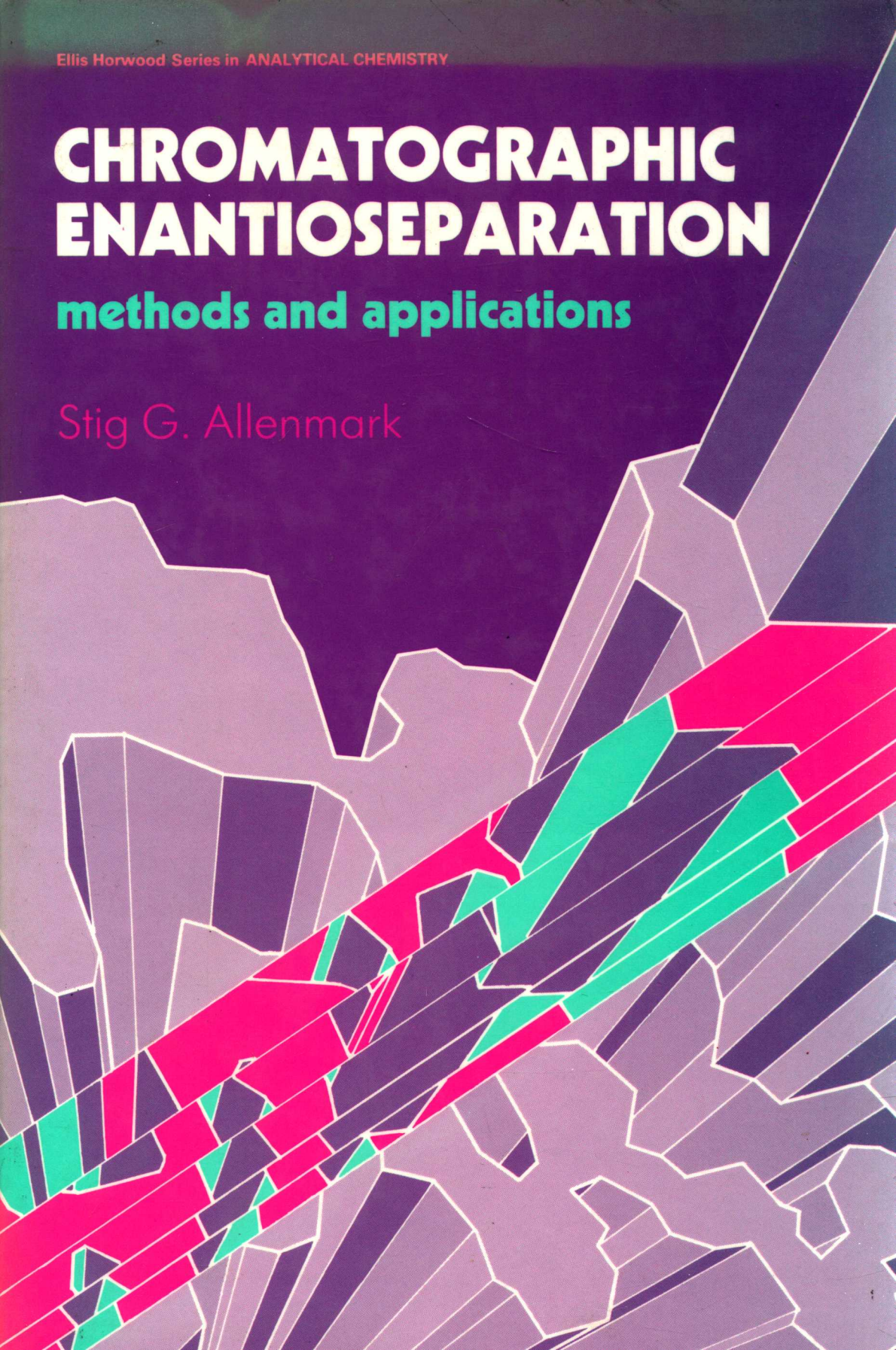


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CHROMATOGRAPHIC ENANTIOSEPARATION

methods and applications

Stig G. Allenmark



CHROMATOGRAPHIC ENANTIOSEPARATION: Methods and Applications

STIG G. ALLENMARK
Laboratory of Microbiological Chemistry
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Table of contents

