

IN THE NAME OF GOD

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Faculty of Sciences

M.Sc. Thesis in Organic Chemistry

**Synthesis of Metalloporphyrins and their Immobilization
onto Activated Carbon Nanotubes and Silica as New
Heterogeneous Catalysts for the Synthesis of Biologically
Interesting Compounds and Click Chemistry**

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November 2008

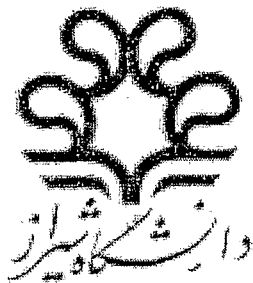
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THESIS

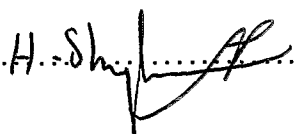
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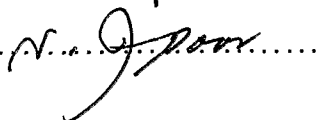
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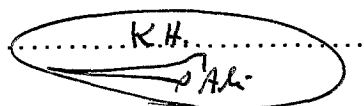
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November 2008

Dedicated to:

My Mother & My Father,

And

My Brothers: Ali & Mohammad

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Deep appreciation is expressed to my parents and brothers for every thing.

Mohammad Hassan Beyzavi

ABSTRACT

Synthesis of Metalloporphyrins and their Immobilization onto Activated Carbon Nanotubes and Silica as New Heterogeneous Catalysts for the Synthesis of Biologically Interesting Compounds and Click Chemistry

By:

Mohammad Hassan Beyzavi

In this thesis, a wide variety of porphyrin compounds and metalloporphyrin complexes have been synthesized and two new applications of metalloporphyrins are investigated:

A: Application of reusable porphyrinatoiron(III) complex supported on activated silica as an efficient heterogeneous catalyst for a facile, one-pot, selective synthesis of 2-arylbenzimidazole derivatives in the presence of atmospheric air as a "green" oxidant at ambient temperature.

B: Application of reusable porphyrinatocopper complex supported onto activated multiwalled carbon nanotubes as an efficient heterogeneous catalyst for a regioselective, one-pot, two-step, three-component synthesis of 1,2,3 triazoles from in-situ generated azides in water as a "green" solvent via "click chemistry".

The heterogeneous catalysts were characterized by powdered X-ray diffraction (XRD), scanning and transmission electron microscopies (SEM) & (TEM), atomic force microscopy (AFM), thermogravimetry (TG) to analyse for nitrogen adsorption, inductively coupled plasma (ICP), Raman and FT-IR spectroscopy.

TABLE OF CONTENTS

| CONTENT | PAGE |
|---|------|
| CHAPTER ONE..... | 1 |
| INTRODUCTION AND LITRETURE REVIEW..... | 1 |
| 1.1. Introduction | 2 |
| 1.2. Porphyrins and their physical properties..... | 3 |
| 1.3. Porphyrin synthesis from non-porphyrin precursors | 4 |
| 1.3.1. Tetramerization of monopyrroles | 4 |
| 1.3.2. Condensation of dipyrrolic intermediate (2+2 porphyrin synthesis)..... | 5 |
| 1.4. Metalloporphyrin synthesis | 7 |
| 1.5. The importance and applications of metalloporphyrins | 7 |
| 1.6. Immobilised porphyrins & metalloporphyrins based catalytic systems | 7 |
| 1.6.1. Introduction..... | 7 |
| 1.6.2. Immobilised metal complexes as fragments of natural systems . | 8 |
| 1.6.3. Immobilised metal complexes in catalysis..... | 10 |
| 1.6.4. Types of binding of porphyrins immobilised on polymer supports | 11 |
| 1.6.4.1. Physical binding of MP to a polymer support | 11 |
| 1.6.4.2. Covalently bound metalloporphyrins | 11 |
| 1.6.4.3. Metalloporphyrins bound to the polymer matrix by coordination bonds..... | 15 |

