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Analytical Chemistry of Carbohydrates

Heimo Scherz and Günther Bonn

Georg Thieme Verlag, Stuttgart 1998. 355 pp., 17.7 x 24.5 cm, hardcover, sFr. 158.– (ISBN 3-13-102351-1)

The interest in carbohydrates is given through their ubiquitous appearance in plants, microorganisms and animals. In terms of their quantity, they belong to the largest group of organic compounds on earth. Evidently, methods to identify and quantify those components are required and are evolving in parallel to technological and analytical progress. The importance of carbohydrates in food chemistry is eminent.

A monograph giving an overview in this widespread area is demanding and a challenge, but this book by Heimo Scherz and Günther Bonn from the German Research Institute of Food Chemistry (Garching) and the Institute of Analytical Chemistry and Radiochemistry (Innsbruck), respectively, has found an excellent approach to it.

This book is a volume of the Thieme Organic Chemistry Monograph Series and gives a concentrated and exhaustive overview of today's variety of analytical methods applied to carbohydrates. The volume is divided into four main chapters. The first describes on 80 pages the analytical methods applied without separation techniques. Detailed description of the classical methods, i.e. reduction, reactions with phenylhydrazine and related compounds, reagents which split α -glycolic linkages and reactions with acids are given and modern enzymatic methods are included so as polarimetry and electrochemical methods mentioned. The second and largest chapter deals with analytical methods using preceding separation techniques. On 200 pages paper and thin-layer chromatography, gas and high-pressure liquid chromatography, paper thin-layer and capillary electrophoresis are described in their application. The two last chapters are dedicated to polysaccharides and glycoproteins. On 29 pages the isolation, separation and identification of polysaccharides are discussed, whereas 10 pages are consecrated to the isolation of glycoproteins.

The presented book provides valuable information on the state-of-the-art in carbohydrate analysis. Modern techniques, i.e. enzymatic methods and capillary electrophoresis are also dealt with. Extensively given references allow deepening knowledge if required. Indicated especially for the practical application, many hints, information and comparisons are given.

H. Reinhard