude Mat Plastiques Biomat, URA CNRS 507, 43 Blvd 11 Novembre 1918, F-69622 Villeurbanne, France
Carbohydr Polym 1996 29 (4) 317
 Chitosan-chondroitin sulfate and chitosan-hyaluronate polyelectrolyte com-

plexes. Physico-chemical aspects

Fukamizo T, Honda Y, Toyoda H, Ouchi S, Goto S// Kinki Univ, Biophys Chem Lab, 3327-204 Nakamachi, Nara 631, Japan
Biosci Biotechnol Biochem 1996 **60** (10) 1705

Chitinous component of the cell wall of *Fusarium oxysporum*, its structure deduced from chitosanase digestion

Guan YL, Shao L, Liu J, De-Yao K// Tianjin Univ, Dept Appl Chem, Tianjin 300072, Peoples Rep China
J Appl Polym Sci 1996 **62** (8) 1253

pH effect on correlation between water state and swelling kinetics of the crosslinked chitosan/polyether semi-IPN hydrogel

Inoue K, Hirakawa H, Ishikawa Y, Yamaguchi T, Nagata J, Ohto K, Yoshizuka K// Saga Univ, Dept Appl Chem, Honjo machi 1, Saga 840, Japan
Separ Sci Technol 1996 **31** (16) 2273

Adsorption of metal ions on gallium(III)-templated oxine type of chemically modified chitosan

Kim SS, Kim SH, Lee YM*// *Hanyang Univ, Dept Ind Chem, Seoul 133791, South Korea
J Polym Sci-B-Polym Phys 1996 **34** (14) 2367

Preparation, characterization, and properties of β -chitin and *N*-acetylated β -chitin

Kumagai H, Chu CH, Sakiyama T, Ikeda S, Nakamura K// Univ Tokyo, Dept Appl Biol Chem, Bunkyo ku, 1-1-1 Yayoi, Tokyo 113, Japan
Biosci Biotechnol Biochem 1996 **60** (10) 1623

Analysis of the pH-sensitive swelling rate of a polyelectrolyte complex gel prepared from xanthan and chitosan by the collective diffusion model

Kurita K, Hasimoto S, Ishii S, Mori T, Nishimura S// Seikei Univ, Dept Ind Chem, Musashino, Tokyo 180, Japan
Polym J 1996 **28** (8) 686

Efficient graft copolymerization of 2-methyl-2-oxazoline onto tosyl- and iodo-chitins in solution

Minami S, Okamoto Y, Miyatake K, Matsushashi A, Kitamura Y, Tanigawa T, Tanaka Y, Shigemasa Y// Tottori Univ, Dept Vet Surg, Tottori 680, Japan
Carbohydr Polym 1996 **29** (4) 295

Chitin induces type IV collagen and elastic fiber in implanted non-woven fabric of polyester

Muzzarelli RAA// Univ Ancona, Fac Med, I-60100 Ancona, Italy
Carbohydr Polym 1996 **29** (4) 309

Chitosan-based dietary foods

Payne GF, Chaubal MV, Barbari TA// Univ Maryland, Dept Chem & Biochem Engr, 5401 Wilkens Ave, Baltimore, Md 21228, USA
Polymer 1996 **37** (20) 4643

Enzyme-catalysed polymer modification: Reaction of phenolic compounds with chitosan films

Sato M, Onishi H*, Takahara J, Machida Y, Nagai T// *Hoshi Univ, Fac Pharmaceut Sci, Shinagawa ku, 2-4-41 Ebara, Tokyo 142, Japan
Biol Pharm Bull 1996 **19** (9) 1170

In vivo drug release and antitumor characteristics of water-soluble conjugates of mitomycin C with glycol-chitosan and *N*-succinyl-chitosan

Stankiewicz BA, Van Bergen PF, Duncan JJ, Carter JF, Briggs DEG, Evershed RP// Bristol Univ, Dept Geol, Queen's Rd, Bristol BS8 1RJ, England
Rapid Commun Mass Spectrom 1996 **10** (14) 1747

Recognition of chitin and proteins in invertebrate cuticles using analytical pyrolysis/gas chromatography and pyrolysis/gas chromatography/mass spectrometry

Wang XP, Shen ZQ*, Zhang FY, Zhang YF// *Zhejiang Univ, Dept Polymer Sci & Engr, Hangzhou 310027, Peoples Rep China
J Membrane Sci 1996 **119** (2) 191

A novel composite chitosan membrane for the separation of alcohol-water mixtures

Wang Y, Ye XZ*, Xu ZH, Li NQ// *Beijing Univ, Coll Chem & Mol Engr, Beijing 100871, Peoples Rep China
Chem J Chinese Univ-Chinese 1996 **17** (9) 1367

Studies on the determination of platinum for a chitosan chemically modified electrode

Yoshino T, Machida Y*, Onishi H, Nagai T// *Hoshi Univ, Fac Pharmaceut Sci, Shinagawa ku, Ebara 2-4-41, Tokyo 142, Japan
STP Pharma Sciences 1996 **6** (2) 122

Characteristics of drug loading, drug release and degradation of chitosan microspheres prepared using the dry-in-oil method

5 CYCLODEXTRINS

Aki H, Haraguchi T, Niiya T, Goto Y, Yamamoto M*// *Fukuoka Univ, Fac Pharmaceut Sci, Jonan ku, 8-19-1 Nanakuma, Fukuoka 81480, Japan
Yakugaku Zasshi-J Pharm Soc 1996 **116** (10) 803

Multiple modes for inclusion complexation between phenobarbital and 2-hydroxypropyl- β -cyclodextrin in aqueous solution

Badawy SIF, Marshall AL, Ghorab MM, Adeyeye CM*// *Duchesne Univ, Grad Sch Pharmaceut Sci, Pittsburgh, Pa 15282, USA

Drug Develop Ind Pharm 1996 **22** (9-10) 959

A study of the complexation between danazol and hydrophilic cyclodextrin derivatives

Bunke A, Jira T*// *Univ Greifswald, Fachrichtung Pharm, Inst Arzneimittellkontrolle, Friedrich Ludwig Jahn Str 17, D-17487 Greifswald, Germany
Pharmazie 1996 **51** (9) 672

Chiral capillary electrophoresis using a cationic cyclodextrin

Caron I, Salvador A, Elfakir C, Herbretreau B, Dreux M*// *Univ Orleans, CNRS URA 499, Inst Chim Organ & Analyt, BP 6759, F-45067 Orleans 2, France
J Chromatogr A 1996 **746** (1) 103

Analysis of partially methylated cyclodextrins by subcritical fluid and liquid chromatography

Chankvetadze B, Yashima E, Okamoto Y*// *Nagoya Univ, Dept Appl Chem, Chikusa ku, Nagoya, Aichi 46401, Japan
Chirality 1996 **8** (5) 402

Dichloro-, dimethyl-, and chloromethylphenylcarbamate derivatives of cyclodextrins as chiral stationary phases for high-performance liquid chromatography

Chen CY, Chen FA, Wu AB, Hsu HC, Kang JJ, Cheng HW*// *Taipei Med Coll, Grad Inst Pharmaceut Sci, Taipei, Taiwan
Int J Pharm 1996 **141** (1-2) 171

Effect of hydroxypropyl- β -cyclodextrin on the solubility, photostability and *in-vitro* permeability of alkannin/shikonin enantiomers

Chen WH, Yuan DQ, Fujita K*// *Nagasaki Univ, Fac Pharmaceut Sci, Nagasaki 852, Japan
Tetrahedron Lett 1996 **37** (42) 7561

Bifunctional β -cyclodextrins with two-imidazolyl groups specifically attached to C3 positions

Chowdhury M, Basu R*// *Univ Coll Sci & Technol, Dept Chem, 92 Acharya Prafulla Chandra Rd, Calcutta 700009, India
Indian J Chem Sect A 1996 **35** (10) 901

Studies on the formation of inclusion complexes of drugs with β -cyclodextrin (CD)

Crini G, Morcellet M*, Torri G// *Univ Sci & Tech Lille Flandres Artois, URA 351, CNRS, Lab Chim Macromol, F-59655 Villeneuve d'Ascq, France
J Chromatogr Sci 1996 **34** (11) 477

HPLC of structural isomers with cyclodextrin-poly(vinylamine)-coated silica columns. I. Synthesis and characterization of cyclodextrin-bonded stationary phases by NMR solid state

Crini G, Morcellet M*// *Address as above
J Chromatogr Sci 1996 **34** (11) 485

HPLC of structural isomers using cyclodextrin-poly(vinylamine)-coated silica columns. II. Retention behavior and separation

Cserhati T, Forgacs E, Szejtli J// Hungarian Acad Sci, Cent Res Inst Chem, POB 17, H-1525 Budapest, Hungary
Int J Pharm 1996 **141** (1-2) 1

Inclusion complex formation of antisense nucleotides with hydroxypropyl- β -cyclodextrin

Cucinotta V, D'Alessandro F, Impellizzeri G, Maccarrone G, Rizzarelli E, Vecchio G// Univ Naples Federico II, Dipt Sci Alimentaz, Via Univ 100, I-80055 Portici, Napoli, Italy
J Chem Soc Perkin Trans 2 1996 (9) 1785

Functionalized β -cyclodextrins: Thermodynamic studies and NMR titration of 6-diethylenetriamine derivative

Dang XJ, Tong J, Li HL*// *Lanzhou Univ, Dept Chem, Lanzhou 730000, Peoples Rep China
J Inclusion Phenom Mol Recogn 1996 **24** (4) 275

The electrochemistry of the inclusion complex of anthraquinone with β -cyclodextrin studied by means of OSWV

Dodziuk H, Sitkowski J, Stefaniak L, Sybilka D// Polish Acad Sci, Inst Organ Chem, Inst Chem Phys, Kasprzaka 44-52, PL-01224 Warsaw, Poland
Polish J Chem 1996 **70** (10) 1361

Structure of cyclodextrins and their complexes. VII. Unusual NMR manifestations of chiral recognition of (1*R*,5*R*)- and (1*S*,5*S*)- α -pinenes by α -cyclodextrin in different solvents

