

Preface

Thin-layer chromatography is without doubt one of the most versatile and widely used separation methods in chromatography. The concept of TLC is simple and samples usually require only minimal pretreatment. It has been frequently used in pharmaceutical analysis, clinical analysis, industrial chemistry, environmental toxicology, food chemistry, pesticide analysis, dye purity, cosmetics, plant materials, and herbal analysis. The previous image of TLC regarding low sensitivity, poor resolution, and reproducibility made it stagnant and forgotten technique few years back. Now, it is the most used chromatographic technique and likely to remain so for times to come.

Today, most stages of this technique are automated and operated instrumentally in the form of modern high-performance thin-layer chromatographic system that allows the handling of a large number of samples in one chromatographic run. Speed of separation, high sensitivity, and good reproducibility result from the higher quality of chromatographic layers and the continual improvement in instrumentation. It is now capable of handling samples with minimal pretreatment, detecting components at low nanogram sensitivities and with relative standard deviations of about 1%. HPTLC is now truly a modern contemporary of HPLC and GC and continues to be an active and versatile technique in research with large number of publications appearing each year.

This 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 this multidimensional instrumentation. The book describes the recent advancements made in 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 of HPTLC separation with special reference to phytochemical analysis, biomedical analysis, herbal drug quantification, analytical analysis, finger print analysis; and HPTLC future to combinatorial approach, potential for hyphenation, HPTLC–MS, HPTLC–FTIR, and HPTLC–scanning diode laser. The chapters in the book have

been designed in such a way that the reader follows each step of the HPTLC in logical order.

Our greatest ambition for editing this book has been to familiarize and popularize the theoretical and practical aspects of working and applications of a recent, modified, versatile analytical instrument HPTLC system among students, researchers, academicians, analysts, and chemists involved in various areas of research. We wish to place on record our appreciation to Prof. VG Das, Esteemed Director, Prof. LD Khemani, Head, Department of Chemistry, Prof. Satya Prakash, Professor Emeritus, Dayalbagh Educational Institute, Dayalbagh, Agra, and all the contributors for their cooperation and encouragement extended to me. Without their enthusiasm and timely submission of their articles, this work would have not been possible. Although the bulk of material is original and/or taken from sources that the authors have been directly involved with, every effort has been made to acknowledge materials drawn from other sources.

Editor trusts that his apology will be accepted for any error, omission, and editing mistake in the manuscripts.

Agra, India

ManMohan Srivastava

High-Performance Thin-Layer Chromatography (HPTLC)

Srivastava, M. (Ed.)

2011, XV, 397 p., Hardcover

ISBN: 978-3-642-14024-2