Densitometric Evaluation Of Stability Indicating Hptlc

This book provides a perspective on the current status of bioimaging technologies developed to assess the quality of musculoskeletal tissue with an emphasis on bone and cartilage. It offers evaluations of scaffold biomaterials developed for enhancing the repair of musculoskeletal tissues. These bioimaging techniques include micro-CT, nano-CT, pQCT/QCT, MRI, and ultrasound.

Handbook of Analytical Quality by Design addresses the steps involved in analytical method development and validation in an effort to avoid quality crises in later stages. The AQbD approach significantly enhances method performance and robustness which are crucial during inter-laboratory studies and also affect the analytical lifecycle of the developed method. Sections cover sample preparation problems and the usefulness of the QbD concept involving Quality Risk Management (QRM), Design of Experiments (DoE) and Multivariate (MVT) Statistical Approaches to solve by optimizing the developed method, along with validation for different techniques like HPLC, UPLC, UFLC, LC-MS and electrophoresis. This will be an ideal resource for graduate students and professionals working in the pharmaceutical industry, analytical chemistry, regulatory agencies, and those in related academic fields. Concise language for easy understanding of the novel and holistic concept Covers key aspects of analytical development and validation Provides a robust, flexible, operable range for an analytical method with greater excellence and regulatory compliance

The present edited book is the presentation of 18 in-depth national and international contributions from eminent professors, scientists and instrumental chemists from educational institutes, research organizations and industries providing their views on their experience, handling, observation and research outputs on HPTLC, a multi-dimensional instrumentation. The book describes the recent advancements made on TLC which have revolutionized and transformed it into a modern instrumental technique HPTLC. The book addresses different chapters on HPTLC fundamentals: principle, theory, understanding; instrumentation: implementation, optimization, validation, automation and qualitative and quantitative analysis; applications: phytochemical analysis, biomedical analysis, herbal drug quantification, analytical analysis, finger print analysis and potential for hyphenation: HPTLC future to combinatorial approach, HPTLC-MS, HPTLC-FTIR and HPTLC-Scanning Diode Laser. The chapters in the book have been designed in such away that the reader follows each step of the HPTLC in logical order.

In the field of Analytical Chemistry and, in particular, whenever a quali-quantitative analysis is required, until a few years ago, reference was made exclusively to instrumental methods (more or less hyphenated) which, once validated, were able to provide the answers to the questions present, even if only in a limited way to analytical targets. Nowadays, the landscape has become considerably complicated (natural adulterants, assessment of geographical origin, sophistication, need for non-destructive analysis, search for often unknown compounds), and new procedures for processing data have greatly increased the potential of analyses that are conducted (even routinely) in the laboratory. In this scenario, chemometrics is master, able to manage and process a huge amount of information based both on data relating only to the analytes of interest, but also by applying “general” procedures to process raw untargeted analysis data. It is within this strand of analysis that many of the works reported in this Special Issue fall. In the succession of works in this printed version, the criterion that guided us was to highlight how—starting exclusively from chromatographic techniques (HPLC and GC) with conventional detectors and moving to exclusively spectroscopic techniques (MS, FT-IR and Raman)—it is possible arrive at extremely powerful coupled techniques and procedures (HPLC and FT-IR) able to meet research needs. Finally, at the end of the printed volume, there are two reviews that surveying the state of the art regarding the assessment of authenticity through qualitative analyses and the application of chemometrics in the pharmaceutical field in the study of forced drug degradation products. From the succession of works (and, above all, from the various application fields) it can immediately be seen how the application of chemometrics and its procedures to both raw and processed data is a powerful means of obtaining robust, reproducible, and predictive information. In this manner, it is possible to create models able to explain and respond to the original problem in a much more detailed way. , and Honghe through Fourier transform mid infrared (FT-MIR) spectra combined with partial least squares discriminant analysis (PLS-DA), random forest (RF), and hierarchical cluster analysis (HCA) methods. Melucci and collaborators apply chemometric approaches to non-destructive analysis of ATR-FT-IR for the determination of biosilica content. This value was directly evaluated in sediment samples, without any chemical alteration, using attenuated total reflection Fourier transform infrared (ATR-FTIR) spectroscopy, and the quantification was performed by combining the multivariate standard addition method (MSAM) with the net analyte signal (NAS) procedure to solve the strong matrix effect of sediment samples. Still in the food and food supplements field, Anguebes-Franseschi and collaborators report an article where 10 chemometric models based on Raman spectroscopy were applied to predict the physicochemical properties of honey produced in the state of Campeche, Mexico.

