

CONTENTS

Part1	Microbial physiology	
1	Microbial cell structure and function	7
2	Microbial growth and nutrition	21
3	Microbial metabolism	46
Part2	Bioprocessing	
4	Industrial microorganisms	75
5	Fermentation media	86
6	Fermentation systems	94
7	Downstream processing	109
8	Product development, regulation and safety	124
Part3	Industrial processes and products	
9	Microbial enzymes	133
10	Fuels and industrial chemicals	144
11	Health care products	165
12	Food and beverage fermentations	179
13	Food additives and supplements	210
14	Microbial biomass production	218
15	Environmental biotechnology	229
16	Microbial biodeterioration of materials and its control	247
17	Animal and plant cell culture	258
	Index	265