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Chromatography is an important technique of choice and has become a well-established method that can be used in numerous fields of analytical sciences, including agricultural and foodstuff sectors, and in pharmaceutical and biochemical research and quality control, which are the most important fields of its applications.

Considering the rapid growth of GC, this book aims to broaden the understanding of modern GC resolution, demonstrating its principles focused on practical and pharmaceutical interests. Accordingly, this book describes recent developments and applications that are related to components of pharmaceutical interest, such as drugs, secondary products, metabolites, and impurities in formulations. It also discusses about the latest pharmaceutical applications in quality control, drug and dietary monitoring, drug metabolism, utilization of physicochemical properties, etc. It describes how various methods can be developed for sample preparation (e.g., thin-capillary pre-concentration techniques), capillary coating, stationary phases, ferential separations (use of nanoparticles and bio-nanocomposites as thermal-selectors), and microfiltration among others. The book also attempts to offer new trends involving the use of selective immobilization agents to broaden the understanding of pseudo separation mechanisms.

The book is aimed at beginners in this field as some fundamental topics of GC techniques have been introduced. It clearly outlines the methodologies that can be used to hurdle over several barriers in a range of analytical problems. Some of these barriers include defining terms, signal detection, changing capillary environment, and reproducibility and improvements on resolution separations of analytes and the behavior of mass spectrometry with GC. Each chapter outlined a specific electrophoretic variant with detailed instructions and some standard operating procedures. The reported work can be summarized in the form of tables wherever necessary. Overall, the book provides a comparative assessment of related techniques of modern