For more than five decades, scientists and researchers have relied on the Advances in Chromatography series for the most up-to-date information on a wide range of developments in chromatographic methods and applications. For Volume 55, established, well-known chemists offer cutting-edge reviews of chromatographic methods to pay tribute to the late Eli Grushka, beloved series editor, who inspired and mentored many in the field of separation science. The clear presentation of topics and vivid illustrations for which this series has become known makes the material accessible and engaging to analytical, biochemical, organic, polymer, and pharmaceutical chemists at all levels of technical skill.

Volumes in this widely revered series present comprehensive reviews of drug substances and additional materials, with critical review chapters that summarize information related to the characterization of drug substances and excipients. This organizational structure meets the needs of the pharmaceutical community and allows for the development of a timely vehicle for publishing review materials on this topic. The scope of the Profiles series encompasses review articles and database compilations that fall within one of the following six broad categories: Physical profiles of drug substances and excipients; Analytical profiles of drug substances and excipients; Drug metabolism and pharmacokinetic profiles of drug substances and excipients; Methodology related to the characterization of drug substances and excipients; Methods of chemical synthesis; and Reviews of the uses and applications for individual drug substances, classes of drug substances, or excipients. Contributions from leading authorities Informs and updates on all the latest developments in the field

Perkembangan kromatografi dalam analisis obat-obatan sangat berkembang pesat dan penggunaannya paling luas. Kromatografi merupakan metode analisis yang sangat andal karena kromatografi dapat memainkan tiga peran sekaligus dan dalam waktu yang bersamaan, yaitu untuk pemisahan dan dalam banyak kasus untuk pemurnian, analisis kualitatif, dan untuk analisis kuantitatif. Kromatografi dapat dibedakan atas berbagai macam bergantung pada pengelompokannya. Berdasarkan mekanisme pemisahannya, kromatografi dibedakan menjadi kromatografi adsorbsi, kromatografi partisi, kromatografi penukar ion, dan kromatografi eksklusi ukuran. Sementara itu, bila didasarkan pada alat yang digunakan, kromatografi dapat dibedakan atas kromatografi kertas, kromatografi lapis tipis, kromatografi cair kinerja tinggi, dan kromatografi gas. Dalam buku ini dijelaskan secara mendalam bagaimana menganalisis obat menggunakan metode kromatografi. Selain itu, disertakan juga obat-obat yang akan dianalisis. Penyajian secara mendalam mengenai teori kromatografi dan pengaplikasian dalam menganalisis obat akan sangat membantu mahasiswa farmasi di bidang analisis obat ataupun analisis farmasi.

Analytical insight of materials provides a lucid pathway for further opportunities in the development of high-potential modified materials. The analytical assessment also enhances the probability of finding suitable materials for various applications. This book presents the latest advancements and applications of analytical chemistry in a systematic manner. It is an anthology of scientific findings and views of researchers from various research centers across the globe on emerging topics of instrumentation, energy, environment, biotechnology, and synthetic enhancement analysis techniques related to analytical chemistry. The volume contains twelve chapters containing discussion,