| CONTENT | PAGE |
|--|-----------|
| 1.6.4.4. Polymeric catalysts with an ionic bond between metalloporphyrins and the matrix..... | 16 |
| 1.7. Photochemical processes involving deposited layers of porphyrins | 17 |
| 1.8. Metalloporphyrins as catalysts in oxidation reactions..... | 19 |
| 1.8.1. Supported metalloporphyrins as oxidation catalysts | 19 |
| 1.8.2. Ion-exchange resins..... | 20 |
| 1.8.3. Zeolites | 21 |
| 1.8.4. Silica..... | 22 |
| 1.8.5. Clays..... | 22 |
| 1.8.6. Polystyrenes and polyethylene glycols | 23 |
| CHAPTER TWO..... | 24 |
| EXPERIMENTAL SECTION | 24 |
| 2.1. Instrumentation and analysis | 25 |
| 2.2. Materials and chemicals | 26 |
| 2.3. General procedure for drying dichloromethane (CH ₂ Cl ₂) or chloroform (CHCl ₃)..... | 26 |
| 2.4. General procedure for synthesis of <i>meso</i> -tetraarylporphyrins using silica chloride as catalyst | 26 |
| 2.5. Selected spectral data for tetraarylporphyrins | 27 |
| 2.6. Synthesis of metalloporphyrin catalysts | 30 |
| 2.6.1. Synthesis of [<i>meso</i> -Tetrakis(<i>o</i> -chlorophenyl)porphyrinato] iron(III) chloride | 30 |
| 2.6.2. Synthesis of [<i>meso</i> -Tetrakis(<i>o</i> -chlorophenyl)porphyrinato] copper(II)..... | 30 |
| 2.6.3. Synthesis of Zn, Mn, Co and Ni porphyrin complexes | 31 |
| 2.7. Preparation of activated silica gel..... | 31 |
| 2.8. Preparation of the Silica-supported T(<i>o</i> -Cl)PPFeIII catalyst..... | 32 |

CONTENT**PAGE**

| | |
|---|-----------|
| 2.9. General procedure for the synthesis of 2-substituted benzimidazoles in the presence of a catalytic amount of the T(<i>o</i> -Cl)PPFe ^{III} Cl complex | 32 |
| 2.10. General procedure for the synthesis of 2-substituted benzimidazoles in the presence of a catalytic amount of T(<i>o</i> -Cl)PPFe ^{III} -SiO ₂ and recycling of the heterogeneous catalyst | 33 |
| 2.11. General procedure for the synthesis multiwalled carbon nanotubes (MWCNTs) | 43 |
| 2.12. General procedure for activation of multiwalled carbon nanotubes | 44 |
| 2.13. Preparation of the activated multiwalled carbon nanotubes-supported T(<i>o</i> -Cl)PPCu ^{II} catalyst under solvent-free microwave irradiation | 44 |
| 2.14. General procedure for the synthesis of β-hydroxy 1,4-disubstituted 1,2,3-triazole derivatives in the presence of catalytic amount of the T(<i>o</i> -Cl)PPCu ^{II} complex | 45 |
| 2.15. General procedure for the synthesis of β-hydroxy 1,4-disubstituted 1,2,3-triazole derivatives in the presence of catalytic amount of the T(<i>o</i> -Cl)PPCu ^{II} -activated multiwalled carbon nanotubes complex and recycling of the heterogeneous catalyst | 45 |
| CHAPTER THREE | 55 |
| RESULTS AND DISSCUSION | 55 |
| 3.1. New applications of metalloporphyrin complexes | 56 |
| 3.1.1. Part A: Reusable porphyrinatoiron(III) complex supported on activated silica as an efficient heterogeneous catalyst for a facile, one-pot, selective synthesis of 2-arylbenzimidazole derivatives in the presence of atmospheric air as a “green” oxidant at ambient temperature | 56 |