Freville JC, Dollo G, Le Corre P, Chevanne F, Le Verge R*// *Univ Rennes 1, Fac Sci Pharmaceut & Biol, Pharm Galen & Biopharm Lab, 2 Ave Prof Leon Bernard, F-35043 Rennes, France
Pharmaceut Res 1996 **13** (10) 1576

Controlled systemic absorption and increased anesthetic effect of bupivacaine following epidural administration of bupivacaine-hydroxypropyl- β -cyclodextrin complex

- Godinez LA, Lin J, Munoz M, Coleman AW, Kaifer AE// *Miami Univ, Chem Dept, Coral Gables, FL 33124, USA
Electroanal 1996 **8** (11) 1072
 Voltammetric detection of phosphate ion binding to β -amino-cyclodextrin
- Gong ZL, Zhang ZJ// *Shaaxi Normal Univ, Dept Chem, Xian 710062, Peoples Rep China
Anal Lett 1996 **29** (14) 2441
 A fluorosensor with immobilized cyclodextrin as a substrate
- Hama S, Hatamiya A// Akita Univ, Dept Chem, Tegata Gakuen machi 1-1, Akita 010, Japan
Bull Chem Soc Jpn 1996 **69** (9) 2469
 Excimer formation in inclusion complexes of β -cyclodextrin with 1-alkyl-naphthalenes in aqueous solutions
- Harata K, Nagano Y, Ikeda H, Ikeda T, Ueno A, Toda F// Natl Inst Biosci & Human Technol, 1-1 Higashi, Tsukuba, Ibaraki 305, Japan
Chem Commun 1996 (20) 2347
 Crystal structure of mono(3-amino-3-deoxy)- α -cyclodextrin 5,5 hydrate. Evidence for the 3_0B boat conformation of the altrosamine residue
- Jin CY, Zhang DD*, Oguma T, Qian SX// *Fudan Univ, Dept Chem, Shanghai 200433, Peoples Rep China
J Inclusion Phenom Mol Recogn 1996 **24** (4) 301
 Studies on novel cyclodextrins: Inclusion of C_{60} and C_{70}
- Jursic BS, Zdravkovski Z, French AD// Univ New Orleans, Dept Chem, New Orleans, La 70148, USA
Theochem-J Mol Struct 1996 **366** (1-2) 113
 Molecular modeling methodology of β -cyclodextrin inclusion complexes
- Kano K, Takashima H, Taniuchi Y// Doshisha Univ, Dept Mol Sci & Technol, Kyoto 61003, Japan
Kobunshi Ronbunshu 1996 **53** (9) 542
 Preparation of poly(vinyl chloride)/amphiphilic cyclodextrin composite films and their chiral recognition ability (Japanese, English Abstract)
- Kitchin SJ, Halstead TK// *Univ York, Dept Chem, York YO1 5DD, England
Solid State Nucl Magn Reson 1996 **7** (1) 27
 Dynamics of β -cyclodextrin hydrate: Solid state 2H NMR studies
- Kushibe S, Ueda M*, Morimoto Y// *Mitsubishi Chem Co, Div Res & Dev, Aoba ku, 1000 Kamoshida, Yokohama, Kanagawa 227, Japan
Biosci Biotechnol Biochem 1996 **60** (10) 1677
 Production of novel branched cyclofructans by *Bacillus subtilis* MCI-2834
- Lemesle-Lamache V, Wouessidjewe D*, Cheron M, Duchene D// *Univ Paris Sud, URSA CNRS 1218, Lab Physicochim Pharmacotech & Biopharm, rue JB Clement, F-92296 Chatenay Malabry, France
Int J Pharm 1996 **141** (1-2) 117
 Study of β -cyclodextrin and ethylated β -cyclodextrin salbutamol complexes, *in vitro* evaluation of sustained-release behaviour of salbutamol
- Luna EA, Bormancini ERN, Tait RJ, Thompson DO, Stobaugh JF, Rajewski RA*, Stella VJ// *Univ Kansas, Higuchi Biosci Ctr, Ctr Drug Delivery Res, Lawrence, Ks 66047, USA
J Pharmaceut Biomed Anal 1996 **15** (1) 63
 Evaluation of the utility of capillary electrophoresis for the analysis of sulfo-butyl ether β -cyclodextrin mixtures
- Matsui Y, Tokunaga S// Shimane Univ, Fac Life & Environm Sci, Nishikawatsu, Matsue, Shimane 690, Japan
Bull Chem Soc Jpn 1996 **69** (9) 2477
 Internal reference compounds available for the determination of binding constants for cyclodextrin complexes by 1H NMR spectrometry
- McDonald C, Palmer L, Boddy M// Curtin Univ Technol, Sch Pharm, GPO Box U1987, Perth WA 6001, Australia
Drug Develop Ind Pharm 1996 **22** (9-10) 1025
 The solubilities of esters of 4-hydroxybenzoic acid, determined separately and together, in aqueous solutions of 2-hydroxypropyl- β -cyclodextrin
- Miyata T, Iwamoto T, Urugami T// Kansai Univ, Fac Engr Chem Branch, Suita, Osaka 564, Japan
Macromol Chem Physics 1996 **197** (9) 2909
 Characteristics of permeation and separation of xylene isomers through poly(vinyl alcohol) membranes containing cyclodextrin
- Mortellaro MA, Hartmann WK, Nocera DG// *Michigan State Univ, Dept Chem, East Lansing, MI 48824, USA
Angew Chem Int Ed 1996 **35** (17) 1945
 Regioisomeric effects on the excited state processes of a cyclodextrin modified with a lumophore
- Munoz-Ruiz A, Paronen P// Univ Sevilla, Dept Pharmaceut Technol, C/ Tramontana s/n, E-41012 Sevilla, Spain
J Pharm Pharmacol 1996 **48** (8) 790
 Time-dependent densification behaviour of cyclodextrins
- Nagarsenkar MS, Shenai H// Bombay Coll Pharm, Bombay 400098, Maharashtra, India
Drug Develop Ind Pharm 1996 **22** (9-10) 987
 Influence of hydroxypropyl β -cyclodextrin on solubility and dissolution profile of ketoprofen in its solid dispersions
- Pistolis G, Malliaris A// *Democritus Nucl Res Ctr, Athens 15310, Greece
J Phys Chem 1996 **100** (38) 15562
 Nanotube formation between cyclodextrins and 1,6-diphenyl-1,3,5-hexatriene
- Rendleman JA// USDA/ARS, Natl Ctr Agr Utilizat Res, Biopolymer Res Unit, 1815 Nth Univ St, Peoria, IL 61604, USA
Biotechnol Appl Biochem 1996 **24** (2) 121
 Influence of saccharides as inhibitors of cyclodextrin production
- Rendleman JA// Address as above
Biotechnol Appl Biochem 1996 **24** (2) 129
 Enzymic conversion of malto-oligosaccharides and maltodextrin into cyclodextrin at low temperature
- Ross PD, Rekharsky MV// NIH/NIDDKD, Mol Biol Lab, 9000 Rockville Pike, Bethesda, Md 20892, USA
Biophys J 1996 **71** (4) 2144
 Thermodynamics of hydrogen bond and hydrophobic interactions in cyclodextrin complexes
- Rudiger V, Eliseev A, Simova S, Schneider HJ*, Blandamer MJ, Cullis PM, Meyer AJ// *Univ Saarland, Fach Organ Chem, D-66041 Saarbrücken, Germany
J Chem Soc Perkin Trans 2 1996 (10) 2119
 Conformational, calorimetric and NMR spectroscopic studies on inclusion complexes of cyclodextrins with substituted phenyl and adamantane derivatives
- Shimada J, Handa S, Kaneko H, Takada T// NEC Corp Ltd, Fundamental Res Labs, 34 Miyukigaoka, Tsukuba, Ibaraki 305, Japan
Macromolecules 1996 **29** (20) 6408
 Conformation of novel cycloamylose: Topological aspects and simulations
- Skiba M, Wouessidjewe D, Puisieux F, Duchene D, Gulik A// Univ Paris Sud, Lab Pharm Galen & Biopharm, 5 rue Jean Baptiste Clement, F-92290 Chateaufort Malabry, France
Int J Pharm 1996 **142** (1) 121
 Characterization of amphiphilic β -cyclodextrin nanospheres
- Tanaka Y, Yanagawa M, Terabe S// Nippon Boehringer Ingelheim Co Ltd, Dept Analyt Chem, 3-10-1 Yato, Kawanishi, Hyogo 66601, Japan
J High Res Chromatogr 1996 **19** (8) 421
 Separation of neutral and basic enantiomers by cyclodextrin electrokinetic chromatography using anionic cyclodextrin derivatives as chiral pseudo-stationary phases
- Umbach P, Georgalis Y*, Saenger W// *Free Univ Berlin, Inst Kristallog, Taku Str 6, D-14195 Berlin, Germany
J Amer Chem Soc 1996 **118** (39) 9314
 Light scattering studies on the crystallization transition of native and *per*-2,6-dimethylated β -cyclodextrins
- Wang PF, Jullien L*, Valeur B, Filhol JS, Canceill J, L'Ehn JM// *Ecole Normale Sup, CNRS, URA 1679, Dept Chim, 24 rue Lhomond, F-75005 Paris, France
New J Chem 1996 **20** (7-8) 895
 Multichromophoric cyclodextrins. V. Antenna-induced unimolecular photoreactions. Photoisomerization of a nitroene
- Weickenmeier M, Wenz G// Univ Karlsruhe, Inst Polymer, Hertzstr 16, D-76187 Karlsruhe, Germany
Macromol Rapid Commun 1996 **17** (10) 731
 Cyclodextrin sidechain polyesters: Synthesis and inclusion of adamantane derivatives
- Yamamura H, Kawai H, Yotsuya T, Higuchi T, Butsugan Y, Araki S, Kawai M, Fujita K// Nagoya Inst Technol, Dept Appl Chem, Showa ku, Gokiso cho, Nagoya, Aichi 466, Japan
Chem Lett 1996 (9) 799
 A cyclodextrin derivative with cation carrying ability: Heptakis(3,6-anhydro)- β -cyclodextrin 2-O-*p*-phenylazobenzoate
- Zarzycki PK, Nowakowska J, Chmielewska A, Lamparczyk H// Med Univ Gdansk, Fac Pharm, Hallera 107, PL-80416 Gdansk, Poland
J Planar Chromat-Mod TLC 1996 **9** (4) 260
 Retention properties of cyclodextrins on polyamide TLC plates

