

BOOK REVIEW

Chemistry and Enzymology of Marine Algal Polysaccharides. E. PERCIVAL and R. H. MCDOWELL. Academic Press, New York and London, 1967. 219 pp. Price 60/-.

ALTHOUGH the economic value of seaweeds has been recognized by mankind for thousands of years, since about 3000 B.C. in China, it is only recently that there has been a major increase in their commercial utilization. The present demand for seaweed extractives, in particular polysaccharides, far exceeds supply and this rise in their importance has provided the stimulus for many scientific studies. This book written by two authors with considerable knowledge of the structure and utilization of algal polysaccharides, provides a thorough coverage of the work undertaken by biologists and chemists in many parts of the world.

Throughout the book, emphasis is on the structure of the numerous polysaccharides found in marine algae, six out of the nine chapters dealing with this subject, and to assist the reader a further chapter has been devoted to the methods currently employed in the determination of polysaccharide structure. In the introductory chapter, polysaccharides are considered in relation to algal classification and to their probable function within the living plant. In reviewing the literature on polysaccharide metabolism, the authors emphasize that very little is known of the precise functions of many of these compounds or of their relation to the metabolism of the low-molecular-weight carbohydrates. The technical problems encountered in working with marine algal tissues have made studies of algal enzymology exceedingly difficult. However, recent investigations on the role of nucleotides in the biosynthesis of alginic acid have proved successful, and are discussed.

The account of the chemical structure of the different polysaccharides follows the trend of present-day research, with certain polymers receiving considerably more attention than others. The six descriptive chapters are separated on the basis of the general chemical properties of the polysaccharides, dealing in turn with the neutral polymers including laminarin, starches and cellulose, the polyuronide alginic acid and the sulphated polysaccharides such as the galactans and fucoidin. The economic uses of alginic acid, its derivatives and the galactans agar and carrageenin are considered in relation to their physical and chemical properties. In a short chapter at the end of the book, algal polysaccharides are compared with those from other plant and animal sources.

The book is primarily intended for the biologist or chemist interested in phycology, but it should prove of general interest to carbohydrate chemists and plant physiologists, and to those workers involved in the development of industrial processes utilizing plant gums and mucilages. Although certain subjects, such as the industrial utilization of seaweed products have received only brief attention, the extensive references should guide the interested reader to the relevant reviews and original papers.

The general presentation of the book is excellent and few printing errors could be detected. Biological nomenclature appears accurate and up to date in most cases, but it is noted that the authors have introduced certain polysaccharide nomenclatural changes which have not yet been accepted in Britain, for example laminaran and fucoidan for laminarin and fucoidin, respectively.

C. S. JOHNSTON