

## TABLE OF CONTENTS

PREFACE .....	i
ABSTRACT .....	iii
TABLE OF CONTENTS .....	iv
LIST OF FIGURES .....	vi
LIST OF TABLES .....	vii
LIST OF APPENDICES .....	viii
CHAPTER I: INTRODUCTION .....	1
A. Background .....	1
B. Problem Statement .....	3
C. Benefit of Research .....	3
D. Purpose of Research .....	4
CHAPTER II: LITERATURE REVIEW .....	5
A. Literature Review .....	5
1. Marine sponges .....	5
2. <i>Candida glabrata</i> .....	5
3. <i>S. cerevisiae</i> AD $\Delta$ , AD/CgCDR1, and AD/CgPDH1 .....	7
4. Mechanism of azole antifungal drugs .....	9
5. The relationship between efflux pumps and azole resistance .....	10
B. Theoretical Review .....	11
C. Research Framework .....	13
D. Hypothesis .....	14

CHAPTER III: METHOD OF RESEARCH .....	15
A. Research Design.....	15
B. Operational Variables.....	15
C. Research Location.....	16
D. Tools and Materials.....	16
E. Research Procedures .....	19
CHAPTER IV: RESULTS AND DISCUSSION.....	23
A. Identification of Marine Sponges and Sponge-Associated Microbiome ...	23
B. Extraction of Marine Sponges and Sponge-Associated Microbiome .....	28
C. Disk Diffusion and FLC-Chemosensitization Assays.....	30
D. Minimum Inhibitory Concentration (MIC) Assays .....	34
E. Secondary Metabolite Identification of R8 .....	36
F. In-Silico Study of Secondary Metabolites .....	40
CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS .....	48
A. Conclusions.....	48
B. Recommendations .....	49
ACKNOWLEDGEMENTS .....	51
REFERENCES.....	52
APPENDICES .....	63