6 LIGNIN

- Belgacem MN, Blayo A, Gandini A// *Inst Natl Polytech Grenoble, Ecole Francaise Papeterie Ind Graph, BP 65, F-38402 St Martin d'Heres, France
J Colloid Interface Sci 1996 **182** (2) 431
 Surface characterization of polysaccharides, lignins, printing ink pigments, and ink fillers by inverse gas chromatography
- Goni MA, Eglinton TI// Univ Sth Carolina, Dept Geol Sci Earth & Water Sci 302, Columbia, SC 29208, USA

- Org Geochem* 1996 **24** (6-7) 601
Stable carbon isotopic analyses of lignin-derived CuO oxidation products by isotope ratio monitoring gas chromatography/mass spectrometry (IRM-GC-MS)
Hatcher PG, Minard RD// Penn State Univ, Fuel Sci Program, University Pk, Pa 16802, USA
Org Geochem 1996 **24** (6-7) 593
Comparison of dehydrogenase polymer (DHP) lignin with native lignin from gymnosperm wood by thermochemical analysis using tetramethylammonium hydroxide (TMAH)
- Jensen KA, Bao WL, Kawai S, Srebotnik E, Hammel KE*// *USDA, Inst Microbial & Biochem Technol, Madison, WI 53705, USA
Appl Environ Microbiol 1996 **62** (10) 3679
Manganese-dependent cleavage of nonphenolic lignin structures by *Ceriporiopsis subvermispora* in the absence of lignin peroxidase
- Marques AV, Pereira H, Meier D// Inst Super Engrn Lisboa, Seccao Quim Organ, Rua Conselheiro Emidio Navarro, P-1900 Lisbon, Portugal
Holzforchung 1996 **50** (5) 393
Isolation and characterization of a guaiacyl lignin from saponified cork of *Quercus suber* L
- Rohella RS, Sahoo N, Paul SC, Choudhury S, Chakravorty V// Reg Res Lab, Bhubaneswar 751013, Orissa, India
Thermochim Acta 1996 **287** (1) 131
Thermal studies on isolated and purified lignin
- Ruttimann-Johnson C, Lamar RT// USDA/US Forest Serv, Inst Microbiol & Biochem Technol, 1 Gifford Pinchot Dr, Madison, WI 53705, USA
Appl Environ Microbiol 1996 **62** (10) 3890
Polymerization of pentachlorophenol and ferulic acid by fungal extracellular lignin-degrading enzymes
- Sun RC, Lawther JM, Banks WB// Univ Wales, Biocomposites Ctr, Bangor LL57 2UW, Wales
J Appl Polym Sci 1996 **62** (9) 1473
Effects of pretreatment temperature and alkali concentration on the composition of alkali-soluble lignins from wheat straw
- Tan TTM// Hochiminh City Univ Technol, Polymer Res Ctr, 268 Ly Thuong Kiet, Dist 10, Thanh Pho Ho Chi Minh, Vietnam
Polym Int 1996 **41** (1) 13
Cardanol-lignin-based polyurethanes
- ## 7 LIPOPOLYSACCHARIDES
- Ekelof K, Oscarson S*// *Univ Stockholm, Arrhenius Lab, Dept Organ Chem, S-10691 Stockholm, Sweden
J Org Chem 1996 **61** (22) 7711
Synthesis of oligosaccharide structures from the lipopolysaccharide of *Moraxella catarrhalis*
- Jachymek W, Petersson C, Helander A, Kenne L*, Niedziela T, Lugowski C// *Swedish Univ Agr Sci, Dept Chem, POB 7015, S-75007 Uppsala, Sweden
Carbohydr Res 1996 **292** 117
Structural studies of the O-specific chain of *Hafnia alvei* strain 32 lipopolysaccharide
- Katzenellenbogen E, Kubler J, Gamian A, Romanowska E, Shashkov AS, Kocharova NA, Knirel YA*, Kochetkov NK// *ND Zelinskii Inst Organ Chem, Leninsky pr 47, Moscow 117913, Russia
Carbohydr Res 1996 **293** (1) 61
Structural study and serological characterisation of the O-specific polysaccharide of *Hafnia alvei* PCM 1185, another *Hafnia* O-antigen that contains 3,6-dideoxy-3-[(R)-3-hydroxybutyramido]-D-glucose
- Senchenkova SN, Shashkov AS, Knirel YA*, Kochetkov NK, Zych K, Sidorczyk Z// *Address as above
Carbohydr Res 1996 **293** (1) 71
Structure of a new N-acetylglucosaminic acid-containing O-specific polysaccharide of *Proteus penneri* strains 19 and 35
- Shiozaki M, Arai M, Macindoe WM, Mochizuki T, Kurakata S, Maeda H, Nishijima M// Sankyo Co Ltd, Exploratory Chem Res Labs, Shinagawa ku, Hiromachi 1-2-58, Tokyo 140, Japan
Chem Lett 1996 (9) 735
Synthesis of GLA-60 positional isomer as an LPS-agonist and its activity
- Ishikawa H, Shimoda M, Yonekura A, Osajima Y// Kyushu Univ, Dept Food Sci & Technol, Higashi ku, 6-10-1 Hakozaki, Fukuoka 812, Japan
J Jpn Soc Food Sci Technol 1996 **43** (9) 999
Inactivation of pectinesterase in Valencia orange juice by micro-bubble supercritical carbon dioxide method
- Langhout DJ, Schutte JB// TNO, Inst Anim Nutr & Meat Qual, ILOB, POB 15, NL-6700 AA Wageningen, The Netherlands
Poultry Sci 1996 **75** (10) 1236
Nutritional implications of pectins in chicks in relation to esterification and origin of pectins
- Magalhaes MMDA, Tosello RM, De Massaguer PR// Univ Fed Rio Grande Norte, Campus Univ, Dept Engrn Quim, BR-59072-970 Natal, RN, Brazil
J Food Process Eng 1996 **19** (3) 353
Thermal inactivation of pectinesterase in papaya pulp (pH 3.8)
- Mangos TJ, Haas MJ// USDA/ARS, Eastern Reg Res Ctr, 600 East Mermaid Lane, Wyndmoor, Pa 19038, USA
J Agr Food Chem 1996 **44** (10) 2977
Enzymatic determination of methanol with alcohol oxidase, peroxidase, and the chromogen 2,2'-azinobis(3-ethylbenzthiazoline-6-sulfonic acid) and its application to the determination of the methyl ester content of pectins
- Martel MB, Letoublon R*, Fevre M// *Univ Lyon 1, CNRS, UMR 106, Ctr Genet Mol & Cellulaire, Lab Biol Cellulaire Fond, Bat 405, F-69622 Villeurbanne, France
Curr Microbiol 1996 **33** (4) 243
Purification of endopolygalacturonases from *Sclerotinia sclerotiorum*: Multiplicity of the complex enzyme system
- Massiot P, Baron A, Drilleau JF// INRA, Station Rech Cidricoles, Biotransform Fruits & Legumes, BP 29, F-35650 Le Rheu, France
Carbohydr Polym 1996 **29** (4) 301
Effect of storage of apple on the enzymatic hydrolysis of cell wall polysaccharides
- ## 9 STARCH
- Aggarwal P, Dollimore D// Univ Toledo, Dept Chem, Toledo, Oh 43606, USA
Instrum Sci Technol 1996 **24** (4) 307
The use of the $\alpha_s\text{-}\alpha_r$ method to compare thermogravimetric data on corn starch and microcrystalline cellulose
- Aguilera JM, Rojas E// Pontificia Univ Catolica Chile, Dept Chem Engrn & Bioproc, POB 306, Santiago 22, Chile
J Food Sci 1996 **61** (5) 962
Rheological, thermal and microstructural properties of whey protein-cassava starch gels
- Alevisopoulos S, Kasapis S*, Abeysekera R// *Cranfield Univ, Silsoe Coll, Dept Food Res & Technol, Silsoe MK45 4DT, Beds, England
Carbohydr Res 1996 **293** (1) 79
Formation of kinetically trapped gels in the maltodextrin-gelatin system
- Alexander RJ// Starch Tech, Cedar Rapids, Ia, USA
Cereal Food World 1996 **41** (10) 796
New starches for food applications
- Andre G, Buleon A, Tran V, Vallee F, Juy M, Haser R// INRA, Lab Physicochim Macromolecules, BP 1627, F-44316 Nantes 03, France
Biopolymers 1996 **39** (5) 737
Amylose chain behavior in an interacting context. I. Influence of a nonchair ring on the maltose conformations
- Beleia A, Miller RA, Hosney RC// Univ Estadual Londrina, TAM, CCA, CP 6001, BR-86051 Londrina, PR, Brazil
Starch 1996 **48** (7-8) 259
Starch gelatinization in sugar solutions
- Bhatnagar S, Hanna MA*// *Univ Nebraska, Ind Agr Prod Ctr, Dept Food Sci & Technol, Lincoln, Ne 68583, USA
Cereal Chem 1996 **73** (5) 601
Starch-based plastic foams from various starch sources
- Botham RL, Morris VJ, Noel TR, Ring SG// Inst Food Res, Norwich Res Pk, Colney, Norwich NR4 7UA, England
Carbohydr Polym 1996 **29** (4) 347
A study on the *in vivo* digestibility of retrograded starch
- Chen CJ, Liao HJ, Okechukwu PE, Damodaran S, Rao MA*// *Cornell Univ, Dept Food Sci & Technol, Geneva, NY 14456, USA
J Texture Stud 1996 **27** (4) 419
Rheological properties of heated corn starch plus soybean 7S and 11S globulin dispersions
- Chinachoti P// Univ Massachusetts, Dept Food Sci, Amherst, Ma 01003, USA
J Therm Anal 1996 **47** (1) 195
Characterization of thermomechanical properties in starch and cereal products