Preface	9
List of Symbols and Abbreviations	11
1 Introduction	13
Bibliography	18
References	18
2 The development of modern stereochemical concepts	
2.1 Chirality and molecular structure	19
2.1.1 Molecules with asymmetric atoms	19
2.1.2 Other types of chiral molecular structures	20
2.2 Definitions and nomenclature	23
Bibliography	26
References	26
3 Techniques used for studies of optically active compounds	
3.1 Determination of optical or enantiomeric purity	27
3.1.1 Methods not involving separation	27
3.1.1.1 Polarimetry	27
3.1.1.2 Nuclear magnetic resonance	29
3.1.1.3 Isotope dilution	31
3.1.1.4 Calorimetry	33
3.1.1.5 Enzyme techniques.	33
3.1.2 Methods based on separation	34
3.2 Determination of absolute configuration	35
3.2.1 X-Ray crystallography with anomalous scattering	36
3.2.2 Spectroscopic (ORD, CD) and chromatographic methods based on comparison	37
Bibliography	40
References	40

4	Modern chromatographic separation methods	
4.1	A review of basic chromatographic theory	.42
4.2	Instrumentation	.46
4.2.1	Gas chromatographic instrumentation	.46
4.2.2	Liquid chromatographic instrumentation	.50
4.3	Separation of enantiomers by means of covalent diastereomers — a survey	.51
4.3.1	Gas chromatography	.54
4.3.2	Liquid chromatography	.54
	Bibliography	.62
	References	.62
5	Theory of chiral chromatography for direct optical resolution	
5.1	The prerequisite for enantioselective interaction with the chiral stationary phase	.64
5.2	Some general aspects regarding chiral recognition models and chromatographic enantioselectivity	.66
5.2.1	Co-ordination to transition metals	.66
5.2.2	Charge-transfer interaction	.68
5.2.3	Inclusion phenomena	.69
5.3	Some thermodynamic and kinetic considerations	.70
5.3.1	Temperature effects	.70
5.3.2	Peak coalescence due to enantiomerization phenomena	.71
	Bibliography	.74
	References	.74
6	Chiral gas chromatography	
6.1	The development of chiral stationary phases based on hydrogen bonding	75
6.1.1	Amino-acid and oligopeptide derivatives	.75
6.1.2	Polysiloxane-bonded phases	.79
6.2	Phases based on chiral metal complexes	.82
6.3	Phases based on inclusion effects	.83
6.4	Relative merits of the various modes of chiral gas chromatography	.84
	Bibliography	.88
	References	.88
7	Chiral liquid chromatography	.90
7.1	Chiral stationary phases based on naturally occurring and synthetic polymers	.91
7.1.1	Polysaccharides and derivatives	.91
7.1.1.1	Polysaccharides	.91
7.1.1.2	Polysaccharide derivatives	.95
7.1.2	Derivatives of polyacrylamide and similar synthetic polymers	.103
7.1.2.1	Sorbents based on chirally substituted synthetic polymers	.103
7.1.2.2	Sorbents based on isotactic linear polymethacrylates of helical conformation	.106

7.1.3 Synthetic polymers containing 'grafted' chiral cavities	108
7.1.4 Proteins	111
7.1.4.1 Immobilized albumin	112
7.1.4.2 Immobilized α_1 -acid glycoprotein (orosomucoid)	113
7.2 Bonded synthetic chiral selectors	119
7.2.1 Crown ethers ('host-guest' complexation).	119
7.2.2 Metal complexes (chiral ligand exchange)	120
7.2.3 Selectors based on charge-transfer complexation	124
7.2.4 Selectors based on hydrogen bonding	129
7.2.5 Other types of selectors.	130
7.3 Techniques based on addition of chiral constituents to the mobile phase	132
7.3.1 Metal complexation	133
7.3.2 Uncharged chiral mobile phase additives	134
7.3.3 Ion-pairing techniques	137
Bibliography	140
References	141

