Contents

Part I Microbial Genetics and Breeding

1	Inheritance Analysis for Exserted Stigma Rate in Japonica Rice	3
2	Cloning and Expression of β-Glucosidase from Cassava in <i>Pichia pastoris</i> GS115	11
3	Construction of L-tert-Leucine Producing Strain by Expressing Heterologous Leucine Dehydrogenase and Formate Dehydrogenase in Escherichia coli Junzhen Bai, Yajian Song, Xuegang Luo, Haixu Yang, Wen Du and Tongcun Zhang	21
4	The Distribution Characteristics of Microcystis novacekii Based on 16S rDNA Sequence Da Huo, Yang Luo, Yunsi Nie, Jing Sun, Yanan Wang and Zhiyi Qiao	31
5	The Distribution and Molecular Identification of the Microcystis aeruginosa in Yuqiao Reservoir Zhiyi Qiao, Da Huo, Jun Zhang, Jing Sun, Yunsi Nie and Yanan Wang	43
6	The Improved Stress Tolerance of Escherichia coli by Directed Evolution of IrrE	53

vii



viii Contents

7	Cloning and Characterization of the TMEPAI Gene Promoter	67
8	Cloning and Expression of a Novel Xylanase Xyn11-1 from Alkaline Soil	75
9	To Establish the Regeneration System of Sweet Sorghum Immature Embryos	83
10	Cloning and Sequence Analysis of a Novel ACC Oxidase Gene from Peanut (Arachis hypogaea L.)	93
11	Genetic Diversity Among the Microorganisms in Daqu Used for Beidacang Liquor as Revealed by RAPD Analyses Shi-Wei Wang, Qing-Hui Wang, Li-Ping Zhai, Jun Liu, Zhi-Dan Yu, Mao-Mao Zheng and Fang Wang	99
12	Stenotrophomonas maltophilia Having Decolorization Capability of Azo Dye Isolated from Anaerobic Sludge	109
13	In Silico Cloning and Sequence Analysis of F3H Gene in Raphanus sativus L	117
14	The Comparative Study of Fermentation Capability of Wheat Beer Yeast	125
15	Screening of Dual Defects Strain and Effects on L-Isoleucine Production in Escherichia coli NML Linan Yu, Huiyan Liu, Haitian Fang and Qing Wu	135
16	Effect of MIG1 Gene Deletion on Lactose Utilization in Lac ⁺ Saccharomyces cerevisiae Engineering Strains Jing Zou, Xuewu Guo, Jian Dong, Cuiying Zhang and Dongguang Xiao	143

Contents ix

17	Enzyme Activity Analysis of Protease Produced by Marine Bacteria	153
18	Expression of Gene uvrA from Acetobacter pasteurianus and Its Tolerance to Acetic Acid in Escherichia coli	163
19	Construction of Eschericha coli-Staphylococcus Shuttle Vector for EGFP Expression and Potential Secretion via Tat Pathway Bao-yin Xu, Yi-bing Cheng, Lin Wang, Hao Zhou, Lin Huang, Xiao-yan Tang and Qiang Gao	171
20	SNP Affects the Mobility of Breast Cancer Cells and the Expression of Metastasis-Related Genes	181
21	Molecular Cloning and Characterization of Glycerol Dehydrogenase from Klebsiella pneumoniae Yanhua Liu, Li Zhao, Jianguo Zhang and Yu Zheng	189
22	Expression of Glucose-6-Phosphate Dehydrogenase and 6-Phosphogluconate Dehydrogenase Improve L-Citrulline Biosynthesis in argG-Deleted Corynebacterium glutamicum	197
Par	t II Optimization and Control of Biological Process	
23	Production of Amino Acids by Mixed Bacterial Strains-Mediated Solid State Fermentation of Feathers and Dynamic Changes to the Fermentation System	207
24	Effects of Culture Medium on PUFAs Production by Mortierella isabellinas Dengyue Sun, Cuixia Zhou, Chuanhe Zhu and Yanru Sun	219

x Contents

25	A Simple Mechanochemical Cycle Model for Dynein	229
26	The Research on Biotransformation Pathway of Digitoxin by Aspergillus ochraceus and the Analysis of Products Activity Jianmei Luo, Ting Song, Fangfang Cui, Yanbing Shen and Min Wang	237
27	Astragalus membranaceus Polysaccharide-Enhanced Lymphocytes Proliferation of Yellow Drum Nibea albiflora In Vitro	249
28	Aspergillus niger Pellets Absorbed Bacillus sp. Isolated from Soybean Wastewater Sludge	255
29	Expression, Purification and Characterization of Maltase from "Quick" Baker's Yeast	265
30	Evaluation of an Ethanol-Tolerant Acetobacter pasteurianus Mutant Generated by a New Atmospheric and Room Temperature Plasma (ARTP)	277
31	A Thermotolerant Acetobacter pasteurianus T24 Achieving Acetic Acid Fermentation at High Temperature in Self-Adaption Experiment	287
32	Optimization of Cultural Conditions for Extracellular Polymeric Substances (EPS) Production by Burkholderia Using Response Surface Methodology	295
33	Effects of pH, Temperature, Storage Time, and Protective Agents on Nisin Antibacterial Stability	305

