Introduction

Polysaccharides comprise a distinct class of biopolymers, produced universally among living organisms. They exhibit a large variety of unique and in most cases rather complex chemical structures, different physiological functions and a wide range of (potential) applications. This volume deals specifically with polysaccharides of prokaryotes, covering both Eubacteria and Archaea, whereas the accompanying Volume 6 deals with polysaccharides of eukaryotes.

After an introductory overview, the bacterial storage polysaccharide glycogen is subject of the second chapter. Subsequently, a wide range of bacterial extracellular polysaccharides with real or potential industrial interest is covered, treating in depth both, those produced by Gram-negative and those produced by Gram-positive bacteria. Included are bacterial alginates, alternan, bacterial cellulose, curdlan, dextran, exopolysaccharides of lactic acid bacteria, glycolipids, hyaluronan, poly-(1,4)-β-D-glucuronan, levan, the sphingan group of exopolysaccharides, surface active polysaccharides and xanthan. The volume concludes with chapters dealing with important, but different classes of bacterial and archaeal cell wall polysaccharides such as murein, pseudomurein and other cell wall polysaccharides from Archaea as well as teichoic acids and teichuronic acids.

In compiling this volume, it has been our intention to provide the scientific and industrial community with a comprehensive view of the current state of knowledge on polysaccharides of prokaryotes. In this respect, this volume attempts to review what is currently known about these fascinating bacterial (exo)polysaccharides, with respect to their discovery, occurrence among bacteria, chemical and physical properties, analysis, biosynthesis, molecular genetics, physiological role, fermentative production, isolation, purification and application. Every possible attempt has been made to collect the most recently published scientific data up to late 2001. A few bacterial polysaccharides could not be described in detail in this volume because we did not receive the manuscripts from the authors in due time. These missing chapters (e.g., on lipopolysaccharides and acetan) will be included in a supplementary volume to be published soon.

From the onset of this endeavor, it was obvious to us that the range of topics we wished to include virtually necessitated our drawing on the expertise of a considerable number of scientists. We were aware that by choosing a multi-author format we entailed risks that might have negative impact on the uniformity of the book and on the timetable for its completion. On the other hand, viewing this book in its totality, we believe that the overall quality and usefulness of its contents vindicates our decision to ask colleagues from all over the world to contribute to this volume. In this respect, their willingness to impart their knowledge to a
broad scientific public is gratefully acknowledged. The expertise, enthusiasm and the costly
time, which they devoted to their chapters, although all of them have many other obligations
and duties, is highly appreciated. The positive interaction with all the contributing authors
during the handling of their manuscripts has been invaluable in assembling this volume
within a surprisingly short time frame.

Last but not least, we would like to thank WILEY-VCH for publishing *Biopolymers* with
their customary professionalism and excellence and for their excellent help throughout the
gestation and birth of this volume. Special thanks are due to Karin Dembowsky and her
colleagues; without their constant effort the book could not have been published.

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