

# Contents

Preface	vii	<b>11 Supercritical Fluid Extraction</b>	<b>191</b>
Contributors	ix	<i>Jeremy J. Kroon and Douglas E. Raynie</i>	
<b>Part I Fundamental Extraction Techniques</b>	<b>1</b>	<b>12 Microwave-Assisted Extraction</b>	<b>197</b>
<b>1 Theory of Extraction</b>	<b>3</b>	<i>J.R. Jocelyn Paré and Jacqueline M.R. Bélanger</i>	
<i>Janusz Pawliszyn</i>		<b>13 Chemical Derivatizations in Analytical Extractions</b>	<b>225</b>
<b>2 Headspace Gas Chromatography</b>	<b>25</b>	<i>Jack Rosenfeld</i>	
<i>Zelda E. Penton</i>		<b>Part II Application Considerations</b>	<b>247</b>
<b>3 Liquid-Liquid Extraction in Environmental Analysis</b>	<b>39</b>	<b>14 Sample Preparation Techniques for Environmental Organic Pollutant Analysis</b>	<b>249</b>
<i>Toh Ming Hii and Hian Kee Lee</i>		<i>Ray E. Clement and Chunyan Hao</i>	
<b>4 Solid-Phase Extraction</b>	<b>53</b>	<b>15 Sample Preparation for the Study of Flavor Compounds in Food</b>	<b>267</b>
<i>Ronald E. Majors</i>		<i>Henryk H. Jeleń</i>	
<b>5 Solid-Phase Microextraction</b>	<b>81</b>	<b>16 Sampling and Sample Preparation for Clinical and Pharmaceutical Analysis</b>	<b>285</b>
<i>Sanja Risticvic, Dajana Vuckovic, and Janusz Pawliszyn</i>		<i>Hiroyuki Kataoka, Keita Saito, and Atsushi Yokoyama</i>	
<b>6 Microdialysis Sampling as a Sample Preparation Method</b>	<b>103</b>	<b>17 Statistics of Sampling and Sample Preparation</b>	<b>313</b>
<i>Pradyot Nandi and Susan M. Lunte</i>		<i>Byron Kratochvil</i>	
<b>7 Liquid-Phase Microextraction (LPME) Utilizing Porous Hollow Fibers</b>	<b>125</b>	<b>18 SPME Devices Integrating Sampling with Sample Preparation for On-Site Analysis</b>	<b>325</b>
<i>Stig Pedersen-Bjergaard, Knut Einar Rasmussen, and Jan Åke Jönsson</i>		<i>Gangfeng Ouyang</i>	
<b>8 Sample Preparation in Membrane Introduction Mass Spectrometry</b>	<b>149</b>	<b>Part III Recent Developments</b>	<b>341</b>
<i>Raimo A. Ketola, Tapio Kotiaho, and Frants R. Lauritsen</i>		<b>19 Developments in the Use of Passive Sampling Devices for Monitoring Pollutants in Water</b>	<b>343</b>
<b>9 Pressurized Fluid Extraction</b>	<b>163</b>	<i>Graham A. Mills, Rocío Aguilar-Martínez, Richard Greenwood, Ian J. Allan, Janine Brümmer, Jesper Knutsson, and Branislav Vrana</i>	
<i>John R. Dean and Renli Ma</i>			
<b>10 Superheated Water Extraction</b>	<b>181</b>		
<i>Roger M. Smith</i>			

<b>20 Solid-Phase Microextraction for Drug Analysis</b>	<b>365</b>	<b>23 The Use of Molecularly Imprinted Polymers for Sampling and Sample Preparation</b>	<b>445</b>
<i>Heather L. Lord</i>		<i>Börje Sellergren and Antonio Martin Esteban</i>	
<b>21 Sample Handling Protocols for Biosensor Applications</b>	<b>385</b>	Index	475
<i>Andrew Chan, Teresa Artuso, and Ulrich J. Krull</i>			
<b>22 Sol-Gel Coatings and Monoliths in Analytical Sample Preparation</b>	<b>419</b>		
<i>Scott Segro and Abdul Malik</i>			

11	Supercritical Fluid Extraction	vii	Preface
	<i>Jens J. Krukowski and Douglas S. Hader</i>	ix	Contributors
12	Microwave-Assisted Extraction	1	Part I Fundamental Extraction Techniques
	<i>A.R. Jochen Paré and Jacqueline M.R. Héroguez</i>	3	1 Theory of Extraction
13	Chemical Derivations in Analytical Extraction	3	<i>Josmar Pawliger</i>
	<i>Jack Rosenfeld</i>	25	2 Headspace Gas Chromatography
14	Application of Solid-Phase Microextraction to the Analysis of Environmental Samples	25	<i>Selda E. Pinton</i>
15	Sample Preparation Techniques for the Analysis of Environmental Samples	49	3 Liquid-Liquid Extraction in Environmental Analysis
	<i>Jack Rosenfeld</i>	53	<i>Jon King III and Hoon Koo Lee</i>
16	Sample Preparation for the Analysis of Environmental Samples	53	4 Solid-Phase Extraction
	<i>Jack Rosenfeld</i>	57	<i>Ronald E. Major</i>
17	Statistics of Sampling and Sample Preparation	57	5 Solid-Phase Microextraction
	<i>Jack Rosenfeld</i>	61	<i>Soung Kwon Park, Dajana Jancovic, and Josmar Pawliger</i>
18	SWME Device for Sampling and Sample Preparation for On-Site Analysis	61	6 Microbials Sampling as a Sample Preparation Method
	<i>Guangyi Chen</i>	65	<i>Fahrot Nuri and Hoon M. Lee</i>
19	Recent Developments in the Use of Passive Sampling Devices for Monitoring Pollutants in Water	65	7 Liquid-Phase Microextraction (LPME) Using Porous Hollow Fibers
	<i>Richard Greenwood, Ian J. Allan, and James Robert Jessup</i>	69	<i>Shi Feifei, Huijun Wang, and Yan Jie</i>
20	Recent Developments in the Use of Passive Sampling Devices for Monitoring Pollutants in Water	69	8 Sample Preparation in Membrane Introduction Mass Spectrometry
	<i>Richard Greenwood, Ian J. Allan, and James Robert Jessup</i>	73	<i>Rama A. Khatib, Huijun Wang, and Frank R. Leiber</i>
21	Recent Developments in the Use of Passive Sampling Devices for Monitoring Pollutants in Water	73	9 Pressurized Fluid Extraction
	<i>Richard Greenwood, Ian J. Allan, and James Robert Jessup</i>	77	<i>John R. Davis and Keith M. McQuinn</i>
22	Recent Developments in the Use of Passive Sampling Devices for Monitoring Pollutants in Water	77	10 Supercritical Water Extraction
	<i>Richard Greenwood, Ian J. Allan, and James Robert Jessup</i>	81	<i>Robert M. Waymouth</i>