- Dintzis FR, Berhow MA, Bagley EB, Wu YV, Felker FC// USDA/ARS, Natl Ctr Agr Utilizat Res, 1815 Nth Univ St, Peoria, IL 61604, USA
Cereal Chem 1996 **73** (5) 638
 Shear-thickening behavior and shear-induced structure in gently solubilized starches
- Dintzis FR, Fanta GF// Address as above
J Appl Polym Sci 1996 **62** (5) 749
 Effects of jet-cooking conditions upon intrinsic viscosity and flow properties of starches
- Dufresne A, Cavaille JY, Helbert W// Univ Grenoble 1, CNRS, CERMAV, BP 53, F-38041 Grenoble 9, France
Macromolecules 1996 **29** (23) 7624
 New nanocomposite materials: Microcrystalline starch reinforced thermoplastic
- Habernicht D, Austin E, Chan S, Christopher D, Herbert J, Johannes B, Joyce M, Kuester H, Munar M, Ono M *et al*// Address not available.
J Amer Soc Brew Chemist 1996 **54** (4) 242
 Soluble starch
- Hashem MM, Kesting W, Hebeish AA, Abou-Zeid NY, Schollmeyer E//
 *Deutsch Text Forschungszentrum, Frankenring 2, D-47798 Krefeld, Germany
Angew Makromol Chem 1996 **241** 149
 Characterization and application of poly(vinyl alcohol) starch composite as a sizing agent
- Jacobs H, Eerlingen RC, Delcour JA// Katholieke Univ Leuven, Food Chem Lab, Kardinaal Mercierlaan 92, B-3001 Heverlee, Belgium
Starch 1996 **48** (7-8) 266
 Factors affecting the visco-amylograph and rapid visco-analyzer evaluation of the impact of annealing on starch pasting properties
- Kema IP, Helmens HJ, Steeneken PAM// *Univ Groningen Hosp, Cent Lab Clin Chem, Groningen, The Netherlands
Starch 1996 **48** (7-8) 279
 Wet-milling/ammonia process for the manufacture of wheat starch and gluten
- Khalil MI, Farag S, El-Fattah SA// Natl Res Ctr, Text Res Div, Tahrir St, Cairo, Egypt
Starch 1996 **48** (7-8) 270
 Hydrolysis of poly(acrylamide): Starch graft copolymer
- Kollengode ANR, Bhatnagar S, Hanna MA// Univ Nebraska, Dept Food Sci & Technol, Lincoln, Ne 68583, USA
Cereal Chem 1996 **73** (5) 539
⁶⁰Co radiation effect on copolymers of starch and plastics
- Li S, Tang J, Chinachoti P// *Univ Massachusetts, Dept Food Sci, Amherst, Ma 01003, USA
J Polym Sci B-Polym Phys 1996 **34** (15) 2579
 Thermodynamics of starch-water systems: An analysis from solution-gel model on water sorption isotherms
- Liakopoulou-Kyriakides M, Karakatsanis A, Stamatooudis M// Aristotelian Univ Thessaloniki, Dept Chem Engr, GR-54006 Thessaloniki, Greece
Starch 1996 **48** (7-8) 291
 Enzymic hydrolysis of starch in agitated PEG-dextran aqueous two-phase system
- Liao HJ, Okechukwu PE, Damodaran S, Rao MA// *Cornell Univ, Dept Food Sci & Technol, Geneva, NY 14456, USA
J Texture Stud 1996 **27** (4) 403
 Rheological and calorimetric properties of heated corn starch-soybean protein isolate dispersions
- Lin PY, Czuchajowska Z// Washington State Univ, Dept Food Sci & Human Nutr, Pullman, Wa 99164, USA
Cereal Chem 1996 **73** (5) 551
 Starch damage in soft wheats of the Pacific Northwest
- Ma L, Grove A, Barbosa Canovas GV// Washington State Univ, Dept Biol Syst Engr, Pullman, Wa 99164, USA
J Food Sci 1996 **61** (5) 881
 Viscoelastic characterization of surimi gel: Effects of setting and starch
- Madhusudhan B, Gowda LR, Tharanathan RN// *Cent Food Technol Res Inst, Dept Biochem & Nutr, Mysore 570013, India
Food Chem 1996 **57** (2) 201
 Studies on sweet potatoes-III. Distribution of unit chains of branched and unbranched molecules of starch
- Madsen MH, Christensen DH// Danish Inst Plant & Soil Sci, Res Ctr Foulum, Dept Forage Crops & Potatoes, POB 21, DK-8830 Tjele, Denmark
Starch 1996 **48** (7-8) 245
 Changes in viscosity properties of potato starch during growth
- Manelius R, Bertoft E// *Abo Akad Univ, Dept Biochem & Pharm, POB 66, SF-20521 Turku, Finland
J Cereal Sci 1996 **24** (2) 139
 The effect of Ca²⁺-ions on the α -amylolysis of granular starches from oats and waxy-maize
- Marchisano C, Gennaro L, Sepe M, Masi P// *Univ Naples Federico II, Dipt Sci Alimenti, I-80055 Portici, Italy
J Therm Anal 1996 **47** (1) 181
 Characterizing *in situ* starch gelatinization: Thermal and dynamic mechanical analysis of durum wheat dough
- Mauro DJ// Cerestar US Inc, Ctr Applicat, Hammond, In, USA
Cereal Food World 1996 **41** (10) 776
 An update on starch
- Miladinov VD, Hanna MA// *Univ Nebraska, Ind Agr Prod Ctr, Lincoln, Ne 68583, USA
Ind Crops Products 1996 **5** (3) 183
 Apparent viscosity of co-extruded starch and xanthan gum
- Millar S, Robert P*, Devaux MF, Guy RCE, Maris P// *INRA, rue Geraudiere, BP 1627, F-44316 Nantes 03, France
Appl Spectrosc 1996 **50** (9) 1134
 Near-infrared spectroscopic measurements of structural changes in starch-containing extruded products
- Nakashima T, Matsuo M// *Nara Women's Univ, Dept Text & Apparel Sci, Nara 630, Japan
J Macromol Sci-Phys 1996 **B35** (3-4) 659
 Development of high-strength and high-modulus polyethylene-starch composite films and biodegradation of the composite films
- Naran R, Ebringerova A, Hormadkova Z, Babor K// Mongolian Acad Sci, Inst Chem, Ulaanbaatar 51, Mongol Peo Rep
Starch 1996 **48** (7-8) 255
 The starch component of the wood parasite *Cistanche deserticola* Y.C. Ma
- Navarro AS, Martino MN, Zaritzky NE// Natl Univ La Plata, CONICET, Ctr Invest & Desarrollo Croitecnol Alimentos, RA-1900 La Plata, Argentina
Food Sci Technol-Lebensm Wiss 1996 **29** (7) 632
 Modelling of rheological behaviour in starch-lipid systems
- Paterson L, Mitchell JR, Hill SE*, Blanshard JMV// *Univ Nottingham, Dept Appl Biochem & Food Sci, Sutton Bonington Campus, Nr Loughborough LE12 5RD, England
Carbohydr Res 1996 **292** 143
 Evidence for sulfite induced oxidative reductive depolymerisation of starch polysaccharides
- Sahal D, Jackson DS// *Univ Nebraska, Dept Food Sci & Technol, Cereal Oilseed Sci & Technol Lab, Lincoln, Ne 68583, USA
Starch 1996 **48** (7-8) 249
 Structural and chemical properties of native corn starch granules
- Shandera DL, Jackson DS// *Univ Nebraska, Dept Food Sci & Technol, Lincoln, Ne 68583, USA
Cereal Chem 1996 **73** (5) 632
 Effect of corn wet-milling conditions (sulfur dioxide, lactic acid, and steeping temperature) on starch functionality
- Tanaka Y, Tomioka K, Yoshiji M, Toyoshima H, Takano H// Seitoku Univ, Jr Coll Sect, 531 Sagamidai, Matsudo, Chiba 271, Japan
J Jpn Soc Food Sci Technol 1996 **43** (9) 1049
 Properties of starch from Shimatennansho *Arisaema negishii* Makino (Japanese, English Abstract)
- Thomas MJG, Parry ES, Nash SG, Bell SH// Army Blood Supply Depot, Ordinance Rd, Aldershot GU11 2AF, England
Transfus Sci 1996 **17** (3) 385
 A method for the cryopreservation of red blood cells using hydroxyethyl starch as a cryoprotectant
- Vodovotz Y, Chinachoti P// Univ Massachusetts, Dept Food Sci, Amherst, Ma 01003, USA
J Food Sci 1996 **61** (5) 932
 Thermal transitions in gelatinized wheat starch at different moisture contents by dynamic mechanical analysis
- Wing RE// Natl Ctr Agr Utilizat Res, 1815 Nth Univ St, Peoria, IL 61604, USA
Starch 1996 **48** (7-8) 275
 Starch citrate: Preparation and ion exchange properties
- Xue Q, Newman RK, Newman CW// Montana State Univ, Dept Plant Soil & Environm Sci, Bozeman, Mt 59717, USA
Cereal Chem 1996 **73** (5) 588
 Effects of heat treatment of barley starches on *in vitro* digestibility and glucose responses in rats
- Yasui T, Matsuki J, Sasaki T, Yamamori M// MAFF, Natl Agr Res Ctr, Tsukuba, Ibaraki 305, Japan
J Cereal Sci 1996 **24** (2) 131
 Amylose and lipid contents, amylopectin structure, and gelatinisation properties of waxy wheat (*Triticum aestivum*) starch
- Yoshimura M, Takaya T, Nishinari K// *Osaka City Univ, Dept Food & Nutr, Sumiyoshi ku, Osaka 558, Japan
J Agr Food Chem 1996 **44** (10) 2970