| | |
|---|----|
| Table 3.6. Investigation of various ligand structures of porphyrinatocopper complexes (5-mol%) on (2-phenyl-2-(4-phenyl-1 <i>H</i> -1,2,3-triazol-1-yl)ethanol) synthesis from styrene oxide, sodium azide and phenylacetylene in a 1:1:1 molar ratio in water at room temperature via a three-component reaction..... | 82 |
| Table 3.7. Investigation of various solvent effect on the synthesis of on (2-phenyl-2-(4-phenyl-1 <i>H</i> -1,2,3-triazol-1-yl)ethanol) from styrene oxide, sodium azide and phenylacetylene in a 1:1:1 molar ratio and T(<i>o</i> -Cl)PPCu (5-mol%) at room temperature via a three-component reaction..... | 83 |
| Table 3.8. Regioelective synthesis of β -hydroxy 1,4-disubstituted 1,2,3-triazoles from various epoxides (1.0 mmol), terminal alkynes (1.1 mmol) and sodium azide (1.1 mmol) in the presence of homogeneous and heterogeneous T(<i>o</i> -Cl)PPCu catalyst (5 mol-%) in water at room temperature by way of a three-component reaction. | 94 |

LIST OF TABLES

| TABLE | PAGE |
|--|------|
| Table 3.1. Investigation of various metalloporphyrins (5 mol%) on the synthesis of 2-phenylbezimidazole from <i>o</i> -PD (1 mmol), benzaldehyde (1 mmol) in ethanol at room temperature..... | 61 |
| Table 3.2. Investigation of various ligand structures of iron porphyrins (5 mol%) on 2-phenylbezimidazole synthesis from <i>o</i> -PD (1 mmol), benzaldehyde (1 mmol) in ethanol at room temperature ... | 62 |
| Table 3.3. Investigation of various solvent effect on the synthesis of 2-phenylbenzimidazole from <i>o</i> -PD (1 mmol), benzaldehyde (1 mmol) and T(<i>o</i> -Cl)PPFe ^{III} Cl (5 mol%), at room temperature | 62 |
| Table 3.4. Selective synthesis of 2-arylbenzimidazoles from various <i>o</i> -PDs (1.0 mmol) and benzaldehydes (1.0 mmol) in the presence of homogeneous and heterogeneous T(<i>o</i> -Cl)PPFe ^{III} catalyst (5 mol%) in ethanol solvent at room temperature | 72 |
| Table 3.5. Investigation of various metalloporphyrin complexes (5 mol-%) on the synthesis of (2-phenyl-2-(4-phenyl-1 <i>H</i> -1,2,3-triazol-1-yl)ethanol) from styrene oxide, sodium azide and phenylacetylene in a 1:1:1 molar ratio in water at room temperature via a three-component reaction..... | 82 |

| CONTENT | PAGE |
|---|-------------|
| 3.1.2. Preparation of silica gel-supported T(<i>o</i> -Cl)PPFe ^{III} Catalyst | 65 |
| 3.1.3. Homogeneous and heterogeneous catalytic bezimidazole synthesis | 69 |
| 3.1.4. Mechanistic considerations | 71 |
| 3.1.5. Conclusions of part A in using metalloporphyrin complexes for synthesis of benzimidazole derivatives | 75 |
| 3.2.1. Part B: Reusable porphyrinatocopper complex supported onto multiwalled carbon nanotubes as an efficient heterogeneous catalyst for a regioselective, one-pot, two-step, three-component synthesis of 1,2,3 triazoles from in-situ generated azides in water as a “green” solvent via “click chemistry” | 76 |
| 3.2.2. Homogeneous and Heterogeneous Catalytic β-hydroxy 1,4- disubstituted 1,2,3-triazole derivatives Synthesis | 92 |
| 3.2.3. Mechanistic Considerations..... | 97 |
| 3.2.4. Conclusions in part B in using metalloporphyrin complexes for synthesis of 1,2,3-triazole derivatives | 100 |
| REFERENCES..... | 101 |
| APPENDIX | 123 |