Contents xi

34	Enhanced Solvent-Stable Alpha Glycosidase Production by Bacillus licheniformis JXC-1 by Optimization of Feeding Strategies	313
35	The Effect of Different Activated Carbon and Bleaching Temperature on Kojic Acid Bleaching Wu Meng, Cuiying Zhang and Dongguang Xiao	325
36	Effect of Iodine on the Growth and Quality of Nostoc flagelliforme	335
37	The Replacement of Phe28 by Ser Enhances the Stability of the GLP-1 Analog During Fermentation	343
38	Optimization of Fermentation Condition of Man-Made Bee-Bread by Response Surface Methodology	353
39	Prediction of Lysine Acetylation Sites in Porcine Pancreas Lipase Modified by the Ionic Liquids Using Molecular Dynamics Simulations	365
40	Effect of Oxygen on Fermentation Characteristics of Three Non-Saccharomyces from Hengshui Laobaigan	381
41	Microbial Transformation of Antitumor Isatin Derivatives by Fungi	39
42	Effect of Ultrasound on Lysine Muriate Crystallization	39

xii Contents

43	Isolation and Identification of a <i>Bacillus amyloliquefaciens</i> Strain Against Grape Downy Mildew and Optimization for Its Liquid Fermentation Medium	409
	Jiping Guo, Guang Ma, Huixia Zhu and Junfan Fu	
44	The Adsorption Properties of Macroporous Resin for Fusel Oil of Luzhou—Flavor Liquor	419
45	Low Labeling ¹³ C Metabolic Flux Analysis of Saccharomyces cerevisiae Using Gas Chromatography-Combustion-Isotope Ratio Mass Spectrometry Qi-ding Zhong, Guo-hui Li, Dong-dong Zhao, Dao-bing Wang, Shi-gang Shen and Zheng-he Xiong	427
46	A Comparative Study on the Antioxidant Activity of Two Polysaccharides from Ganoderma lucidum	441
47	Biofortification Using Bacteria Containing an Atrazine-Degrading Gene and Its Effects on Reactor Operating Efficiency	451
48	A Novel One-Pot Five-Component Synthesis of Tetrahydro-pyrrolo[3,4-b]pyridine-5-one via Ugi/Aza-Diels-Alder Tandem Reaction Yan Liu, Tianyi Shang, Chuanming Xu, Hui Yang, Peng Yu and Kui Lu	461
49	Study on Preparation and Application of High Esterification Green-Liquor Daqu	467
50	Metabolomics Analysis Between Wild-Type and Industrial Strains of Streptomyces avermitilis Based on Gas Chromatography-Mass Spectrometry Strategy	477

Contents xiii

51	Application of Orthogonal Design to Optimize Fermentation Conditions of Bacillus amyloliquefaciens BI ₂	487
52	Optimization of Fermentation Medium for Citric Acid Production by Aspergillus niger	497
53	Study on the Soxhlet's Extraction of Star Anise Oil and Preliminary Investigation of Its Antibacterial Activity Lin Tian and Ping Li	509
Par	t III Biological Separation and Biological Purification	
54	Production of Diosgenin from Dioscorea zingiberensis by Mixed Culture of Three Filamentous Fungi	521
55	Characterization of Volatile Constituents of Chinese Hawthorn (Crataegus spp.) Fruit Juices	533
56	Optimization of Extraction Conditions for Crude Antibacterial Proteins/Peptides from Clarias gariepinus By-products Yan Wang, Yunxia Xu, Junyan Mei, Chengxun Chen and Xiaomei Wang	547
57	Screening, Isolation, and Identification of Bacillus coagulans C2 in Pu'er Tea	557
58	Production and Identification of Antifungal Compounds Produced by Bacillus subtilis B579	563

xiv Contents

59	Application of Molecularly Imprinted Polymers in Purification and Separation for Epothilones	571
60	Identification of Peanut Intersectional Hybrids with SSR Markers	581
61	Partial Purification and Chemical Characterization of a Bioemulsifier and Its Application in MEOR Dayuan Dong, Xingbiao Wang, Mingyu Cai, Jingjing Wang, Yifan Han, Xiaoxia Zhang and Zhiyong Huang	587
62	Optimization of a Whey Containing Medium for β-Galactosidase Production by Lactobacillus reuteri Mengfei Li, Huiming Zhu, Huibin Qin, Yan Zhang and Hongjiang Yang	599
63	Enzymatic Bioconversion for γ-Aminobutyric Acid by Lactobacillus brevis CGMCC No. 3414 Resting Cells Xiu-feng Shi, Bo Zheng, Chuan-you Chang, Peng Cao, Hong-jin Yang and Qiang Gao	609
Par	t IV Progress of Biotechnology	
64	[FeFe]-Hydrogenase: Catalytic Center and Modification by Genetic Engineering	621
65	Characteristics of Staphylococcus aureus Isolates from Raw Milk	629
66	EST-SSR Marker-Based Assay for Purity Identification of Melon "Green Angle"	637

Contents xv

67	Exposure to Static Magnetic Fields Affects Insulin Secretion	
	in INS Cells	643
	Libin Mao, Zhixia Guo, Huiqin Wang, Qiongyao Wu,	
	Nan Wang and Tong-Cun Zhang	
68	The New Strategy of Breeding Cytidine Excessive	
	Biosynthesis Mutants by pyr Operon Rearrangement	
	of Bacillus amyloliquefaciens	649
	Qing Wu, Huiyan Liu, Haitian Fang, Jianguo He,	
	Xiaoguang He and Linan Yu	