Effects of konjac-glucomannan on the gelatinization and retrogradation of corn starch as determined by rheology and differential scanning calorimetry

Yu JG, Gao JP*, Lin T// *Tianjin Univ, Dept Chem, Tianjin 300072, Peoples Rep China

J Appl Polym Sci 1996 **62** (9) 1491

Biodegradable thermoplastic starch

Yu XC, Houtman C, Atalla RH// Univ Wisconsin, Dept Chem Engr, 1415 Johnson Dr, Madison, WI 53706, USA

Carbohydr Res 1996 **292** 129

The complex of amylose and iodine

10 STARCH-DEGRADING ENZYMES

Brena BM, Pazos C, Franco-Fraguas L, Batista-Viera F// *Fac Quim Montevideo, Catedra Bioquim, CC 1157, Montevideo, Uruguay

J Chromatogr B-Biomed Appl 1996 **684** (1-2) 217

Chromatographic methods for amylases

Butz P, Fister H, Losch S, Tauscher B// Fed Res Ctr Nutr, Inst Chem & Biol, Engesserstr 20, D-76131 Karlsruhe, Germany

Food Biotechnol 1996 **10** (2) 93

Response of immobilized *Bacillus subtilis* α -amylase to high pressure treatment

Helbert W, Schulein M, Henrissat B// Kyoto Univ, Wood Res Inst, Uji, Kyoto 611, Japan

Int J Biol Macromol 1996 **19** (3) 165

Electron microscopic investigation of the diffusion of *Bacillus licheniformis* α -amylase into corn starch granules

Hizukuri S, Kozuma T, Yoshida H, Abe J, Takahashi K, Yamamoto M, Nakamura N// Kagoshima Univ, Fac Agr, Korimoto 1, Kagoshima 890, Japan

Starch 1996 **48** (7-8) 295

Properties of *Flavobacterium odoratum* KU isoamylase

Iefuji H, Chino M, Kato M, Iimura Y// Natl Res Inst Brewing, 3-7-1 Kagamiyama, Higashi-Hiroshima 739, Japan

Biochem J 1996 **318** (3) 989

Raw-starch-digesting and thermostable α -amylase from the yeast *Cryptococcus* sp. S-2: Purification, characterization, cloning and sequencing

Kilikian BV// EPUSP, Avda Prof Lineu Prestes 580, Bloco 20, BR-05508-900 Sao Paulo, Brazil

Rev Microbiol 1996 **27** (2) 137

Production of glucoamylase by fed-batch culture of *Aspergillus awamori* NRRL3112

Kobayashi M, Sasaki Y// Natl Food Res Inst, 2-1-2 Kannondai, Tsukuba, Ibaraki 305, Japan

Biosci Biotechnol Biochem 1996 **60** (10) 1646

Electrophoretic analysis of chemically modified taka-amylase A using a slab gel system with multiple lanes

Krishna C, Chandrasekaran M// *Cochin Univ Sci & Technol, Microbial Technol Unit, Cochin 682022, Kerala, India

Appl Microbiol Biotechnol 1996 **46** (2) 106

Banana waste as substrate for α -amylase production by *Bacillus subtilis* (CBTK 106) under solid state fermentation

Kroh LW, Schumacher D// Tech Univ Berlin, Inst Lebensmittelchem, Gustav Meyer Allee 35, D-13355 Berlin, Germany

Z Lebensmittel-Untersuch Fors 1996 **203** (4) 385

Studies on the degradation of Maillard-products by amylolytic enzymes. II. Enzymatic degradation of heat-treated α -glucans with and without amino compound (German, English Abstract)

Lecker DN, Khan A// *Penn State Univ, Dept Chem, Du Bois, Pa 15801, USA

Biotechnol Progr 1996 **12** (5) 713

Theoretical and experimental studies of the effects of heat, EDTA, and enzyme concentration on the inactivation rate of α -amylase from *Bacillus sp*

Lin LL, Tsau MR, Chu WS// Hung Kuang Inst Med & Nursing Technol, Dept Food Nutr, 34 Chungchie Rd, Shalu, Taichung, Taiwan

Biotechnol Appl Biochem 1996 **24** (2) 101

Purification and properties of a 140 kDa amylopullulanase from thermophilic and alkaliphilic *Bacillus sp* strain TS-23

Ludikhuyze L, De Cordt S, Weemaes C, Hendrickx M, Tobback P// Katholieke Univ Leuven, Dept Food & Microbiol Technol, B-3001 Heverlee, Belgium

Food Biotechnol 1996 **10** (2) 105

Kinetics for heat and pressure-temperature inactivation of *Bacillus subtilis* α -amylase

Mai HT, Furuyoshi S, Yamamoto S, Yagi T// *Kochi Univ, Dept Bioresource Sci, Nankoku, Kochi 783, Japan

Biosci Biotechnol Biochem 1996 **60** (10) 1717

Simple affinity purification method for raw starch-adsorbable and -digesting

amylases with a raw starch column

Monfort A, Blasco A, Prieto JA, Sanz P// *CSIC, Inst Agroquim & Tecnol Alimentos, Dept Biotecnol Alimentos, Apdo 73, E-46100, Burjassot, Valencia, Spain

Appl Environ Microbiol 1996 **62** (10) 3712

Combined expression of *Aspergillus nidulans* endoxylanase X24 and *Aspergillus oryzae* α -amylase in industrial baker's yeasts and their use in bread making

Nakatani H// Kyoto Univ, Fac Agr, Kyoto 606, Japan

Biopolymers 1996 **39** (5) 665

Monte Carlo simulation of multiple attack mechanism of α -amylase

Nebesny E, Pierzgalinski T, Brzezinski S// Tech Univ Lodz, Dept Food Technol, Stefanowski St 4-10, PL-90924 Lodz, Poland

Starch 1996 **48** (7-8) 263

Changes of carbohydrate composition during enzymatic hydrolysis of starch with mycolase participation

Okolo BN, Ezeogu LI, Ebisike CO// Univ Nigeria, Dept Microbiol, Nsukka, Nigeria

World J Microbiol Biotechnol 1996 **12** (6) 637

Raw starch digesting amylase from *Thermoactinomyces thalophilus* F13

Pallares J, Rodriguez S, Sanroman A// Univ Vigo, Dept Ingn Quim, Vigo, Spain

Afinidad 1996 **53** (465) 321

Determination of optimum conditions for immobilization of α -amylase on corn grits (Spanish, English Abstract)

Schumacher D, Hirsch D, Cammerer B, Kroh LW// *Tech Univ Berlin, Inst Lebensmittelchem, Gustav Meyer Allee 35, D-13355 Berlin, Germany

Z Lebensmittel-Untersuch Fors 1996 **203** (4) 391

Studies on the degradation of Maillard-products by amylolytic enzymes. III. Inhibition of glucoamylase, α -amylase, and α -glucosidase by heat-treated α -glucans and melanoidines (German, English Abstract)

Takahashi K, Abe J, Kozuma T, Yoshida M, Nakamura N, Hizukuri S// Nihon-shokuhin Kako Co, Res Inst, Tajima 30, Fuji, Shizuoka 417, Japan

Enzyme Microb Technol 1996 **19** (6) 456

Production and application of an isoamylase from *Flavobacterium odoratum*

11 POLYSACCHARIDES - MICROBIAL

Adam O, Riviere M*, Vercellone A, Monsan PF, Puzo G// *CNRS, Inst Pharmacol & Biol Struct, 118 Rte Narbonne, F-31062 Toulouse, France

Eur J Biochem 1996 **241** (2) 602

Complete NMR structural elucidation of the capsular polysaccharide adjuvant from *Klebsiella* I-714

Audet J, Lounes M, Thibault J// *Univ Laval, Dept Chem Engr, St Foy, Quebec, Canada G1K 7P4

Bioprocess Eng 1996 **15** (4) 209

Pullulan fermentation in a reciprocating plate bioreactor

Audet J, Thibault J*, Le Duy A// *Address as above

Biotechnol Bioeng 1996 **52** (4) 507

Polysaccharide concentration and molecular weight effects on the oxygen mass transfer in a reciprocating plate bioreactor

Bare W, Nordmeier E// *Univ Osnabruck, Dept Phys Chem, D-49069 Osnabruck, Germany

Polym J 1996 **28** (8) 712

Studies of polyelectrolyte solutions. VI. Effects of counterion binding by dextran sulfate and dextran phosphate in aqueous/organic solvents

Battersby J, Clark R, Hancock W, Puchulu-Campanella E, Haggarty N, Poll D, Harding D// Genentech Inc, Sth San Francisco, Ca 94080, USA

J Control Release 1996 **42** (2) 143

Sustained release of recombinant human growth hormone from dextran via hydrolysis of an imine bond

Berth G, Dautzenberg H*, Christensen BE, Rother G, Smidsrod O// MPI Colloid & Interface Res, Kantstr 55, D-14513 Teltow, Germany

Biopolymers 1996 **39** (5) 709

Physicochemical studies on xylinan (acetan). I. Characterization by gel permeation chromatography on sepharose CI-2B coupled with static light scattering and viscometry

Berth G, Dautzenberg H*, Christensen BE, Smidsrod O// Address as above

Biopolymers 1996 **39** (5) 721

Physicochemical studies on xylinan (acetan). II. Characterization by static light scattering

Bespalov AA, Elinov NP// St Petersburg Pharmaceut Chem Inst, St Petersburg, Russia

Mikol Fitopatol 1996 **30** (2) 20

The influence of carbohydrate additives on the growth and polysaccharide production by *Cryptococcus luteolus* (Saito) Skinner, strain 228 (Russian)

