

CONTENTS

Fat-Soluble Vitamins	1
Chapter 1 Vitamin A and Carotenoids	3
1.1 Review	3
1.2 Properties	4
1.3 Methods	19
1.4 Method Protocols	63
1.5 References	66
Chapter 2 Vitamin D	77
2.1 Review	77
2.2 Properties	78
2.3 Methods	82
2.4 Method Protocols	99
2.5 References	103
Chapter 3 Vitamin E	109
3.1 Review	109
3.2 Properties	111
3.3 Methods	117
3.4 Method Protocols	139
3.5 References	141
Chapter 4 Vitamin K	149
4.1 Review	149
4.2 Properties	150
4.3 Methods	155
4.4 Method Protocols	177

4.5 References	180
Chapter 5 Multi-Analyte Methods for Analysis of Fat-Soluble Vitamins	185
5.1 Review	185
5.2 Food, Feed, and Pharmaceuticals	186
5.3 Serum and Plasma	196
5.4 Method Protocols	212
5.5 References	216
Water-Soluble Vitamins	221
Chapter 6 Ascorbic Acid : Vitamin C	223
6.1 Review	223
6.2 Properties	224
6.3 Methods	229
6.4 Method Protocols	258
6.5 References	264
Chapter 7 Thiamin	271
7.1 Review	271
7.2 Properties	272
7.3 Methods	276
7.4 Method Protocols	290
7.5 References	293
Chapter 8 Riboflavin	299
8.1 Review	299
8.2 Properties	300
8.3 Methods	304
8.4 Method Protocols	326
8.5 References	332

Chapter 9 Niacin	339
9.1 Review	339
9.2 Properties	341
9.3 Methods	345
9.4 Method Protocols	359
9.5 References	364
 Chapter 10 Vitamin B-6	
10.1 Review	369
10.2 Properties	371
10.3 Methods	377
10.4 Method Protocols	394
10.5 References	404
 Chapter 11 Folate	411
11.1 Review	411
11.2 Properties	412
11.3 Methods	420
11.4 Method Protocols	451
11.5 References	459
 Chapter 12 Vitamins B-12, Biotin, and Pantothenic Acid	467
12.1 Vitamin B-12	467
12.2 Biotin	478
12.3 Pantothenic Acid	488
12.4 References	495
12.5 Index	503