

## CONTENTS

### PREFACE

|                                                    |      |
|----------------------------------------------------|------|
| V. Crescenzi, I. C. M. Dea and S. S. Stivala ..... | xiii |
|----------------------------------------------------|------|

### NEW BIOMASS POLYSACCHARIDES

#### IMPACT OF BIOTECHNOLOGY ON INDUSTRIAL POLYSACCHARIDES

|                      |   |
|----------------------|---|
| P. A. Sandford ..... | 1 |
|----------------------|---|

#### NEW BACTERIAL POLYSACCHARIDES

|                    |   |
|--------------------|---|
| M. E. Slodki ..... | 3 |
|--------------------|---|

#### STRUCTURE, PROPERTIES AND POTENTIAL APPLICATIONS OF *Sphagnum* HOLOCELLULOSE

|                                                                 |    |
|-----------------------------------------------------------------|----|
| K. Andresen, H. Grasdalen, K. Holsen and<br>T. J. Painter ..... | 15 |
|-----------------------------------------------------------------|----|

#### TAILORING OF YEAST $\beta$ -GLUCANS BY STRAIN SELECTION

|                                          |    |
|------------------------------------------|----|
| S. Jamas, C. Rha and A. J. Sinskey ..... | 35 |
|------------------------------------------|----|

#### PRODUCTION OF EXOPOLYSACCHARIDES BY FAST-GROWING RHIZOBIA AND AGROBACTERIA

|                               |    |
|-------------------------------|----|
| L. P. T. M. Zevenhuizen ..... | 45 |
|-------------------------------|----|

#### SOLUTION PROPERTIES OF TYPICAL MICROBIAL POLYSACCHARIDE POLYELECTROLYTES

|                                                |    |
|------------------------------------------------|----|
| V. Crescenzi, M. Dentini and T. Coviello ..... | 69 |
|------------------------------------------------|----|

**THERMOREVERSIBLE GELS OF THE CAPSULAR  
POLYSACCHARIDE FROM *Rhizobium trifolii*,  
STRAIN TA-1**

- A. Cesaro, S. Paoletti, F. Delben, S. Cavallo,  
V. Crescenzi and L. P. T. M. Zevenhuizen ..... 99

**THE MOLECULAR STRUCTURE OF THE CAPSULAR  
POLYSACCHARIDE FROM *Rhizobium Trifolii***

- R. Chandrasekaran, R. P. Millane, J. K. Walker,  
S. Arnott and I. C. M. Dea ..... 111

