Resume

Name	Mohamed Ismael
Date of Birth:	15/07/1978
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• Academic Qualification

- ❖ Ph.D., Applied Chemistry, September 2009, Graduate School of Engineering, Tohoku University, Sendai, Japan
  Dissertation Title: "Accelerated Quantum Chemical Molecular Dynamics Study in CO2 Absorption and Enzyme Catalyzed Drug Metabolism"
- ❖ M. Sc., Applied Chemistry, September 2006, Graduate School of Engineering, Tohoku University, Sendai, Japan
  Dissertation Title: "A Theoretical Study of Theophylline Metabolism Mediated by CYP Enzymes"
- ❖ B. Sc., Chemistry, June 2000, Faculty of Science, South Valley University, Sohag, Egypt

• Professional Experience

❖ Professor	Chemistry Department, Faculty of Science, Sohag University, Sohag, Egypt	July 2021 – Present
❖ Associate professor	Chemistry Department, Faculty of Science, Sohag University, Sohag, Egypt	July 2015 – July 2021
❖ Postdoctoral researcher	Department of Environmental Chemistry and Chemical Engineering, Kogakuin University, Tokyo, Japan	July 2019 - Dec. 2019
❖ Postdoctoral researcher	Faculty of Science, Oviedo University, Oviedo, Spain	Sep. 2014 - April 2015
❖ Postdoctoral researcher	National Institute for Materials Science (NIMS), Tsukuba, Japan.	July 2011 - March 2012
❖ Assistant Professor	Chemistry Department, Faculty of Science, Sohag University, Sohag, Egypt	May 2010 - July 2015
❖ Research Assistant	Graduate School of Engineering, Tohoku University, Sendai, Japan	Dec. 2003 - Sep. 2009
❖ Teaching assistant	Chemistry Department, Faculty of Science, Sohag University, Sohag, Egypt	July 2001 - Dec. 2003
❖ Chemist	General Administration of Water Resources and irrigation, Egypt	July 2000 - July 2001

• Journal Publications

1) Ahmed M Abu-Dief, Rafat M El-Khatib, Faizah S Aljohani, Hessah A Al-Abdulkarim, Seraj Alzahrani, Gehad El-Sarrag, **Mohamed Ismael**, Synthesis, Structural elucidation, DFT calculation, Biological studies and DNA Interaction of Some Aryl hydrazone Cr3+, Fe3+, and Cu2+ Chelates, Computational Biology and Chemistry, 97 (**2022**), 107643
2) Hee Min Park, **Mohamed Ismael**, Hiromitsu Takaba, Yong Taek Lee Acid-resistant thin-film composite nanofiltration membrane prepared from polyamide-polyurea and the behavior of density functional theory study, Journal of Membrane Science, 645 (**2022**), 120175.
3) S. A. Aly, N. M. H. Rizk, A. Eldourghamy, S. Farfour, **Mohamed Ismael**, Molecular docking, theoretical calculations, synthesis of Ru (III), Pd (II) and VO (II) complexes and activity determination as antibacterial and antioxidant, Polish Journal of Chemical Technology 24 (1), 29-38
4) Laila H Abdel-Rahman, Maram T Basha, Badriah Saad Al-Farhan, **Mohamed Ismael**, Synthesis, biological assay, chemical descriptors, and molecular docking calculations of novel copper(II) mixed-ligand complexes of n-benzoyl-dl-phenylalanine and n-heterocyclic nitrogen bases, 1244 (**2022**), 131854
5) Ahmed M Abu-Dief, Rafat M El-khatib, Salah Mohamed El Sayed, Seraj Alzahrani, Fatmah Alkhatib, Gehad El-Sarrag, **Mohamed Ismael**, Tailoring, structural elucidation, DFT calculation, DNA interaction and pharmaceutical applications of some aryl hydrazone Mn (II), Cu (II) and Fe (III) complexes, Journal of Molecular Structure, 1244 (**2021**), 131017
6) Mohamed Khairy, Mounir Mohamed, **Mohamed Ismael**, Condensation of Active Methylene and Substituted Aldehydes over Mesoporous Nickel Oxides Nanostructures: A Combined Experimental and DFT Study, Chemistry Select, 6, **2021**, 9508-9512.