- De PS, Basu PS*// *Univ Burdwan Golapbag, Dept Bot, Burdwan 713104, West Bengal, India
Acta Biotechnol 1996 16 (2-3) 155
 Production of extracellular polysaccharides by a *Rhizobium* species from the root nodules of *Tephrosia purpurea* Pers
- De Beer D, O'Flaherty V, Thaveesri J, Lens P, Verstraete W// Max Planck Inst Marine Mikrobiol, Celsiusstr 1, D-28359 Bremen, Germany
Appl Microbiol Biotechnol 1996 46 (2) 197
 Distribution of extracellular polysaccharides and flotation of anaerobic sludge
- Evans BR, Lane LM, Margalit R, Hathaway GM, Ragauskas A, Woodward J// Oak Ridge National Lab, 4500 Nth Bethel Valley Rd, Oak Ridge, Tn 37831, USA
Enzyme Microb Technol 1996 19 (5) 367
 Comparison of the properties of native and penta-amminenruthenium(III)-modified xylanase
- Farina JJ, Sineriz F, Molina OE, Perotti NI// PROIMI, Avda Belgrano & Pje Caseros, RA-4000 S Miguel Tucuman, Argentina
Biotechnol Technique 1996 10 (9) 705
 Low-cost method for the preservation of *Sclerotium rolfsii* PROIMI F-6656: Inoculum standardization and its use in scleroglucan production
- Grobbe GJ, Smith MR, Sikkema J, De Bont JAM// Agr Univ Wageningen, Dept Food Sci, POB 8129, NL-6700 EV Wageningen, The Netherlands
Appl Microbiol Biotechnol 1996 46 (3) 279
 Influence of fructose and glucose on the production of exopolysaccharides and the activities of enzymes involved in the sugar metabolism and the synthesis of sugar nucleotides in *Lactobacillus delbrueckii* subsp *bulgaricus* NCFB 2772
- Gunning AP, Kirby AR, Ridout MJ, Brownsey GJ, Morris VJ*// *AFRC Inst Food Res, Norwich Lab, Norwich Res Pk, Norwich NR4 7UA, England
Macromolecules 1996 29 (21) 6791
 Investigation of gellan networks and gels by atomic force microscopy
- Harding SE, Berth G, Hartmann J, Jumel K, Colfen H// Univ Nottingham, Dept Appl Biochem & Food Sci, Sutton, LE12 5RD, England
Biopolymers 1996 39 (5) 729
 Physicochemical studies on xylinan (acetan). III. Hydrodynamic characterization by analytical ultracentrifugation and dynamic light scattering
- Hayashi K, Hayashi T, Kojima I// Toyama Med & Pharmaceut Univ, Dept Virol, 2630 Sugitani, Toyama 93001, Japan
AIDS Res Hum Retrovirus 1996 12 (15) 1463
 A natural sulfated polysaccharide, calcium spirulan, isolated from *Spirulina platensis*: In vitro and ex vivo evaluation of anti-Herpes simplex virus and anti-human immunodeficiency virus activities
- Karavayeva AV, Kashkina MA, Ogurtsov RP// St Petersburg Pharmaceut Chem Inst, St Petersburg, Russia
Mikol Fitopatol 1996 30 (2) 31
 Exoglycan of *Rhodotorula rubra* (Demme) Lodder 1889 as an immunomodulator (Russian)
- Karthikeyan RS, Rakshit SK, Baradarajan A*// *Indian Inst Technol, Dept Chem Engr, Biotechnol Res Ctr, Madras 600036, India
Bioprocess Eng 1996 15 (5) 247
 Optimization of batch fermentation conditions for dextran production
- Kim JH, Yoo SJ, Oh DK, Kwon YG, Park DW, Lee CH*, Gil GH// *Cheil Foods & Chem Inc, R&D Ctr, 522-1 Tokpyong ri, Kyonggi do 467810, South Korea
Enzyme Microb Technol 1996 19 (6) 440
 Selection of *Streptococcus equi* mutant and optimization of culture conditions for the production of high molecular weight hyaluronic acid
- Kim SY, Kim JH, Kim CJ, Oh DK*// *Woosuk Univ, Dept Food Sci & Technol, Chonju 565800, South Korea
Biotechnol Lett 1996 18 (10) 1161
 Metal adsorption of the polysaccharide produced from *Methylobacterium organophilum*
- Kuhner M, Sackmann E// Tech Univ Munich, Biophys Lab, D-85747 Garching, Germany
Langmuir 1996 12 (20) 4866
 Ultrathin hydrated dextran films grafted on glass: Preparation and characterization of structural viscous, and elastic properties by quantitative microinterferometry
- MacCormick CA, Harris JE, Jay AJ, Ridout MJ, Colquhoun IJ, Morris VJ// AFRC Inst Food Res, Dept Genet & Microbiol, Norwich Res Pk, Norwich NR4 7UA, England
J Appl Bacteriol 1996 81 (4) 419
 Isolation and characterization of a new extracellular polysaccharide from an *Acetobacter* species
- Mendoza CG, Pabo AP, Calonje M, Galan B, Novaes-Ledieu M// CSIC, Ctr Invest Biol, Velazquez 144, E-28006 Madrid, Spain
Curr Microbiol 1996 33 (4) 211
 Chemical and structural differences in cell wall polysaccharides of two monokaryotic strains and their resulting dikaryon of *Agaricus bisporus*
- Mocanu G, Constantin M, Carpov A*// *Petr Poni Inst Macromol Chem, Aleea Grigore Ghica Voda 41A, Iasi 6600, Romania
Angew Makromol Chem 1996 241 1
 Chemical reactions on polysaccharides. V. Reaction of mesyl chloride with pullulan
- Navarini L, Bella J, Flaibani A, Gilli R, Rizza V// Polytech Res Ctr Scarl, Area Sci Pk, Padriciano 99, I-34012 Trieste, Italy
Int J Biol Macromol 1996 19 (3) 157
 Structural characterization and solution properties of an acidic branched (1→3)-β-D-glucan from *Aureobasidium pullulans*
- Ning L, Mei Z, Yuan C// First Milit Med Univ, Res Lab Free Radical Med, Guangzhou, Peoples Rep China
Med Sci Res 1996 24 (9) 615
 Enhancement of the antioxidative potential of heart, liver, spleen and kidney cells and erythrocytes of mice by the polysaccharide krestin
- Ojinnaka C, Jay AJ, Colquhoun IJ, Brownsey GJ, Morris ER, Morris VJ*// *AFRC Inst Food Res, Norwich Lab, Norwich Res Pk, Norwich NR4 7UA, England
Int J Biol Macromol 1996 19 (3) 149
 Structure and conformation of acetan polysaccharide
- Park WB, Cheong JY, Jung WT// Seoul Women's Univ, Dept Chem, Seoul 139774, South Korea
Arch Pharm Research 1996 19 (5) 423
 Enhancement of water-solubilities of protein-bound polysaccharides contained in the basidiocarps of *Ganoderma lucidum* by hydrolyzing with chymotrypsin
- Parolis LAS, Duus JO, Parolis H*, Meldal M, Bock K// *Carlsberg Lab, Dept Chem, Gamle Carlsberg Vej 10, Valby 2500, Denmark
Carbohydr Res 1996 293 (1) 101
 The extracellular polysaccharide of *Pichia (Hansenula) holstii* NRRL Y-2448: The structure of the phosphomannan backbone
- Pirog TP// Natl Acad Sci Ukraine, Inst Microbiol & Virol, Zabolotny St 154, UA-252143 Kiev, Ukraine
Microbiology-Engl Tr 1996 65 (5) 560
 Effect of monovalent cations on the production of acylated exopolysaccharides by *Acinetobacter* sp
- Pirog TP// Address as above.
Microbiology-Engl Tr 1996 65 (5) 564
 Production of acylated exopolysaccharides in a batch culture of *Acinetobacter* sp
- Reh KD, Noll Borchers M, Buchholz K*// *Tech Univ Braunschweig, Inst Technol Kohlenhydrate, Langer Kamp 5, D-38106 Braunschweig, Germany
Enzyme Microb Technol 1996 19 (7) 518
 Productivity of immobilized dextranucrase for leucrose formation
- Robbins JB, Schneerson R, Anderson P, Smith DH// NIH/NICHHD, Dev & Mol Immun Lab, 9000 Rockville Pike, Bethesda, Md 20892, USA
J Am Med Assn 1996 276 (14) 1181
 Prevention of systemic infections, especially meningitis, caused by *Haemophilus influenzae* type b: Impact on public health and implications for other polysaccharide-based vaccines
- Rofe CJ, De Vargas L, Perez-Gonzalez J, Lambert RK, Callaghan PT*// *Massey Univ, Dept Phys, Palmerston North, New Zealand
J Rheol 1996 40 (6) 1115
 Nuclear magnetic resonance imaging of apparent slip effects in xanthan solutions
- Sanchez-Chaves M, Arranz F// CSIC, Inst Ciencia & Tecnol Polimeros, Juan Cierva 3, E-28006 Madrid, Spain
Polymer 1996 37 (19) 4403
 Synthesis of amidoxime-containing modified dextran
- Santucci E, Alhaque F*, Carafa M, Coviello T, Murtas E, Riccieri FM// *Univ Rome La Sapienza, Dipt Studi Chim & Tecnol Sost Biol Attive, Piazzale A Moro 5, I-00185 Rome, Italy
J Control Release 1996 42 (2) 157
 Gellan for the formulation of sustained delivery beads
- Sato K, Sakagami H, Nakamura K// Showa Univ, Sch Pharmaceut Sci, Shinagawa ku, 1-5-8 Hatanodai, Tokyo 142, Japan
Anticancer Res 1996 16 (5A) 2981
 Enhancement of radical intensity and cytotoxic activity of ascorbate by PSK and lignins
- Schule G, Ziegler T*// *Univ Stuttgart, Inst Organ Chem & Isotopenforsch, Pfaffenwaldring 55, D-70569 Stuttgart, Germany
Liebigs Annalen 1996 (10) 1599
 Synthesis via prearranged glycosides of a tetrasaccharide fragment related to the capsular polysaccharide of *Streptococcus pneumoniae* type 27
- Sedlack U, Nordmeier E// Univ Osnabruck, Barbarastr 7, D-49069 Osnabruck, Germany