LIST OF FIGURES

| FIGURE | PAGE |
|--|------|
| Figure 1.1. Chemical structures of chlorophyll <i>a, b</i> A and heme B..... | 2 |
| Figure 1.2. The free-base porphyrin skeleton | 3 |
| Figure 1.3. Typical UV-Visible absorption spectrum of a porphyrin | 4 |
| Figure 1.4. A stereoprojection of the schematically depicted molecule of ferricytochrome c (a) and main structural changes (shown by arrows) taking place upon reduction of ferricytochrome c (b)9 | 9 |
| Figure 1.5. Conformational changes in the valinomycin molecule upon complex formation with the potassium ion | 10 |
| Figure 1.6. Structure of TAPP immobilized on chloromethylated polystyrene cross-linked by divinylbenzene | 15 |
| Figure 1.7. Structure of the complex formed by MP 14 & polyallylamine | 16 |
| Figure 1.8. Typical electron micrographs of samples of deposited TPP at a surface concentration of 4.1×10^{-11} mol. cm ⁻² . Magnification (a) 650.000, (b) 6500 000..... | 18 |
| Figure 1.9. Typical surface reliefs of deposited TPP (a, b) and a separate island of deposited TPP (c). Dimensions of sections: 20×20 mm (a, b) and 600×1000 nm (c). The surface concentrations of TPP were 2.0×10^{-11} (a), 1.3×10^{-9} (b), 1.5×10^{-12} mol cm ⁻² (c)..... | 19 |

| | |
|---|----|
| Figure 1.10. Metalloporphyrin-catalyzed oxidation reactions | 20 |
| Figure 1.11. Strong electrostatic interactions between sulfonated porphyrinatomanganese and cationic ion-exchange resins..... | 21 |
| Figure 3.1. Plots of yield of 2-phenylbezimidazole and TON versus amount of T(<i>o</i> -Cl)PPFe ^{III} Cl as catalyst using <i>o</i> -PD (1 mmol), benzaldehyde (1 mmol) in ethanol at room temperature..... | 63 |
| Figure 3.2. SEM image of T(<i>o</i> -Cl)PPFe ^{III} supported on activated silica gel..... | 66 |
| Figure 3.3. AFM Images of T(<i>o</i> -Cl)PPFe ^{III} supported on activated silica gel, A: 2-D, image, B: 3-D image, C: Voltage profile | 67 |
| Figure 3.4. XRD pattern of T(<i>o</i> -Cl)PPFe ^{III} supported on activated silica gel..... | 67 |
| Figure 3.5. The FT-IR spectrum of T(<i>o</i> -Cl)PPFe ^{III} -SiO ₂ differentiated from activated silica as substrate | 68 |
| Figure 3.6. Comparison of adsorption percent of nitrogen on activated silica gel (B) and T(<i>o</i> -Cl)PPFe ^{III} supported on silica gel (A) at 25 °C..... | 69 |
| Figure 3.7. Recyclability of T(<i>o</i> -Cl)PPFe ^{III} -SiO ₂ for 2-phenylbenzimidazole synthesis..... | 71 |
| Figure 3.8. The UV/vis spectral change of T(<i>o</i> -Cl)PPFe ^{III} Cl, λ_{\max} = 412.2 nm (a) to T(<i>o</i> -Cl)PPFe ^{II} Cl, λ_{\max} = 427.7 nm (b) due to electron transfer under strictly anaerobic condition in the presence of a ratio of 1:1 <i>o</i> -PD and benzaldehyde in ethanol solvent at 25 °C, t = 10 min. (c): Absorbtion of intermediate Schiff base A, λ_{\max} = 404.9 which was separately prepared in the absence of catalyst in ethanol solvent. This spectrum (c) is overlaid with (a) and (b) | 74 |

