

CONTENTS

	PAGE	
ABSTRACT	ii	
ABSTRAK	iii	
ACKNOWLEDGEMENT	iv	
CONTENTS	v	
LIST OF TABLES	viii	
LIST OF FIGURES	xi	
LIST OF ABBREVIATIONS	xiv	
CHAPTER ONE	INTRODUCTION	
1.1	Pyrimidine Based Ligands and Copper Complexes	1
1.2	Fluorescence Studies	6
1.3	Objective of Studies	10
CHAPTER TWO	RESULTS AND DISCUSSION	
2.1	Characterization of Pyrimidine Based Ligands	11
2.1.1	2- <i>N</i> -Ethylaminopyrimidine (L1)	12
2.1.2	2- <i>N</i> -Anilinopyrimidine (L2)	14
2.1.3	2- <i>N</i> -(<i>p</i> -Methylanilino)pyrimidine (L3)	18
2.1.4	2- <i>N</i> -(<i>m</i> -Methylanilino)pyrimidine (L4)	20
2.1.5	2- <i>N</i> -Methylanilinopyrimidine (L5)	24
2.1.6	2- <i>N</i> -Piperidinopyrimidine (L6)	26

2.2	Characterization of the Copper Complexes	28
2.2.1	Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -ethylpyrimidin-2-amine] copper(II)} (CuL1)	29
2.2.2	Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -(pyrimidin-2-yl)aniline- κN] copper(II)} (CuL2)	34
2.2.3	Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -(pyrimidin-2-yl)4-methylaniline- κN]copper(II)} (CuL3)	38
2.2.4	Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -(pyrimidin-2-yl)3-methylaniline- κN]copper(II)} (CuL4)	42
2.3	Fluorescence Studies of Ligands	46
2.4	Fluorescence Studies of Copper Complexes	58
CHAPTER THREE EXPERIMENTAL		
3.1	Chemicals	65
3.2	Spectroscopic Analysis	65
3.2.1	^1H and ^{13}C NMR Spectroscopic Analysis	65
3.2.2	Infrared Spectroscopic Analysis	65
3.2.3	Gas Chromatography ó Mass Spectroscopic Analysis	66
3.2.4	Melting Point	66
3.2.5	CHN Analysis	66
3.3	X-Ray Crystallography	66
3.4	Fluorescence Studies	66
3.5	Preparation of Ligands	67
3.5.1	2- <i>N</i> -Ethylaminopyrimidine (L1)	67
3.5.2	2- <i>N</i> -Anilinopyrimidine (L2)	68
3.5.3	2- <i>N</i> -(<i>p</i> -Methylanilino)pyrimidine (L3)	69
3.5.4	2- <i>N</i> -(<i>m</i> -Methylanilino)pyrimidine (L4)	70

3.5.5	2- <i>N</i> -Methylanilinopyrimidine (L5)	71
3.5.6	2- <i>N</i> -Piperidinopyrimidine (L6)	72
3.6	Preparation of Copper Complexes	73
3.6.1	Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -ethylpyrimidine-2-amine]copper(II)} (CuL1)	73
3.6.2	Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -(pyrimidin-2-yl)aniline- κN]copper(II)} (CuL2)	73
3.6.3	Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -(pyrimidin-2-yl)4-methylaniline- κN]copper(II)} (CuL3)	74
3.6.4	Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -(pyrimidin-2-yl) 3-methylaniline- κN]copper(II)} (CuL4)	74
3.6.5	Attempted to Prepare Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -(pyrimidin-2-yl) <i>N</i> -methylaniline- κN]copper(II)} (CuL5)	75
3.6.6	Attempted to Prepare Tetra- μ -acetato- $\kappa^8 O:O'$ -bis{[<i>N</i> -(pyrimidin-2-yl)piperidine- κN]copper(II)} (CuL6)	75
CHAPTER FOUR CONCLUSION		76
REFERENCES		78
LIST OF PRESENTATIONS		85
LIST OF PUBLICATIONS		87
APPENDIX 1 : ^1H NMR, ^{13}C NMR, IR & GCMS SPECTRA		
APPENDIX 2 : PUBLICATIONS		