7) **Mohamed Ismael**, A. M. Abdel-Mawgoud, M. K. Rabia, A. Abdou, Ni(II) mixed-ligand chelates based on 2-hydroxy-1-naphthaldehyde as antimicrobial agents: Synthesis, characterization, and molecular modeling, Journal of Molecular Liquids, 330, (**2021**), 115611.
8) **Mohamed Ismael**, A. M. Abdel-Mawgoud, Mostafa K. Rabia, A. Abdou, Synthesis, characterization, molecular modeling and preliminary biochemical evaluation of new copper (II) mixed-ligand complexes, Journal of Molecular Structure, 1227 (**2021**), 129695.
9) WM Aboulthana, AM Youssef, MM Seif, NM Osman, RK Sahu, **Mohamed Ismael**, Comparative Study between Croton tiglium Seeds and Moringa oleifera Leaves Extracts, after Incorporating Silver Nanoparticles, on Murine Brains, Egyptian Journal of Chemistry, **2021**.
10) **Mohamed Ismael**, L. H. Abdel-Rahman, D Abou El-Ezz, EAH Ahmed, A Nafady, Synthesis, structural characterization, and biological studies of ATBS-M complexes (M (II)= Cu, Co, Ni, and Mn): Access for promising antibiotics and anticancer agents, Archiv der Pharmazie, **2021** e2000241.
11) **Mohamed Ismael**, A. M. Abdel-Mawgoud, Mostafa K. Rabia, A. Abdou, "Design and synthesis of three Fe(III) mixed-ligand complexes: Exploration of their biological and phenoxazinone synthase-like activities", Inorganica Chimica Acta, 505 (**2020**), 119443.
12) Mohamed Khairy, **Mohamed Ismael**, "Remarkable facets for selective monitoring of biomolecules by morphologically tailored CuO nanostructures", Journal of Solid State Electrochemistry 24 (1) (**2020**), 237-243.
13) Ahmed Khodairy, Eman A Ahmed, **Mohamed Ismael**, Khaled M Mohamed, Shymaa A Thabet, "Design and Synthesis of Some New Analgesic Azole Derivatives Containing Tramadol Moiety", J. Heterocyclic Chemistry, 56 (**2019**), 1055-1062.
14) **Mohamed Ismael**, A. Abdou, A. M. Abdel-Mawgoud, "Synthesis, Characterization, Modeling, and Antimicrobial Activity of FeIII, CoII, NiII, CuII, and ZnII Complexes Based on Tri-substituted Imidazole Ligand, Zeitschrift für anorganische und allgemeine Chemie, 644 (**2018**), 1203 - 1214.
15) A. M. Abdel-Mawgoud, **Mohamed Ismael**, A. Abdou, "Synthesis, Characterization, Antimicrobial Evaluation and DFT Calculations of Fe(III), Ni(II) and Cu(II) Complexes of Tridentate ONO Donor Ligand", J Pharm. Appl. Chem. 3, (**2017**), 259 - 266.
16) L. H. Abdel-Rahman, N. M. Ismail, **Mohamed Ismael**, A. M. AbuDief, E. A. H. Ahmed, "Synthesis, characterization, DFT calculations and biological studies of Mn (II), Fe (II), Co (II) and Cd (II) complexes based on a tetradentate ONNO donor Schiff base ligand", J. Molecular Structure 1134, (**2017**), 851-862.
17) L. H. Abdel-Rahman, A. M. Abu-Dief, N. M. Ismail, **Mohamed Ismael**, "Synthesis, characterization, and biological activity of new mixed ligand transition metal complexes of glutamine, glutaric, and glutamic acid with nitrogen based ligands", Inorganic and NanoMetal Chemistry, 47 (3), (**2017**), 467-480.
18) Hany M. Abd El-Lateef, **Mohamed Ismael**, Ahmed H. Tantawy, "Empirical and Theoretical Calculations for Corrosion Inhibition of Carbon Steel C1018 in Acidic Solutions Using Some Selected Fatty Acid Surfactants", Zeitschrift für Physikalische Chemie, 230 (8), (**2016**), 1111-1138.
19) Wael M. Aboulthana, **Mohamed Ismael**, Hatem S. Farghaly, "Assessmen of Mutagenicity Induced by Toxic Factors Affecting Ovarian Tissue in Rats by Electrophoresis and Molecular Dynamic Modeling", International Journal of Current Pharmaceutical Review and Research, 7(6), **2016**, 347 - 359
20) Laila H. Abdel-Rahman, Badriah S. F. Al-Farhan, **Mohamed Ismael**, Potentiometric and computational studies of Cobalt, nickel and copper complexes with bipyridyl and dl-2-amino-N-hydroxy-n-butanamide in aqueous solution, Arab J. Phys. Chem. 3 (1), **2016**, 10
21) Wael M. Aboulthana, **Mohamed Ismael**, Hatem S. Farghaly, "Electrophoretic and Molecular Dynamic Evaluation of Mutagenicity Induced by Toxic Factors Affecting Testicular Tissue in Rats", International Journal of Current Pharmaceutical Review and Research, 7(6), **2016**, 319-333
22) L. H. Abdel-Rahman, A. M. Abu-Dief, **Mohamed Ismael**, M. A. A. Mohamed, N. A. Hashem, "Synthesis, structure elucidation, biological screening, molecular modeling and DNA binding of some Cu (II) chelates incorporating imines derived from amino acids", J. Molecular Structure 1103, (**2016**), 232-244.
23) Mohamed Khairy, **Mohamed Ismael**, Rafat M. El-Khatib, Mostafa Abdelnaeem, Marium Khalaf, "Natural betanin dye extracted from bougainvillea flowers for the naked-eye detection of copper ions in water samples", Analytical Methods 8 (25), (**2016**), 4977-4982.
24) Abdel-Rahman El-Sayed, E. M. M. Ibrahim, H. S. Mohran, **Mohamed Ismael**, H. A. Shilkamy, "Effect of Indium Alloying with Lead on the Mechanical Properties and Corrosion Resistance of LeadIndium Alloys in Sulfuric Acid Solution", Metallurgical and Materials Transactions A, 46, (**2015**), 1995 - 2006.
25) Hany M. Abd El-Lateef, **Mohamed Ismael**, Ibrahim M.A. Mohamed, "Novel Schiff base amino acid as corrosioninhibitors for carbon steel in CO2-saturated 3.5% NaCl solution: experimental and computational study", corrosion review, 33, (**2015**), 77 - 97.

