

Book reviews

Carbohydrates as Organic Raw Materials II. Edited by G. Descotes, VCit Publisher, 1993. vi + 278 pp. Price £61.00. ISBN 3-527-3007-4 (VCH, Weinheim); ISBN 1-560817-703-8 (VCH, New York).

The field of various aspects in carbohydrates has seen many advances in the last few decades. The interest of using carbohydrates as organic raw materials is certainly not surprising considering the importance of carbohydrates in most aspects of our environment. It is only in the last few decades that the significance and application of carbohydrates in industry have been truly recognised. Carbohydrates have been identified for their role as structural materials and primary sources of food. Expansion of knowledge in carbohydrate chemistry provides better prospects for this renewable raw material to be utilised as a starting material in industry.

Due to great effort and interest in searching for new environmentally friendly products, the workshop on which this book is based was organised to provide another platform for the industrial community. Experts from academia and research institutions jointly contributed to discussions on exploiting various sources of carbohydrates as starting materials in various aspects of chemical, biochemical, pharmaceutical and food industries.

Basically the book is divided into two sections: 'Fine chemicals from carbohydrates: synthesis and methodologies' and 'Polymers, detergents and food additives derived from carbohydrates: preparations and applications'. The presentations in the first section give an insight into the syntheses and methodologies of value added products from abundantly renewable carbohydrates. The first paper in this part provides the readers with the whole scheme of possibility for utilising transition-metal catalysts for the homogenous hydrogenation of carbohydrate C–C bonds. The whole idea in this work is to design a catalyst system for the production of more complex, value-added compounds from the vast quantity of renewable organic raw materials. However, the second paper on 'Erythritol, a new sweetener' is merely a general account of this product instead of illustrating in detail the production and synthesis mechanisms of this polyol (which is stated as the main theme in the first section).

The following three papers are quite interesting in the way that the chemical reactions are sufficiently illustrated. The work on C-4 and C-5 chiral building blocks derived from carbohydrates exploited and readily avail-

able L-erythrose and L-ribulose; plus erythritol, ribitol and xylitol derived substrates as the starting materials for downstream processing. Another exploitation of carbohydrates as a source of raw materials is the utilisation of disaccharides particularly D-sucrose, D-lactose, D-maltose and D-isomaltulose. This paper describes some novel, practical, large-scale adaptable reaction channels from bulk disaccharides to versatile building blocks.

Reading through the second section of the book is more stimulating since coloured-graphic figures are presented in the paper on 'Sucrose derivatives as bleaching boosters'. The other papers mainly describe the production of surfactants from carbohydrates. The last paper is quite unique as it describes the application of carbohydrate derivatives as food additives by using twin-screw extruders.

Overall this book is a handy reference to the industrial community and researchers from both the academic and research institutions, particularly to those who are working with carbohydrates. It can be used as one of the mechanisms for promoting and consolidating research and development in the new and challenging area of the utilisation of carbohydrates as starting materials in various industries.

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Taste Chemistry. Edited by R.S. Shallenberger, Blackie Academic and Professional, London, 1993. xxiii + 613 pp. Price £125.00. ISBN 0-7514-0150-1.

Taste is the most easily accessible chemical structure-biological activity relationship, and taste chemistry studies, i.e. the chemistry of sweetness, saltiness, sourness and bitterness have applications in general biology, physiology and pharmacology. Taste is elicited by water soluble materials that interact with receptors on the tongue and in the oral cavity. Due to economic and other factors the majority of the scientific studies in this area are concerned with sweetness.

The aim of this volume is to examine, and elaborate on the meaning of the established premise that 'taste is a chemical sense'. Major effort is directed toward the degree to which chemical principles apply to phenomena associated with the inductive (recognition) phase of taste. Through this approach it is possible to describe the structure and properties of compounds with varying