analogies, and graphics for a better understanding of the presented concepts.
The conventional solvents used in chemical, pharmaceutical, biomedical and separation processes represent a great challenge to green chemistry because of their toxicity and flammability. Since the beginning of “the 12 Principles of Green Chemistry” in 1998, a general effort has been made to replace conventional solvents with environmentally benign substitutes. Water has been the most popular choice so far, followed by ionic liquids, surfactant, supercritical fluids, fluorous solvents, liquid polymers, bio-solvents and switchable solvent systems. Green Solvents Volume I and II provides a throughout overview of the different types of solvents and discusses their extensive applications in fields such as extraction, organic synthesis, biocatalytic processes, production of fine chemicals, removal of hydrogen sulphide, biochemical transformations, composite material, energy storage devices and polymers. These volumes are written by leading international experts and cover all possible aspects of green solvents’ properties and applications available in today’s literature. Green Solvents Volume I and II is an invaluable guide to scientists, R&D industrial specialists, researchers, upper-level undergraduates and graduate students, Ph.D. scholars, college and university professors working in the field of chemistry and biochemistry.
A convenient source of information for workers in analytical chemistry, experimental biology, physics, and engineering, the Encyclopedia of Chromatography, Second Edition stands as a quick reference source and clear guide to specific chromatographic techniques and principles. The book offers a basic introduction to the science and technology of the method, as well as additional references on the theory and methodology for analysis of specific chemicals and applications in a range of industries. It contains over 400 cross-referenced articles with more than 80 entirely new articles, including many new discussions on emerging technologies, instrumentation, and applications in chromatography.
Adopting a practical approach, the authors provide a detailed interpretation of the existing regulations (GMP, ICH), while also discussing the appropriate calculations, parameters and tests. The book thus allows readers to validate the analysis of pharmaceutical compounds while complying with both the regulations as well as the industry demands for robustness and cost effectiveness. Following an introduction to the basic parameters and tests in pharmaceutical validation, including specificity, linearity, range, precision, accuracy, detection and quantitation limits, the text focuses on a life-cycle approach to validation and the integration of validation into the whole analytical quality assurance system. The whole is rounded off with a look at future trends. With its first-hand knowledge of the industry as well as regulating bodies, this is an invaluable reference for analytical chemists, the pharmaceutical industry, pharmaceutists, QA officers, and public authorities.
Thin layer chromatography (TLC) is increasingly used in the fields of plant chemistry, biochemistry, and molecular biology. Advantages such as speed, versatility, and low cost make it one of the leading techniques used for locating and analyzing bioactive components in plants. Thin Layer Chromatography in Phytochemistry is the first source devoted to supplying state-of-the-art information on TLC as it applies to the separation, identification, quantification, and isolation of medicinal plant components. Renowned scientists working with laboratories around the world demonstrate the applicability of TLC to a remarkable diversity of fields including plant genetics, drug discovery, nutraceuticals, and toxicology. Elucidates the role of plant materials in the pharmaceutical industry... Part I provides a practical review of techniques, relevant materials, and the particular demands for using TLC in phytochemical applications. The text explains how to determine the biological activity of metabolites and assess the effectiveness of herbal medicines and nutritional supplements. Part II concentrates on TLC methods used to analyze specific plant-based metabolite classes such as carbohydrates, proteins, alkaloids, flavonoids, terpenes, etc. Organized by compound type, each chapter discusses key topics such as sample preparation, plate development, zone detection, densitometry, and biodetection. Demonstrates practical methods that can be applied to a wide range of disciplines... From identification to commercial scale production and quality control, Thin Layer Chromatography in Phytochemistry is an essential bench-top companion and reference on using TLC for the study of plant-based bioactive compounds.
Used routinely in drug control laboratories, forensic laboratories, and as a research tool, thin layer chromatography (TLC) plays an important role in pharmaceutical drug analyses. It requires less complicated or expensive equipment than other techniques, and has the ability to be performed under field conditions. Filling the need for an up-to-date, complete reference, Thin Layer Chromatography in Drug Analysis covers the most important methods in pharmaceutical applications of TLC, namely, analysis of bulk drug material and pharmaceutical formulations, degradation studies, analysis of biological samples, optimization of the separation of drug classes, and lipophilicity estimation. The book is divided into two parts. Part I is devoted to general topics related to TLC in the context of drug analysis, including the chemical basis of TLC, sample pleparation, the optimization of layers and mobile phases, detection and quantification, analysis of ionic compounds, and separation and analysis of chiral substances. The text addresses the newest advances in TLC instrumentation, two-dimensional TLC, quantification by slit scanning densitometry and image analysis, statistical processing of data, and various detection and identification methods. It also describes the use of TLC for solving a key issue in the drug market—the presence of substandard and counterfeit pharmaceutical products. Part II provides an in-depth overview of a wide range of TLC applications for separation and analysis of particular drug groups. Each chapter contains an introduction about the structures and medicinal actions of the described substances and a literature review of their TLC analysis. A useful resource for chromatographers, pharmacists, analytical chemists, students, and R&D, clinical, and forensic laboratories, this book can be utilized as a manual, reference, and teaching source.
For several years, the food industry has been interested inidentifying components in foods which have health benefits to beused in the development of functional food and nutraceuticalproducts. Examples of these ingredients include fibre,phytosterols, peptides, proteins, isoflavones, saponins, phyticacid, probiotics, prebiotics and functional enzymes. Although muchprogress has been made in the identification, extraction andcharacterisation of these ingredients, there remains a need forready and near-market platform technologies for processing theseingredients into marketable value-added functional food andnutraceutical products. This book looks at how these ingredientscan be effectively incorporated into food systems for market, andprovides practical guidelines on how challenges in specific foodsectors (such as health claims and marketing) can be addressedduring processing. Nutraceutical and Functional Food Processing Technologyis a comprehensive overview of current and emerging trends in theformulation and manufacture of nutraceutical and functional foodproducts. It highlights the distinctions between foods falling intothe nutraceutical and functional food categories. Topics includesustainable and environmentally–friendly approaches to theproduction of health foods, guidelines and regulations, and methodsfor assessing safety and quality of nutraceutical and functionalfood products. Specific applications of nutraceuticals in emulsionand salad dressing food products, beverages and soft drinks, bakedgoods, cereals and extruded products, fermented food products arecovered, as are novel food proteins and peptides, and methods forencapsulated nutraceutical ingredients and packaging. The impact ofprocessing on the bioactivity of nutraceutical ingredients,allergen management and the processing of allergen-free foods,health claims and nutraceutical food product commercialization arealso discussed. Nutraceutical and Functional Food Processing Technologyis a comprehensive source of practical approaches that can be usedto innovate in the nutraceutical and health food sectors. Fullyup-to-date and relevant across various food sectors, the book willbenefit both academia and industry personnel working in the healthfood and food processing sectors.
Methods of Therapeutic Drug Monitoring Including Pharmacogenetics, Second Edition, Volume Seven in the Handbook of Analytical Separations series, covers all aspects of drug monitoring, including laboratory work, pharmacokinetic analysis and clinical aspects, thus enabling readers from different fields to understand the whole process of therapeutic drug monitoring and how to avoid common pitfalls. The book contains analytical techniques for the quantification of drugs, along with pharmacogenetic and pharmacogenomic methods. Also included are updates on sample preparation, including dried blood spot technology and microextraction methods. In addition, the book