**POLYSACCHARIDE PRODUCTION BY A MARINE,  
FILM-FORMING BACTERIUM (*Pseudomonas* sp.  
NCMB 2021)**

- B. E. Christensen, H. Tromborg and O. Smidsrod ..... 119

**STRUCTURAL STUDIES OF *Rhizobium Trifolii*  
CAPSULAR POLYSACCHARIDE BY NMR SPECTROSCOPY**

- M. J. Gidley ..... 129

**SOLUTION PROPERTIES OF (1-6)-BETA-D-GLUCAN  
(PUSTULAN)**

- A. J. Stipanovic and P. J. Giammatteo ..... 139

**NEW DEXTRAN DERIVATIVES AND THEIR APPLICATIONS**

- M. Yalpani and D. E. Brooks ..... 145

**UNDERSTANDING AND OPTIMIZING POLYSACCHARIDE  
BIOMEDICAL PROPERTIES**

**STRUCTURE AND ANTITUMOR ACTIVITY OF  
POLYSACCHARIDES**

- Z. J. Witczak and R. L. Whistler ..... 157

**ROLE OF CHEMICALLY MODIFIED POLY-  
SACCHARIDES AS VACCINES**

- H. J. Jennings ..... 175

**TRENDS IN THE DEVELOPMENT OF OLIGO- AND POLYSACCHARIDES OF MEDICAL INTEREST**

- B. Casu ..... 189

**BENEFICIAL INTESTINAL EFFECTS OF NON-STARCH POLYSACCHARIDES**

- I. Furda ..... 195

**CRYSTAL AND MOLECULAR STRUCTURE OF POTASSIUM  $\beta$ -D-GLUCOSE 6-SULPHATE**

- D. Lamba, W. Mackie and B. Sheldrick ..... 203

**DIETARY FIBER STUDIES AT THE SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES—A PROGRESS REPORT**

- O. Theander ..... 211

**OAT BETA GLUCAN-POTENTIAL VALUE AS DIETARY FIBER**

- P. J. Wood, J. Weisz and P. Fedec ..... 215

**ADVANCED APPROACHES FOR POLYSACCHARIDE CHARACTERIZATION****CONFORMATIONAL ANALYSIS OF COMPLEX POLY-SACCHARIDES: PREDICTED SOLUTION BEHAVIOR OF SEVERAL *Klebsiella* EXTRACELLULAR POLY-SACCHARIDES**

- D. A. Brant and T. A. Talashek ..... 229

**VACUUM UV CIRCULAR DICHROISM**

- E. S. Stevens ..... 255

**RAMAN SPECTROSCOPIC STUDY OF STARCH RETROGRADATION**

- B. J. Bulkin, Y. Kwak and I. Dea ..... 267

**SMALL-ANGLE NEUTRON AND X-RAY SCATTERING**

- S. S. Stivala and A. Patel ..... 283

|                                                                                       |     |
|---------------------------------------------------------------------------------------|-----|
| <b>THEORETICAL APPROACH TO IONIC POLY-SACCHARIDE SOLUTIONS</b>                        |     |
| G. S. Manning and S. Paoletti .....                                                   | 305 |
| <b>XANTHAN-GALACTOMANNAN INTERACTIONS — A GPC STUDY</b>                               |     |
| N. W. H. Cheetham .....                                                               | 325 |
| <b>LIGHT SCATTERING OF CHITOSAN SAMPLES PREPARED BY ACID DEPOLYMERIZATION</b>         |     |
| A. Cosani and M. Terbojevich .....                                                    | 333 |
| <b>SMALL-ANGLE X-RAY SCATTERING OF REDUCED OXYHEPARINS</b>                            |     |
| B. A. Khorramian .....                                                                | 339 |
| <b>SALT INDUCED EXTENSION AND DISSOCIATION OF A NATIVE DOUBLE STRANDED XANTHAN</b>    |     |
| J. Lecourtier, G. Chauveteau and G. Muller .....                                      | 349 |
| <b>MOLECULAR WEIGHT DISTRIBUTION OF CARRAGEENANS</b>                                  |     |
| N. F. Stanley .....                                                                   | 357 |
| <b>HIGH RESOLUTION SOLID-STATE <sup>13</sup>C-NMR SPECTROSCOPY OF POLYSACCHARIDES</b> |     |
| G. Torri .....                                                                        | 361 |
| <b>UPGRADING PROPERTIES AND APPLICATIONS OF COMMON INDUSTRIAL POLYSACCHARIDES</b>     |     |
| <b>MIXED POLYSACCHARIDE SYSTEMS</b>                                                   |     |
| I. C. M. Dea .....                                                                    | 367 |
| <b>RECENT ADVANCES IN STARCH RETROGRADATION</b>                                       |     |
| L. Slade and H. Levine .....                                                          | 387 |
| <b>RHEOLOGY AND PROCESSING OF POLYSACCHARIDE SYSTEM</b>                               |     |
| E. E. R. Morris .....                                                                 | 431 |

IMPROVED MICROBIAL PRODUCTION OF CURDLAN-  
TYPE POLYSACCHARIDE

W. J. Orts, J. D. Rousseau and H. G. Lawford ..... 459

KINETICS OF FORMATION OF CALCIUM —  
ALGINATE GELS: A RHEOLOGICAL STUDYS. Paoletti, A. Cesaro, F. Delben, F. Zanetti and  
R. Lapasin ..... 471CONVERSION OF CARBOHYDRATES TO PHENOLS  
AND ENONES — WITH SPECIAL REFERENCE TO  
HUMIDIFICATION AND TO COLOUR FORMATION  
IN PULPING AND FOOD PROCESSES

O. Theander ..... 481

Program ..... 493

List of Workshop Participants ..... 495

Subject Index ..... 501

Author Index ..... 511