- Acemannan, a β -(1,4)-acetylated mannan. induces nitric oxide production in macrophage cell line RAW 264.7.
- Robles MD, Niell FX, Mates JM// *Univ Malaga, Dept Biochem Mol Biol & Organ Chem, E-29071 Malaga, Spain
J Chromatogr Sci 1996 **34** (11) 517
Separation and determination of α - and β -galactose from agar-type polysaccharides by liquid chromatography
- Shimokawa T, Yoshida S*, Takeuchi T, Murata K, Ishii T, Kusakabe I// *Univ Tsukuba, Inst Appl Biochem, 1-1-1 Tennodai, Tsukuba, Ibaraki 305, Japan
Biosci Biotechnol Biochem 1996 **60** (9) 1532
Preparation of two series of oligo-guluronic acids from sodium alginate by acid hydrolysis and enzymatic degradation
- Silva RF// Imperial Holly Corp, Sugar Land, Tx 77478, USA
Cereal Food World 1996 **41** (10) 792
Use of inulin as a natural texture modifier
- Stotts NA, Salazar MJ, Wipke Tevis D, McAdoo E// Univ Calif San Francisco, Dept Physiol Nursing, Box 0610, San Francisco, Ca 94143, USA
Wounds-Compend Clin Res Pract 1996 **8** (5) 158
Accuracy of alginate molds for measuring wound volumes when prepared and stored under varying conditions
- Teleman A, Siikaaho M, Sorsa H, Buchert J, Perttula M, Hausalo T, Tenkanen M// Tech Res Ctr Finland, Chem Technol, POB 1401, FIN-02044 Espoo, Finland
Carbohydr Res 1996 **293** (1) 1
4-O-methyl- β -L-idopyranosyluronic acid linked to xylan from kraft pulp: Isolation procedure and characterisation by NMR spectroscopy
- Tun T, Inoue K*, Hayashi H, Aung T, Gu YJ, Doi R, Kaji H, Echigo Y, Wang WJ, Setoyama H, et al// *Kyoto Univ, Dept Surg 1, Sakyo ku, 54 Shogoin Kawaracho, Kyoto 60601, Japan
Cell Transplant 1996 **5** (5 Suppl 1) S59
A newly developed three-layer agarose microcapsule for a promising biohybrid artificial pancreas: Rat to mouse xenotransplantation
- Yeom CK, Jegal JG, Lee KH// Korea Res Inst Chem Technol, Div Adv Polymer, POB 107, Taejon 305606, South Korea
J Appl Polym Sci 1996 **62** (10) 1561
Characterization of relaxation phenomena and permeation behaviors in sodium alginate membrane during pervaporation separation of ethanol-water mixture
- Yoo JK, Seong GH, Chang HN*, Park JK// *Korea Adv Inst Sci & Technol, Bioproc Engrg Res Ctr, Daeduk Sci Town, Taejon 305701, South Korea
Enzyme Microb Technol 1996 **19** (6) 428
Encapsulation of *Lactobacillus casei* cells in liquid-core alginate capsules for lactic acid production
- Yoshii H, Furuta T, Maeda H, Mori H// Toyama Natl Coll Technol, Dept Biochem Engrg, Toyama 939, Japan
Biosci Biotechnol Biochem 1996 **60** (9) 1406
Hydrolysis kinetics of okara and characterization of its water-soluble polysaccharides
- Yoshizawa Y, Tsunehiro J, Nomura K, Itoh M, Fukui F, Ametani A, Kamimogawa S// Showa Sangyo Co Ltd, Ctr Res & Dev, 2-20-2 Hinode, Funabashi, Chiba 273, Japan
Biosci Biotechnol Biochem 1996 **60** (10) 1667
In vivo macrophage-stimulation activity of the enzyme-degraded water-soluble polysaccharide fraction from a marine alga (*Gracilaria verrucosa*)
- Zheng HH, Zhang QZ, Jiang K, Zhang HC, Wang JJ// Henan Normal Univ, Dept Chem, Xinxiang 453002, Henan, Peoples Rep China
J Chem Phys 1996 **105** (17) 7746
Critical behaviour of viscosity for alginate solutions near the gelation threshold induced by cupric ions
- 13 POLYSACCHARIDES - OTHER**
- Al-Assaf S, Meadows J, Phillips GO*, Williams PA// *Newtech Innovation Ctr, Croesnewydd Hall, Wrexham Technol Park, Wrexham LL13 7YP, Clwyd, Wales
Biorheology 1996 **33** (4-5) 319
The application of shear and extensional viscosity measurements to assess the potential of hylan in viscosupplementation
- Burns JW, Burgess L, Skinner K, Rose R, Colt MJ, Diamond MP// Genzyme Corp, Biomater & Surg Prod Res Dept, 1 Kendall Sq, Cambridge, Ma 02139, USA
Fert Steril 1996 **66** (5) 814
A hyaluronate based gel for the prevention of postsurgical adhesions: Evaluation in two animal species
- Caron JP, Kaneene JB, Miller R// Michigan State Univ, Dept Large Anim Clin Sci, East Lansing, Mi 48824, USA
J Amer Vet Med Assn 1996 **209** (9) 1564
Results of a survey of equine practitioners on the use and perceived efficacy of polysulfated glycosaminoglycan
- Dickinson E, Pawlowsky K// Univ Leeds, Procter Dept Food Sci, Leeds LS2 9JT, England
J Agr Food Chem 1996 **44** (10) 2992
Effect of high-pressure treatment of protein on the rheology of flocculated emulsions containing protein and polysaccharide
- Herslof Bjorling A, Sundelof LO, Porsch B, Valtcheva L, Hjerten S// Univ Uppsala, Ctr Biomed, POB 574, S-75123 Uppsala, Sweden
Langmuir 1996 **12** (20) 4628
Interaction between an anionic polysaccharide and an oppositely charged surfactant. Quasi elastic light scattering, size exclusion chromatography, and capillary electrophoresis study of the sodium hyaluronate tetradecyltrimethylammonium bromide sodium chloride water system
- Liedermann K, Lapcik L// Tech Univ, Dept Phys, CZ-61600 Brno, Czech Republic
Chem Pap-Chem Zvesti 1996 **50** (4) 218
Dielectric relaxation spectroscopy of some polysaccharides
- Mazzara GP, Briggs RW*, Wu Z, Steinbach BG// *Univ Florida, Dept Radiol, POB 100374, JH Miller Hlth Ctr, 1600 SW Archer Rd, Gainesville, FL 32606, USA
Magn Reson Imaging 1996 **14** (6) 639
Use of a modified polysaccharide gel in developing a realistic breast phantom for MRI
- Milas M, Roure I, Berry GC// *Carnegie Mellon Univ, Dept Chem, 4400 5th Ave, Pittsburgh, Pa 15213, USA
J Rheol 1996 **40** (6) 1155
Crossover behavior in the viscosity of semiflexible polymers: Solutions of sodium hyaluronate as a function of concentration, molecular weight, and temperature
- Nikitin IV// Russian Acad Sci, ND Zelinskii Organ Chem Inst, 47 Leninsky pr, Moscow 117913, Russia
Russ Chem Bull 1996 **45** (6) 1472
Conformations of polysaccharides in solution, gels, and crystals
- Pessoa A, Hartmann R, Vitolo M, Hustedt H// FAENQUIL, Dept Biotechnol, Rodovia Itajuba Lorena km 74-5, BR-12600-000 Lorena, SP, Brazil
J Biotechnol 1996 **51** (1) 89
Recovery of extracellular inulinase by expanded bed absorption
- Schwartzmann G, Sprinz E, Kalakun L, Yamagushi N, Sander E, Grivicich I, Koya R, Mans DRA// Hosp Clin Porto Alegre, Serv Oncol Clin, Sala 2030, Porto Alegre, RS, Brazil
Tumori 1996 **82** (4) 360
Phase II study of pentosan polysulfate (PPS) in patients with AIDS-related Kaposi's sarcoma
- Smriga M, Saito H, Shibata S, Narui T, Okuyama T, Nishiyama N// *Univ Tokyo, Dept Chem Pharmacol, Bunkyo ku, 7-3-1 Hongo, Tokyo 113, Japan
Pharmaceut Res 1996 **13** (9) 1322
PC-2, linear homoglucan with α -linkages, peripherally enhances the hippocampal long-term potentiation
- Sugahara K, Tanaka Y, Yamada S, Seno N, Kitagawa H, Haslam SM, Morris HR, Dell A// Kobe Pharmaceut Univ, Dept Biochem, Higashinada ku, Kobe 658, Japan
J Biol Chem 1996 **271** (43) 26745
Novel sulfated oligosaccharides containing 3-O-sulfated glucuronic acid from king crab cartilage chondroitin sulfate K: Unexpected degradation by chondroitinase ABC
- Tinawi M, Martin KJ, Bastani B// *St Louis Univ, Hlth Sci Ctr, Div Nephrol, 3635 Vista Ave, St Louis, Mo 63110, USA
Nephron 1996 **74** (2) 291
Oral iron absorption test in patients on CAPD: Comparison of ferrous sulfate and a polysaccharide ferric complex
- Tsuge H, Kishimoto H, Yonese M// Daiichi Pharmaceut Co Ltd, Pharmaceut Formulater Res Lab, Edogawa ku, 16-13 Kitakasai 1 chome, Tokyo 134, Japan
Colloid Polym Sci 1996 **274** (9) 819
Thermodynamic properties of dilation of chondroitin 4-sulfate having tetraalkyl-ammonium counterions
- Yonezawa Y, Sato T, Miyama T, Takami A, Umemura J, Takenaka T// Kyoto Univ, Div Mol Engrg, Kyoto 606, Japan
Surf Rev Letters 1996 **3** (1) 1109
Photoinduced formation of aggregated silver particles from silver salt of polysaccharide
- Zamora M, Strumia M*, Bertorello H// *Natl Univ Cordoba, Dept Quim Organ, Suc 16, CC 61, RA-5016 Cordoba, Argentina
Polym Bull 1996 **37** (4) 483
Preparation of new gels derived from poly(sucrose acrylate) with immobilized Cibacron Blue and their application in affinity chromatography