8 Analytical applications in academic research and industry

8.1 Amino-acids	146
8.1.1 The enantiomer labelling technique	147
8.1.2 Other applications of chromatographic amino-acid resolution	147
8.2 Stereochemical problems in natural product chemistry	149
8.2.1 Pheromone stereochemistry	150
8.2.2 Structure elucidation of polypeptide antibiotics and related natural products	153
8.2.3 Miscellaneous applications.	156
8.3 Pharmaceutical applications	158
8.3.1 Neutral or weakly acidic or basic pharmaceuticals.	158
8.3.1.1 Barbiturates	158
8.3.1.2 Hydantoins	159
8.3.1.3 Benzothiadiazines and structurally related compounds	160
8.3.1.4 Benzodiazepinones	163
8.3.1.5 Miscellaneous compounds	165
8.3.2 Protolytic (charged) pharmaceuticals	168
8.3.2.1 Amphoteric compounds	168
8.3.2.2 Basic (cationic) compounds	171
8.3.2.3 Acid (anionic) compounds	176
8.4 Studies of microbial and enzymatic reactions.	177
8.4.1 Enzymatic and microbial alkene epoxidation	178
8.4.2 Microbial amide and ester hydrolysis	180
8.4.3 Asymmetric ketone reduction by yeast organisms	181
8.5 Miscellaneous applications and techniques	183
8.5.1 Determination of enantiomerization barriers	183
8.5.2 Determination of configuration from chromatographic data	185
8.5.3 Evaluation of enantiomeric purity from chromatographic partial optical resolution (Mannschreck's method)	185

Bibliography	188
References	188
9 Preparative scale enantioseparations — need, progress and problems . . .	192
Bibliography	199
References	199
10 Future trends	
10.1 New detector systems	200
10.2 Column improvements	203
10.3 Supercritical fluid chromatography	206
Bibliography	206
References	206
11 Experimental procedures for the synthesis of chiral sorbents	
11.1 Techniques for the preparation of chiral sorbents by derivatization of polysaccharides	208
11.1.1 Preparation of microcrystalline cellulose triacetate (MCTA) . . .	208
11.1.2 Preparation of silica coated with cellulose triacetate	209
11.1.3 Preparation of silica coated with cellulose triphenylcarbamate . .	209
11.2 Polymerization procedures used to obtain chiral synthetic polymer materials	209
11.2.1 Preparation of poly[(S)- <i>N</i> -acryloylphenylalanineethyl ester] . . .	209
11.2.2 Preparation of polycellulose(triphenylmethyl methacrylate) . . .	211
11.3 Techniques used for the binding of chiral selectors to silica	211
11.3.1 Preparation of 3-glycidoxypropyl-silica	212
11.3.2 Large-scale preparation of (R)- <i>N</i> -(3,5-dinitrobenzoyl)- phenylglycine covalently silica-bound sorbent	212
11.3.3 Preparation of (S)-(-)- α - <i>N</i> -(2-naphthyl)leucine	213
11.3.4 Hydrosilylation of (R)- <i>N</i> -(10-undecenoyl)- α -(6,7-dimethyl- 1-naphthyl) isobutylamine	213
11.3.5 Preparation of silica-bonded (S)-1-(α -naphthyl)ethylamine . . .	213
11.3.6 Preparation of silica-bound polyacrylamide and polymethacrylamide	214
Bibliography	214
References	214
Appendix: Commercial suppliers of chiral columns for GC and LC.	216
Index	218

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Table of contents

Preface	9
List of Symbols and Abbreviations	11
1 Introduction	13
Bibliography	18
References	18
2 The development of modern stereochemical concepts	
2.1 Chirality and molecular structure	19
2.1.1 Molecules with asymmetric atoms	19
2.1.2 Other types of chiral molecular structures	20
2.2 Definitions and nomenclature	23
Bibliography	26
References	26
3 Techniques used for studies of optically active compounds	
3.1 Determination of optical or enantiomeric purity	27
3.1.1 Methods not involving separation	27
3.1.1.1 Polarimetry	27
3.1.1.2 Nuclear magnetic resonance	29
3.1.1.3 Isotope dilution	31
3.1.1.4 Calorimetry	33
3.1.1.5 Enzyme techniques.	33
3.1.2 Methods based on separation	34
3.2 Determination of absolute configuration	35
3.2.1 X-Ray crystallography with anomalous scattering	36
3.2.2 Spectroscopic (ORD, CD) and chromatographic methods based on comparison	37
Bibliography	40
References	40