Figure 3.9. Plots of the yield of (2-phenyl-2-(4-phenyl-1H-1,2,3-triazol-1-yl)ethanol) and reaction time (as secondary axes) versus the amount of T(*o*-Cl)PPCu used as catalyst in the reaction of styrene oxide, sodium azide and phenylacetylene in a 1:1:1 molar ratio in water at room temperature via a three-component reaction ... 84

Figure 3.10. SEM images of T(*o*-Cl)PPCu nanoparticles supported on AMWCNTs 88

Figure 3.11. The AFM images of T(*o*-Cl)PPCu on AMWCNTs, a: 2-D, b: 3-D and c: voltage profile 88

Figure 3.12. The histogram representing the average frequency percentage of different size of T(*o*-Cl)PPCu nanoparticles supported on AMWCNTs 89

Figure 3.13. The XRD pattern of T(*o*-Cl)PPCu nanoparticles supported on AMWCNTs 90

Figure 3.14. The TG analysis of T(*o*-Cl)PPCu nanoparticles supported on AMWCNTs 90

Figure 3.15. The adsorption behaviour of nitrogen gas on a: AMWCNTs and b: AMWCNTs when supported with T(*o*-Cl)PPCu nanoparticles 91

Figure 3.16. The FTIR spectrum of T(*o*-Cl)PPCu supported on AMWCNTs. 91

Figure 3.17. Recyclability of T(*o*-Cl)PPCu-AMWCNT for 1,2,3-triazole synthesis..... 96

Figure 1. The ¹H NMR and ¹³C NMR spectra of compound **3a** 124

Figure 2. The Mass and IR spectra of compound **3a** 125

Figure 3. The ¹H NMR and ¹³C NMR spectra of compound **3b** 126

Figure 4. The Mass and IR spectra of compound **3b**..... 127

Figure 5. The ¹H NMR and ¹³C NMR spectra of compound **3c** 128

| | |
|--|-----|
| Figure 6. The Mass and IR spectra of compound 3c | 129 |
| Figure 7. The ^1H NMR and ^{13}C NMR spectra of compound 3d | 130 |
| Figure 8. The Mass and IR spectra of compound 3d | 131 |
| Figure 9. The ^1H NMR and ^{13}C NMR spectra of compound 3e | 132 |
| Figure 10. The Mass and IR spectra of compound 3e | 133 |
| Figure 11. The ^1H NMR and ^{13}C NMR spectra of compound 3f | 134 |
| Figure 12. The Mass and IR spectra of compound 3f | 135 |
| Figure 13. The ^1H NMR and ^{13}C NMR spectra of compound 3g | 136 |
| Figure 14. The Mass and IR spectra of compound 3g | 137 |
| Figure 15. The ^1H NMR and ^{13}C NMR spectra of compound 3h | 138 |
| Figure 16. The Mass and IR spectra of compound 3h | 139 |
| Figure 17. The ^1H NMR and ^{13}C NMR spectra of compound 3i | 140 |
| Figure 18. The Mass and IR spectra of compound 3i | 141 |
| Figure 19. The ^1H NMR and ^{13}C NMR spectra of compound 3j | 142 |
| Figure 20. The Mass and IR spectra of compound 3j | 143 |
| Figure 21. The ^1H NMR and ^{13}C NMR spectra of compound 3k | 144 |
| Figure 22. The Mass and IR spectra of compound 3k | 145 |
| Figure 23. The ^1H NMR and ^{13}C NMR spectra of compound 3l | 146 |
| Figure 24. The Mass and IR spectra of compound 3l | 147 |
| Figure 25. The ^1H NMR and ^{13}C NMR spectra of compound 3m ... | 148 |
| Figure 26. The Mass and IR spectra of compound 3m | 149 |
| Figure 27. The ^1H NMR and ^{13}C NMR spectra of compound 3n | 150 |
| Figure 28. The Mass and IR spectra of compound 3n | 151 |
| Figure 29. The ^1H NMR and ^{13}C NMR spectra of compound 3o | 152 |
| Figure 30. The Mass and IR spectra of compound 3o | 153 |
| Figure 31. The ^1H NMR and ^{13}C NMR spectra of compound 3p | 154 |
| Figure 32. The Mass and IR spectra of compound 3p | 155 |
| Figure 33. The ^1H NMR and ^{13}C NMR spectra of compound 3q | 156 |