- Acemannan, a β -(1,4)-acetylated mannan, induces nitric oxide production in macrophage cell line RAW 264.7.
- Robles MD, Niell FX, Mates JM// *Univ Malaga, Dept Biochem Mol Biol & Organ Chem, E-29071 Malaga, Spain
J Chromatogr Sci 1996 **34** (11) 517
Separation and determination of α - and β -galactose from agar-type polysaccharides by liquid chromatography
- Shimokawa T, Yoshida S*, Takeuchi T, Murata K, Ishii T, Kusakabe I// *Univ Tsukuba, Inst Appl Biochem, 1-1-1 Tennodai, Tsukuba, Ibaraki 305, Japan
Biosci Biotechnol Biochem 1996 **60** (9) 1532
Preparation of two series of oligo-gulonic acids from sodium alginate by acid hydrolysis and enzymatic degradation
- Silva RF// Imperial Holly Corp, Sugar Land, Tx 77478, USA
Cereal Food World 1996 **41** (10) 792
Use of inulin as a natural texture modifier
- Stotts NA, Salazar MJ, Wipke Tevis D, McAdoo E// Univ Calif San Francisco, Dept Physiol Nursing, Box 0610, San Francisco, Ca 94143, USA
Wounds-Compend Clin Res Pract 1996 **8** (5) 158
Accuracy of alginate molds for measuring wound volumes when prepared and stored under varying conditions
- Teleman A, Siikaaho M, Sorsa H, Buchert J, Perttula M, Hausalo T, Tenkanen M// Tech Res Ctr Finland, Chem Technol, POB 1401, FIN-02044 Espoo, Finland
Carbohydr Res 1996 **293** (1) 1
4-O-methyl- β -L-idopyranosyluronic acid linked to xylan from kraft pulp: Isolation procedure and characterisation by NMR spectroscopy
- Tun T, Inoue K*, Hayashi H, Aung T, Gu YJ, Doi R, Kaji H, Echigo Y, Wang WJ, Setoyama H, et al// *Kyoto Univ, Dept Surg 1, Sakyo ku, 54 Shogoin Kawaracho, Kyoto 60601, Japan
Cell Transplant 1996 **5** (5 Suppl 1) S59
A newly developed three-layer agarose microcapsule for a promising biohybrid artificial pancreas: Rat to mouse xenotransplantation
- Yeom CK, Jegal JG, Lee KH// Korea Res Inst Chem Technol, Div Adv Polymer, POB 107, Taejeon 305606, South Korea
J Appl Polym Sci 1996 **62** (10) 1561
Characterization of relaxation phenomena and permeation behaviors in sodium alginate membrane during pervaporation separation of ethanol-water mixture
- Yoo IK, Seong GH, Chang HN*, Park JK// *Korea Adv Inst Sci & Technol, Bioproc Engn Res Ctr, Daeduk Sci Town, Taejeon 305701, South Korea
Enzyme Microb Technol 1996 **19** (6) 428
Encapsulation of *Lactobacillus casei* cells in liquid-core alginate capsules for lactic acid production
- Yoshii H, Furuta T, Maeda H, Mori H// Toyama Natl Coll Technol, Dept Biochem Engrg, Toyama 939, Japan
Biosci Biotechnol Biochem 1996 **60** (9) 1406
Hydrolysis kinetics of okara and characterization of its water-soluble polysaccharides
- Yoshizawa Y, Tsunehiro J, Nomura K, Itoh M, Fukui F, Ametani A, Kamimogawa S// Showa Sanyo Co Ltd, Ctr Res & Dev, 2-20-2 Hinode, Funabashi, Chiba 273, Japan
Biosci Biotechnol Biochem 1996 **60** (10) 1667
In vivo macrophage-stimulation activity of the enzyme-degraded water-soluble polysaccharide fraction from a marine alga (*Gracilaria verrucosa*)
- Zheng HH, Zhang QZ, Jiang K, Zhang HC, Wang JJ// Henan Normal Univ, Dept Chem, Xinxiang 453002, Henan, Peoples Rep China
J Chem Phys 1996 **105** (17) 7746
Critical behaviour of viscosity for alginate solutions near the gelation threshold induced by cupric ions
- Results of a survey of equine practitioners on the use and perceived efficacy of polysulfated glycosaminoglycan
- Dickinson E, Pawlowsky K// Univ Leeds, Procter Dept Food Sci, Leeds LS2 9JT, England
J Agr Food Chem 1996 **44** (10) 2992
Effect of high-pressure treatment of protein on the rheology of flocculated emulsions containing protein and polysaccharide
- Herslof Bjorling A, Sundelof LO, Porsch B, Valtcheva L, Hjerten S// Univ Uppsala, Ctr Biomed, POB 574, S-75123 Uppsala, Sweden
Langmuir 1996 **12** (20) 4628
Interaction between an anionic polysaccharide and an oppositely charged surfactant. Quasi elastic light scattering, size exclusion chromatography, and capillary electrophoresis study of the sodium hyaluronate tetradecyltrimethylammonium bromide sodium chloride water system
- Liedermann K, Lapcik L// Tech Univ, Dept Phys, CZ-61600 Brno, Czech Republic
Chem Pap-Chem Zvesti 1996 **50** (4) 218
Dielectric relaxation spectroscopy of some polysaccharides
- Mazzara GP, Briggs RW*, Wu Z, Steinbach BG// *Univ Florida, Dept Radiol, POB 100374, JH Miller Hlth Ctr, 1600 SW Archer Rd, Gainesville, FL 32606, USA
Magn Reson Imaging 1996 **14** (6) 639
Use of a modified polysaccharide gel in developing a realistic breast phantom for MRI
- Milas M, Roure I, Berry GC// *Carnegie Mellon Univ, Dept Chem, 4400 5th Ave, Pittsburgh, Pa 15213, USA
J Rheol 1996 **40** (6) 1155
Crossover behavior in the viscosity of semiflexible polymers: Solutions of sodium hyaluronate as a function of concentration, molecular weight, and temperature
- Nikitin IV// Russian Acad Sci, ND Zelinskii Organ Chem Inst, 47 Leninsky pr, Moscow 117913, Russia
Russ Chem Bull 1996 **45** (6) 1472
Conformations of polysaccharides in solution, gels, and crystals
- Pessoa A, Hartmann R, Vitolo M, Hustedt H// FAENQUIL, Dept Biotechnol, Rodovia Itajuba Lorena km 74-5, BR-12600-000 Lorena, SP, Brazil
J Biotechnol 1996 **51** (1) 89
Recovery of extracellular inulinase by expanded bed absorption
- Schwartzmann G, Sprinz E, Kalakun L, Yamagushi N, Sander E, Grivicich I, Koya R, Mans DRA// Hosp Clin Porto Alegre, Serv Oncol Clin, Sala 2030, Porto Alegre, RS, Brazil
Tumori 1996 **82** (4) 360
Phase II study of pentosan polysulfate (PPS) in patients with AIDS-related Kaposi's sarcoma
- Smriga M, Saito H, Shibata S, Narui T, Okuyama T, Nishiyama N// *Univ Tokyo, Dept Chem Pharmacol, Bunkyo ku, 7-3-1 Hongo, Tokyo 113, Japan
Pharmaceut Res 1996 **13** (9) 1322
PC-2, linear homoglycan with α -linkages, peripherally enhances the hippocampal long-term potentiation
- Sugahara K, Tanaka Y, Yamada S, Seno N, Kitagawa H, Haslam SM, Morris HR, Dell A// Kobe Pharmaceut Univ, Dept Biochem, Higashinada ku, Kobe 658, Japan
J Biol Chem 1996 **271** (43) 26745
Novel sulfated oligosaccharides containing 3-O-sulfated glucuronic acid from king crab cartilage chondroitin sulfate K: Unexpected degradation by chondroitinase ABC
- Tinawi M, Martin KJ, Bastani B// *St Louis Univ, Hlth Sci Ctr, Div Nephrol, 3635 Vista Ave, St Louis, Mo 63110, USA
Nephron 1996 **74** (2) 291
Oral iron absorption test in patients on CAPD: Comparison of ferrous sulfate and a polysaccharide ferric complex
- Tsuge H, Kishimoto H, Yonese M// Daiichi Pharmaceut Co Ltd, Pharmaceut Formulac Res Lab, Edogawa ku, 16-13 Kitakasai 1 chome, Tokyo 134, Japan
Colloid Polym Sci 1996 **274** (9) 819
Thermodynamic properties of dilation of chondroitin 4-sulfate having tetraalkylammonium counterions
- Yonezawa Y, Sato T, Miyama T, Takami A, Umemura J, Takenaka T// Kyoto Univ, Div Mol Engrg, Kyoto 606, Japan
Surf Rev Letters 1996 **3** (1) 1109
Photoinduced formation of aggregated silver particles from silver salt of polysaccharide
- Zamora M, Strumia M*, Bertorello H// *Natl Univ Cordoba, Dept Quim Organ, Suc 16, CC 61, RA-5016 Cordoba, Argentina
Polym Bull 1996 **37** (4) 483
Preparation of new gels derived from poly(sucrose acrylate) with immobilized Cibacron Blue and their application in affinity chromatography

13 POLYSACCHARIDES - OTHER

- Al-Assaf S, Meadows J, Phillips GO*, Williams PA// *Newtech Innovation Ctr, Croesnewydd Hall, Wrexham Technol Park, Wrexham LL13 7YP, Clwyd, Wales
Biorheology 1996 **33** (4-5) 319
The application of shear and extensional viscosity measurements to assess the potential of hylan in viscosupplementation
- Burns JW, Burgess L, Skinner K, Rose R, Colt MJ, Diamond MP// Genzyme Corp, Biomater & Surg Prod Res Dept, 1 Kendall Sq, Cambridge, Ma 02139, USA
Fert Steril 1996 **66** (5) 814
A hyaluronate based gel for the prevention of postsurgical adhesions: Evaluation in two animal species
- Caron JP, Kaneene JB, Miller R// Michigan State Univ, Dept Large Anim Clin Sci, East Lansing, Mi 48824, USA
J Amer Vet Med Assn 1996 **209** (9) 1564