4	Modern chromatographic separation methods	
4.1	A review of basic chromatographic theory	.42
4.2	Instrumentation	.46
4.2.1	Gas chromatographic instrumentation	.46
4.2.2	Liquid chromatographic instrumentation	.50
4.3	Separation of enantiomers by means of covalent diastereomers — a survey	.51
4.3.1	Gas chromatography	.54
4.3.2	Liquid chromatography	.54
	Bibliography	.62
	References	.62
5	Theory of chiral chromatography for direct optical resolution	
5.1	The prerequisite for enantioselective interaction with the chiral stationary phase	.64
5.2	Some general aspects regarding chiral recognition models and chromatographic enantioselectivity	.66
5.2.1	Co-ordination to transition metals	.66
5.2.2	Charge-transfer interaction	.68
5.2.3	Inclusion phenomena	.69
5.3	Some thermodynamic and kinetic considerations	.70
5.3.1	Temperature effects	.70
5.3.2	Peak coalescence due to enantiomerization phenomena	.71
	Bibliography	.74
	References	.74
6	Chiral gas chromatography	
6.1	The development of chiral stationary phases based on hydrogen bonding	75
6.1.1	Amino-acid and oligopeptide derivatives	.75
6.1.2	Polysiloxane-bonded phases	.79
6.2	Phases based on chiral metal complexes	.82
6.3	Phases based on inclusion effects	.83
6.4	Relative merits of the various modes of chiral gas chromatography	.84
	Bibliography	.88
	References	.88
7	Chiral liquid chromatography	.90
7.1	Chiral stationary phases based on naturally occurring and synthetic polymers	.91
7.1.1	Polysaccharides and derivatives	.91
7.1.1.1	Polysaccharides	.91
7.1.1.2	Polysaccharide derivatives	.95
7.1.2	Derivatives of polyacrylamide and similar synthetic polymers	.103
7.1.2.1	Sorbents based on chirally substituted synthetic polymers	.103
7.1.2.2	Sorbents based on isotactic linear polymethacrylates of helical conformation	.106

7.1.3 Synthetic polymers containing 'grafted' chiral cavities	108
7.1.4 Proteins	111
7.1.4.1 Immobilized albumin	112
7.1.4.2 Immobilized α_1 -acid glycoprotein (orosomucoid)	113
7.2 Bonded synthetic chiral selectors	119
7.2.1 Crown ethers ('host-guest' complexation).	119
7.2.2 Metal complexes (chiral ligand exchange)	120
7.2.3 Selectors based on charge-transfer complexation	124
7.2.4 Selectors based on hydrogen bonding	129
7.2.5 Other types of selectors.	130
7.3 Techniques based on addition of chiral constituents to the mobile phase	132
7.3.1 Metal complexation	133
7.3.2 Uncharged chiral mobile phase additives	134
7.3.3 Ion-pairing techniques	137
Bibliography	140
References	141

8 Analytical applications in academic research and industry

8.1 Amino-acids	146
8.1.1 The enantiomer labelling technique	147
8.1.2 Other applications of chromatographic amino-acid resolution	147
8.2 Stereochemical problems in natural product chemistry	149
8.2.1 Pheromone stereochemistry	150
8.2.2 Structure elucidation of polypeptide antibiotics and related natural products	153
8.2.3 Miscellaneous applications.	156
8.3 Pharmaceutical applications	158
8.3.1 Neutral or weakly acidic or basic pharmaceuticals.	158
8.3.1.1 Barbiturates	158
8.3.1.2 Hydantoins	159
8.3.1.3 Benzothiadiazines and structurally related compounds	160
8.3.1.4 Benzodiazepinones	163
8.3.1.5 Miscellaneous compounds	165
8.3.2 Protolytic (charged) pharmaceuticals	168
8.3.2.1 Amphoteric compounds	168
8.3.2.2 Basic (cationic) compounds	171
8.3.2.3 Acid (anionic) compounds	176
8.4 Studies of microbial and enzymatic reactions.	177
8.4.1 Enzymatic and microbial alkene epoxidation	178
8.4.2 Microbial amide and ester hydrolysis	180
8.4.3 Asymmetric ketone reduction by yeast organisms	181
8.5 Miscellaneous applications and techniques	183
8.5.1 Determination of enantiomerization barriers	183
8.5.2 Determination of configuration from chromatographic data	185
8.5.3 Evaluation of enantiomeric purity from chromatographic partial optical resolution (Mannschreck's method)	185