includes new drugs, such as tyrosine kinase inhibitors and the monitoring of immunosuppressant drugs. Presents a unique, interdisciplinary approach that appeals to a wide range of users Written by authors from international labs, providing a global perspective that can be applied in various regulatory environments Features additional therapeutic drugs to reflect the rising number of immunocompromised patients Includes a new mass spectroscopic methods chapter to capture the frequent use in TDM and the improved availability of LC-MS across laboratories

Issues in Biological and Life Sciences Research: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Biological and Life Sciences Research. The editors have built Issues in Biological and Life Sciences Research: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Biological and Life Sciences Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Biological and Life Sciences Research: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Examining the implications and practical implementation of multi-disciplinary International Conference on Harmonization (ICH) topics, this book gives an integrated view of how the guidelines inform drug development strategic planning and decision-making. • Addresses a consistent need for interpretation, training, and implementation examples of ICH guidelines via case studies • Offers a primary reference point for practitioners addressing the dual challenge of interpretation and practical implementation of ICH guidelines • Uses case studies to help readers understand and apply ICH guidelines • Provides valuable insights into guidelines development, with chapters by authors involved in generating or with experience implementing the guidelines • Includes coverage of stability testing, analytical method validation, impurities, biotechnology drugs and products, and good manufacturing practice (GMP)

Biotechnology: Quality Assurance and Validation provides a practical, detailed discussion of what issues Quality Assurance and Quality Control need to identify for effective control in the preparation of biotechnology products. The book presents a series of topics that define some of the unique challenges facing biotechnology companies in producing biopharmaceutical products. The topics selected address quality and validation issues, starting with the cryopreservation of cell lines through the filling and finishing of the product. It includes a validation guide, a clear presentation of how to use filtration effectively, a synoptic view of cleaning procedures, and much more.

Profiles of Drug Substances, Excipients, and Related Methodology, Volume 44, presents comprehensive reviews of drug substances and additional materials, with critical review chapters that summarize information related to the characterization of drug substances and excipients. The series encompasses review articles, with this release focusing on Cefpodoxime proxetil, Levetiracetam, Paclitaxel, Sorafenib, Sucrose octaacetate, Thiouracil, Topiramate, Spectrophotometric analysis, and Cocrystal Systems of Pharmaceutical Interest: 2012-2014. Contains contributions from leading authorities Informs and updates on all the latest developments in the field of drug substances, excipients and methodologies

Phenolic compounds, one of the most widely distributed groups of secondary metabolites in plants, have received a lot of attention in the last few years since the consumption of vegetables and beverages with a high level of such compounds may reduce risks of the development of several diseases. This is partially due to their antioxidant power since other interactions with cell functions have been discovered. What's more, phenolic compounds are involved in many functions in plants, such as sensorial properties, structure, pollination, resistance to pests and predators, germination, processes of seed, development, and reproduction. Phenolic compounds can be classified in different ways, ranging from simple molecules to highly polymerized compounds. Phenolic Compounds in Food: Characterization and Analysis deals with all aspects of phenolic compounds in food. In five sections, the 21 chapters of this book address the classification and occurrence of phenolic compounds in nature and foodstuffs; discuss all major aspects of analysis of phenolic compounds in foods, such as extraction, clean-up, separation, and detection; detail specific analysis methods of a number of classes of phenolic compounds, from simple molecules to complex compounds; describe the antioxidant power of phenolic compounds; and discuss specific analysis methods in different foodstuffs.

