

<i>Preface</i>		<i>xiii</i>
<i>Foreword</i>		<i>xv</i>
	Part I	1
1	Introduction to coffee	3
1.1	Origin and history of coffee	3
1.2	Coffee production scenario	3
1.3	Botany, agricultural practices and propagation	6
1.4	Processing	8
1.5	Chemical composition	16
1.6	Additives in coffee	23
1.7	Tasting of coffee	24
2	Health benefits	27
2.1	Introduction	27
2.2	Antioxidant activity	27
2.3	Anticarcinogenic activity	28
2.4	Central Nervous System (CNS)	28
2.5	Reproductive system	29
2.6	Bone system	29
2.7	Cardiovascular system	29
2.8	Antidiabetes effect for type-2 diabetes	29
2.9	Antimicrobial effect	30
3	Recent trends in value addition	31
3.1	Introduction	31
3.2	Coffee beverage	31

3.3	Canned coffee beverages	37
3.4	Ready-mix coffee beverage	37
3.6	Coffee jelly beverage	38
3.7	Fortified coffee beverages	38
3.8	Fortified coffee drink	39
3.9	Honeyed coffee	39
3.10	Coffee tablet	39
3.11	Freeze-dried coffee tablets	39
3.12	Flavoured coffee	40
3.13	Coffee wine	41
3.14	Candy from coffee beans	41
3.15	Torrefacto coffee	41
3.16	Germinated coffee	41
3.17	Coffee filled packet	42
3.18	Cookie formulation with coffee	42
3.19	Coating of frozen pizza with coffee colorant	42
3.20	Carbonated coffee	42
3.21	Decaffeinated coffee	43
3.22	Soluble coffee	44
3.23	Instant hot cappuccino	45
3.24	Monsoon coffee	46
3.25	Coffee paste	47
4	Value-added by-products	49
4.1	Introduction	49
4.2	Source of dietary fibre	50
4.3	Coffee spirit	50
4.4	Charcoal production	51
4.5	Mushroom cultivation	51
4.6	Production of citric acid and gibberellic acid	52
4.7	Antioxidant compounds	52

Contents	ix	
4.8	Source of natural food colour	52
4.9	Production of aroma compounds	52
4.10	Biogas production	53
4.11	Source of phenolic compounds	53
4.12	Summary and conclusion	53
	References	55
	Part II	63
5	Introduction to tea	65
5.1	Introduction	65
5.2	Origin and history	65
5.3	Tea production	78
5.4	Botanical and taxonomical characteristics	80
5.5	Cultivation practices	81
6	Types of tea and processing	87
6.1	Introduction	87
6.2	Green tea	87
6.3	Green brick tea	89
6.4	Yellow tea	91
6.5	White tea	92
6.6	Oolong tea	93
6.7	Black tea	95
6.8	Comparison of tea quality	99
7	Chemical composition and pharmacological, medical properties of tea	101
7.1	Introduction	101
7.2	Diversity of therapeutic compounds in tea	102
7.3	Pharmacological aspects associated with tea consumption	107
8	High impact value-added products of tea	113
8.1	Introduction	113
8.2	Tea bags	113

x		Contents
8.3	Instant tea	117
8.4	Iced tea	121
8.5	Herbal teas	123
8.6	Tea concentrate	129
8.7	Packet tea	129
8.8	Carbonated bottled tea	130
8.9	Flavoured tea	131
8.10	Decaffeinated tea	135
8.11	Fortified tea	136
8.12	Tonic tea	139
8.13	Tea cider	139
8.14	Tea kombucha	140
8.15	Toyoma kurocha	143
8.16	Canned tea	143
8.17	Instant tea granules	145
9	Tea by-products	147
9.1	Introduction	147
9.2	Caffeine	147
9.3	Polyphenols	149
9.4	Tea dyes	155
9.5	Triacontanol	157
9.6	Tea seed oil	158
9.7	Saponins	159
9.8	Tea waste as extenders in polymers	159
9.9	Summary and conclusion	160
	References	163
	Part III	175
10	Introduction to soft drinks	177
10.1	Soft drink	177
10.2	Need of soft drinks	177
10.3	Benefits of soft drinks	177

11	Beverage consumption	179
11.1	Introduction	179
11.2	World market	180
11.3	Major players of soft drinks in the world	180
11.4	Indian scenario	180
11.5	Market trends of functional drinks	181
11.6	Expansion of soft drinks market	182
12	Soft drink classification	183
12.1	Introduction	183
12.2	Ready-to-drink	183
12.3	Concentrated soft drinks	186
12.4	Other categories	187
13	Ingredients of soft drinks	189
13.1	Introduction	189
13.2	Water	189
13.3	Sweeteners	190
13.4	Acidulants	200
13.5	Colours	202
13.6	Flavours	204
13.7	Clouding agents	207
14	Processing technology	211
14.1	Introduction	211
14.2	Handling Raw Material	211
14.3	Pulping and Extraction	211
14.4	Clarification	212
14.5	Concentration	214
14.6	Syrup Preparation	215
14.7	Blending	215
14.8	Pasteurisation	216
14.9	Carbonation	217

14.10	De-aeration	219
14.11	Filling	219
14.12	Packaging	220
14.13	Clean-In-Place (CIP) System	221
15	Quality control	223
15.1	Introduction	223
15.2	System quality control	223
5.2.3	Sugar	225
15.3	Product quality control	228
15.4	Microbial control	231
16	Packaging aspects	237
16.1	Introduction	237
16.2	Packaging methods	237
17	Towards future	241
17.1	Introduction	241
17.2	Healthy carbonated beverages	241
17.3	Functional drinks	241
17.4	Mixed fruit juice beverages	243
17.5	Carbonated beverages from jackfruit waste	244
References		245
<i>Index</i>		257