

# Contents

## Part I Introduction

- 1 An Overview of HPTLC: A Modern Analytical Technique with Excellent Potential for Automation, Optimization, Hyphenation, and Multidimensional Applications** ..... 3  
MM. Srivastava

## Part II Fundamentals, Principle and Advantages of HPTLC

- 2 Fundamentals and Theory of HPTLC-Based Separation** ..... 27  
Prasad S. Variyar, Suchandra Chatterjee, and Arun Sharma
- 3 Experimental Aspects and Implementation of HPTLC** ..... 41  
Rashmin B. Patel, Mrunali R. Patel, and Bharat G. Batel
- 4 High-Performance Thin-Layer Chromatography: Excellent Automation** ..... 55  
Dilip Charegaonkar

## Part III Applications of HPTLC Separation

- 5 Multidimensional and Multimodal Separations by HPTLC in Phytochemistry** ..... 69  
Lukasz Ciesla and Monika Waksmundzka-Hajnos
- 6 Stability-Indicating HPTLC Determination of Imatinib Mesylate in Bulk Drug and Pharmaceutical Dosage** ..... 93  
P. Musmade, N. Vadera, and G. Subramanian
- 7 HPTLC Fingerprint Analysis: A Quality Control for Authentication of Herbal Phytochemicals** ..... 105  
Mauji Ram, M.Z. Abdin, M.A. Khan, and Prabhakar Jha

|                                                               |                                                                                                                                                        |            |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>8</b>                                                      | <b>HPTLC in Herbal Drug Quantification</b> .....                                                                                                       | <b>117</b> |
|                                                               | Machindra J. Chavan, Pravin S. Wakte, and Devanand B. Shinde                                                                                           |            |
| <b>9</b>                                                      | <b>HPTLC Determination of Artemisinin and Its Derivatives<br/>in Bulk and Pharmaceutical Dosage</b> .....                                              | <b>141</b> |
|                                                               | Suraj P. Agarwal and Shipra Ahuja                                                                                                                      |            |
| <b>10</b>                                                     | <b>TLC/HPTLC in Biomedical Applications</b> .....                                                                                                      | <b>151</b> |
|                                                               | A. Mohammad and A. Moheman                                                                                                                             |            |
| <b>11</b>                                                     | <b>Analytical Aspects of High Performance Thin Layer<br/>Chromatography</b> .....                                                                      | <b>179</b> |
|                                                               | Gunawan Indrayanto                                                                                                                                     |            |
| <b>12</b>                                                     | <b>Quantitative Analysis and Validation of Method<br/>Using HPTLC</b> .....                                                                            | <b>203</b> |
|                                                               | Pinakin Dhandhukia and Janki N. Thakker                                                                                                                |            |
| <b>13</b>                                                     | <b>Quantification of Low Molecular Mass Compounds<br/>Using Thermostated Planar Chromatography</b> .....                                               | <b>223</b> |
|                                                               | Paweł K. Zarzycki                                                                                                                                      |            |
| <b>Part IV HPTLC and its Future to Combinatorial Approach</b> |                                                                                                                                                        |            |
| <b>14</b>                                                     | <b>Basic Principles of Planar Chromatography and Its Potential<br/>for Hyphenated Techniques</b> .....                                                 | <b>247</b> |
|                                                               | Tomasz Tuzimski                                                                                                                                        |            |
| <b>15</b>                                                     | <b>HPTLC–MS Coupling: New Dimension of HPTLC</b> .....                                                                                                 | <b>311</b> |
|                                                               | Ajai Prakash Gupta and Suphla Gupta                                                                                                                    |            |
| <b>16</b>                                                     | <b>TLC/HPTLC with Direct Mass Spectrometric Detection:<br/>A Review of the Progress Achieved in the Last 5 Years</b> .....                             | <b>335</b> |
|                                                               | Jurgen Schiller, Beate Fuchs, Kristin Teuber, Ariane Nimptsch,<br>Kathrin Nimptsch, and Rosmarie Süß                                                   |            |
| <b>17</b>                                                     | <b>Scanning Diode Laser Desorption Thin-Layer Chromatography<br/>Coupled with Atmospheric Pressure Chemical Ionization Mass<br/>Spectrometry</b> ..... | <b>365</b> |
|                                                               | Song Peng, Norman Ahlmann, Michael Edler, and Joachim Franzke                                                                                          |            |
| <b>18</b>                                                     | <b>HPTLC Hyphenated with FTIR: Principles, Instrumentation<br/>and Qualitative Analysis and Quantitation</b> .....                                     | <b>385</b> |
|                                                               | Claudia Cimpoi                                                                                                                                         |            |
|                                                               | <b>Index</b> .....                                                                                                                                     | <b>395</b> |