Bibliography	188
References	188
9 Preparative scale enantioseparations — need, progress and problems . . .	192
Bibliography	199
References	199
10 Future trends	
10.1 New detector systems	200
10.2 Column improvements	203
10.3 Supercritical fluid chromatography	206
Bibliography	206
References	206
11 Experimental procedures for the synthesis of chiral sorbents	
11.1 Techniques for the preparation of chiral sorbents by derivatization of polysaccharides	208
11.1.1 Preparation of microcrystalline cellulose triacetate (MCTA) . . .	208
11.1.2 Preparation of silica coated with cellulose triacetate	209
11.1.3 Preparation of silica coated with cellulose triphenylcarbamate . .	209
11.2 Polymerization procedures used to obtain chiral synthetic polymer materials	209
11.2.1 Preparation of poly[(S)- <i>N</i> -acryloylphenylalanineethyl ester] . . .	209
11.2.2 Preparation of polycellulose(triphenylmethyl methacrylate) . . .	211
11.3 Techniques used for the binding of chiral selectors to silica	211
11.3.1 Preparation of 3-glycidoxypropyl-silica	212
11.3.2 Large-scale preparation of (R)- <i>N</i> -(3,5-dinitrobenzoyl)- phenylglycine covalently silica-bound sorbent	212
11.3.3 Preparation of (S)-(-)- α - <i>N</i> -(2-naphthyl)leucine	213
11.3.4 Hydrosilylation of (R)- <i>N</i> -(10-undecenoyl)- α -(6,7-dimethyl- 1-naphthyl) isobutylamine	213
11.3.5 Preparation of silica-bonded (S)-1-(α -naphthyl)ethylamine . . .	213
11.3.6 Preparation of silica-bound polyacrylamide and polymethacrylamide	214
Bibliography	214
References	214
Appendix: Commercial suppliers of chiral columns for GC and LC.	216
Index	218

Preface

Chemists have been interested in optically active compounds ever since the recognition of Nature's remarkable ability to produce them. Likewise, optical resolutions of synthetic racemates have been a challenge and often considered to be small pieces of art, owing to the great difficulties of making any predictions concerning the possible success of various approaches. Today, we are still far from being able to consider a new optical resolution as an entirely straightforward task. During the last ten years, however, there has been a quite rapid development of chromatographic methods for optical resolution and thereby an accumulated knowledge of the prerequisites for a chiral recognition leading to enantioseparation. The purpose of this book is to provide the reader with a comprehensive treatment of chiral chromatography covering the basic theory as well as methods used, particularly the stationary phase design and various areas of application. Although a number of review articles dealing with the subject have appeared during recent years, a certain need for a monograph dealing entirely with the subject was felt at the start of my writing. Since no thorough discussion of the chiral recognition rationales proposed for enantioselective equilibria utilized in chiral chromatography can be made without fundamental knowledge of organic stereochemistry, the incorporation of the material found in the first three chapters seems to be justified. The treatment of this vast topic is, of course, by no means exhaustive, but aims only at giving the reader a suitable background to the following chapters.

The number of different methods in use or under investigation is far greater for optical resolution by liquid chromatography than by gas chromatography. Therefore, Chapter 7 is by far the most voluminous. Further, Chapter 9, in which preparative aspects are discussed, deals only with liquid chromatography.

Throughout the book the reader is referred to relevant publications in the chemical and chromatographic literature for possible supplementary reading.

It is my hope that this volume will bring together the accumulated knowledge in the field in a way which will be beneficial to the reader. New application areas of chiral chromatography are still developing, particularly within the life sciences, and it would be of great satisfaction if the present book could stimulate further progress.

I want to express my sincere thanks to my associates and colleagues whose active support and help has been of utmost value for the production of this volume. Particularly, I wish to acknowledge the significant contribution to the artwork made by Mrs. Shalini Andersson as well as the linguistic improvements of the text achieved thanks to Mr. Richard Thompson, who carefully read and commented on the manuscript. The invaluable help from the series editor, Dr. R. A. Chalmers, is also gratefully acknowledged. Finally, the contacts and discussions with many leading scientists in the field, especially Profs. G. Blaschke, A. Mannschreck and W. H. Pirkle, have further been highly beneficial and most stimulating.

August, 1987
Gothenburg, Sweden

STIG ALLENMARK