| | |
|---|-----|
| Figure 34. The Mass and IR spectra s of compound 3q | 157 |
| Figure 35. The ^1H NMR and ^{13}C NMR spectra of compound 3r | 158 |
| Figure 36. The Mass and IR spectra of compound 3r | 159 |
| Figure 37. The ^1H NMR and ^{13}C NMR spectra of compound 3s..... | 160 |
| Figure 38. The Mass and IR spectra of compound 3s | 161 |
| Figure 39. The ^1H NMR and ^{13}C NMR spectra of compound 3t..... | 162 |
| Figure 40. The Mass and IR spectra of compound 3t..... | 163 |
| Figure 41. The ^1H NMR and ^{13}C NMR spectra of compound 3u | 164 |
| Figure 42. The Mass and IR spectra of compound 3u..... | 165 |
| Figure 43. The ^1H NMR and ^{13}C NMR spectra of compound 3v | 166 |
| Figure 44. The Mass and IR spectra of compound 3v | 167 |
| Figure 45. The ^1H NMR and ^{13}C NMR spectra of compound 3w ... | 168 |
| Figure 46. The Mass and IR spectra of compound 3w | 169 |
| Figure 47. The ^1H NMR and ^{13}C NMR spectra of compound 8a | 170 |
| Figure 48. The Mass and IR spectra of compound 8a | 171 |
| Figure 49. The ^1H NMR and ^{13}C NMR spectra of compound 8b | 172 |
| Figure 50. The Mass and IR spectra of compound 8b..... | 173 |
| Figure 51. The ^1H NMR and ^{13}C NMR spectra of compound 8c | 174 |
| Figure 52. The Mass and IR spectra of compound 8c | 175 |
| Figure 53. The ^1H NMR and ^{13}C NMR spectra of compound 8d | 176 |
| Figure 54. The Mass and IR spectra of compound 8d..... | 177 |
| Figure 55. The ^1H NMR and ^{13}C NMR spectra of compound 8e | 178 |
| Figure 56. The Mass and IR spectra of compound 8e | 179 |
| Figure 57. The ^1H NMR and ^{13}C NMR spectra of compound 8f..... | 180 |
| Figure 58. The Mass and IR spectra of compound 8f..... | 181 |
| Figure 59. The ^1H NMR and ^{13}C NMR spectra of compound 8g | 182 |
| Figure 60. The IR spectrum of compound 8g | 183 |
| Figure 61. The ^1H NMR and ^{13}C NMR spectra of compound 8h | 184 |

FIGURE

PAGE

Figure 62. The Mass and IR spectra of compound **8h**..... 185

Figure 63. The ^1H NMR and ^{13}C NMR spectra of compound **8i**..... 186

Figure 64. The IR spectrum of compound **8i**..... 187

Figure 65. The ^1H NMR and ^{13}C NMR spectra of compound **8j**..... 188

Figure 66. The Mass and IR spectra of compound **8j**..... 189

Figure 67. The ^1H NMR and ^{13}C NMR spectra of compound **8k**.... 190

Figure 68. The Mass and IR spectra of compound **8k**..... 191

Figure 69. The ^1H NMR and ^{13}C NMR spectra of compound **8l**..... 192

Figure 70. The Mass and IR spectra of compound **8l**..... 193

Figure 71. The ^1H NMR and ^{13}C NMR spectra s of compound **3m** 194

Figure 72. The Mass and IR spectra s of compound **8m** 195

CHAPTER ONE
INTRODUCTION AND
LITERATURE REVIEW