

CONTENTS

Acknowledgments	vii
Introduction.....	ix
 Chapter 1 Structure and Occurrence of Yeast Extracellular Glycolipids	 1
1.1 The Structures of Extracellular Glycolipids of Yeast.....	1
1.2 Glycolipid Occurrence in Eumycetes	10
 Chapter 2 Methods for Studying Yeast Extracellular Glycolipids	 15
2.1 Culture Media and Methods for Increasing the Yield of Yeast Extracellular Glycolipids	15
2.2 Purification Methods	20
2.3 Thin-Layer Chromatography Systems for Glycolipid Detection	23
2.4 Chemical Methods.....	23
2.5 NMR Spectroscopy and Mass Spectrometry	24
2.6 Methods for Studying Physicochemical Properties and Antifungal and Membrane-Damaging Activities.....	27
2.7 Molecular Biology Methods	27
 Chapter 3 Physicochemical Properties of Yeast Extracellular Glycolipids	 29
3.1 Solubility	29
3.2 Stability During Storage and Thermal Stability	29
3.3 Molecular Masses	30
3.4 Surface-Active Properties.....	30
3.5 Lactonization and Self-Assembly	33
3.6 Interaction Between Cellobiose Lipids and Artificial Membranes	34
 Chapter 4 Biological Activities of Extracellular Yeast Glycolipids	 35
4.1 Antifungal Activity of Cellobiose Lipids	35
4.2 Membrane-Damaging Activity of Cellobiose Lipids	50
4.3 Biological Activities of MELs and Sophorolipids.....	58

4.4	The Biological Activities of Rare Fungal Glycolipids	63
4.5	The Role of Extracellular Glycolipid for Yeast Producers	63

Chapter 5 Metabolism of Yeast Extracellular Glycolipids65

5.1	Biosynthesis of Extracellular Glycolipids.....	65
5.2	Catabolism of Extracellular Glycolipids.....	74

Chapter 6 Prospects of Practical Application of Sophorolipids, Cellobiose Lipids, and MELs75

6.1	Application as Membranotropic Agents.....	75
6.2	Prospects of Application of Yeast Extracellular Glycolipids in Industry, Agriculture, and Medicine.....	76
6.3	Commercial Products Based on Yeast Extracellular Glycolipids.....	81

Appendix: Selected Techniques of Purification and Assay of Extracellular Yeast Glycolipids85

References	93
Subject Index	109
The Index of Generic Names	111