This title is intended to assist pharmaceutical scientists in the development of stable protein formulations during the early stages of the product development process, providing a comprehensive review of mechanisms and causes of protein instability in formulation development, coverage of accelerated stability testing methods and relevant analytica

In the current era of incessant developing needs for the betterment and ease in living style for humans, technology is seeking upgraded, well structured materials for utilization in various fields of human-wellness such as medication, energy, environment protection and cleaning, food security etc. In the same direction, chemists are doing very well at synthesizing compounds and materials from different groups of chemicals. Among them, coordination compounds also play a key role in serving humanity as these compounds have a wide range of applications in health care from antimicrobial to anticancer, bioengineering, bio-mimetic models, catalysis, photosensitized materials etc. Along with development of stable coordination compounds, their extensive structural studies are also in the main line of work for researchers. Twenty-nine authors from different countries have contributed their scientific views and work in magnifying the importance and scope of coordination compounds in the present book entitled "Stability and Applications of Coordination Compounds". I hope that the book will achieve its target of supplementing the community of researchers and readers working in the field of coordination chemistry.

Thin Layer Chromatography in Drug AnalysisCRC Press

Provides chemists with an in-depth account of chromatographic phenomena and a detailed reference guide to the various choices in optimizing chromatographic separations of enantiomers. Clarifies how thin-layer chromatography differs from, but can be used as a pilot procedure for, high-performance liq

HPLC for Pharmaceutical Scientists is an excellent book for both novice and experienced pharmaceutical chemists who regularly use HPLC as an analytical tool to solve challenging problems in the pharmaceutical industry. It provides a unified approach to HPLC with an equal and balanced treatment of the theory and practice of HPLC in the pharmaceutical industry. In-depth discussion of retention processes, modern HPLC separation theory, properties of stationary phases and columns are well blended with the practical aspects of fast and effective method development and method validation. Practical and pragmatic approaches

and actual examples of effective development of selective and rugged HPLC methods from a physico-chemical point of view are provided. This book elucidates the role of HPLC throughout the entire drug development process from drug candidate inception to marketed drug product and gives detailed specifics of HPLC application in each stage of drug development. The latest advancements and trends in hyphenated and specialized HPLC techniques (LC-MS, LC-NMR, Preparative HPLC, High temperature HPLC, high pressure liquid chromatography) are also discussed.

This book is an indispensable tool for anyone involved in the research, development, or manufacture of new or existing vaccines. It describes a wide array of analytical and quality control technologies for the diverse vaccine modalities. Topics covered include the application of both classical and modern bio-analytical tools; procedures to assure safety and control of cross contamination; consistent biological transition of vaccines from the research laboratory to manufacturing scale; whole infectious attenuated organisms, such as live-attenuated and inactivated whole-cell bacterial vaccines and antiviral vaccines using attenuated or inactivated viruses; principles of viral inactivation and the application of these principles to vaccine development; recombinant DNA approaches to produce modern prophylactic vaccines; bacterial subunit, polysaccharide and glycoconjugate vaccines; combination vaccines that contain multiple antigens as well as regulatory requirements and the hurdles of licensure.

Updated and revised throughout. Second Edition explores the chromatographic methods used for the measurement of drugs, impurities, and excipients in pharmaceutical preparations--such as tablets, ointments, and injectables. Contains a 148-page table listing the chromatographic data of over 1300 drugs and related substances--including sample matrix analyzed, sample handling procedures, column packings, mobile phase, mode of detection, and more.

This handbook is the first to cover all aspects of stability testing in pharmaceutical development. Written by a group of international experts, the book presents a scientific understanding of regulations and balances methodologies and best practices.

The USP-NF is a combination of two official compendia, the United States Pharmacopeia (USP) and the National Formulary (NF). It contains standards for medicines, dosage forms, drug substances, excipients, biologics, compounded preparations, medical devices, dietary supplements, and other therapeutics. USP-NF standards are enforceable by the U.S. Food and Drug Administration for medicines manufactured and marketed in the United States. Learn more about USP-NF. Highlights & Features: * More than 4,500 monographs with specifications for identity, strength, quality, purity, packaging, and labeling for substances and dosage forms. View a sample USP-NF monograph (100KB). * Over 230 General Chapters providing clear, step-by-step guidance for assays, tests, and procedures * Focus-specific charts and a combined index helps you find the information you need * Helpful sections on reagents, indicators, and solutions, plus reference tables * Published annually in an official English edition (print, CD, and new USB flash drive formats) and an official Spanish edition (print).