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Book Review

Clinical and forensic applications of capillary electrophoresis

J.R. Petersen, A.A. Mohammad (Eds.); Humana Press Inc, New Jersey, USA, 2001, x + 453 pages, ISBN 0-896-03645-6, US$ 125.00

The capillary electrophoretic technique has progressed considerably since Hjerten first described it in the 1960s. Capillary electrophoresis (CE) is a highly versatile and sensitive method capable of operating in numerous modes, most commonly used ones include capillary zone electrophoresis (CZE), capillary gel electrophoresis (CGE), capillary isoelectric focusing (CIEF) and capillary isotachophoresis (CITP). Since it is a microtechnique it has the ability to conserve precious samples and the use of hazardous chemicals is limited. It is an inexpensive and practical method for clinical application and has potential for automation. *Clinical and forensic applications of capillary electrophoresis*, put together by a group of clinical investigators, is aimed at giving an overview of the current use of CE in the clinical laboratory.

The book is divided into six sections, the first of which containing a general overview, basic principles and modes of CE. It also gives the overall applications of CE in the clinical laboratory. Section 2 focuses upon the electrophoresis of proteins and includes the potential problems and solutions of applying CE in the separation of proteins. Chapters are devoted to how CE is used in the separation of serum proteins; detection of serum and urine paraproteins, separating cerebrospinal fluid proteins, lipoprotein and haemoglobin variants. Section 3 is composed of three chapters which cover the use of CE in separating abnormal small molecules such as amino acids, organic acids and steroids for detection of metabolic diseases.

Section 4 contains a single chapter on the use of CE in immunoassay. Section 5 describes potential future uses of CE in the clinical laboratory. It outlines how CE can be used to detect the quantitation of viral load, analyse PCR products for use in DNA typing and its combination with electrospray ionisation mass spectrometry. The final section details how CE can be used together with mass spectrometry, its potential use of applying CE in detecting metal ions and clinical and forensic toxicology.

In conclusion this highly innovative book gives an insight into the potential applications of various modes of CE in clinical and forensic laboratories. It can be used as a basis for developing new methods and improving current ones. The book would be of particular interests to forensics, biochemists, biotechnologists and generally all those interested in capillary electrophoresis. It contains numerous references at the end of each chapter.

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