26) Md. Rabiul Awual, **Mohamed Ismael**, "Efficient gold(III) detection, separation and recovery from urban mining waste using a facial conjugate adsorbent", Sensors and Actuators B: Chemical, 196, (**2014**), 457-466.

27) Md. Rabiul Awual, **Mohamed Ismael**, Md. Abdul Khaleque, Tsuyoshi Yaita, "Ultra-trace copper(II) detection and removal from wastewater using novel meso-adsorbent", Journal of Industrial and Engineering Chemistry, 20, (**2014**), 2332 - 2340.

28) Md. Rabiul Awual, **Mohamed Ismael**, Tsuyoshi Yaita, "Efficient detection and extraction of cobalt(II) from lithium ion batteries and wastewater by novel composite adsorbent", Sensors and Actuators B: Chemical, 191, (**2014**), 9-18.

29) L. H. Abdel-Rahman, Rafat M. El-Khatib, L. A. E. Nassr, A. M. AbuDief, **Mohamed Ismael**, A. A. Seleem, " Metal based Pharmacologically Active Agents: Synthesis, Structural Characterization, Molecular Modeling, CT-DNA Binding Studies and In Vitro Antimicrobial Screening of Iron(II) Bromosalicylidene amino acid Chelates", Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 117, (**2014**), 366 - 378.

30) AM Hassanein, KA Abdel-Rahim, SM Younis, M Ismael, HA Abdel-Azeiz, "Physicochemical and microbiological studies of River Nile water in Sohag governorate", Journal of Environmental Studies 10 (1), **2013**,47-61
31) R. M. Ramadan, L. H. Abdel-Rahman, **Mohamed Ismael**, T. A. Youssef, S. A. Ali, "Synthesis and spectroscopic studies of some chromium and molybdenum derivatives of bis(acetylacetone)ethylenediimine ligand", Journal of Molecular Structure, 149, (**2013**), 7 - 12.
32) Md. R. Awual, **Mohamed Ismael**, T. Yaita, S. A. El-Safty, H. Shiwaku, Y. Okamoto, S. Suzuki, "Trace copper(II) ions detection and removal from water using novel ligand modified composite adsorbent", Chemical Engineering Journal, 222, (**2013**), 67 - 76.
33) Sherif A. El-Safty, Mohamed A. Shenashen, **Mohamed Ismael**, Mohamed Khairy, Md. R. Awual, "Mesoporous aluminosilica sensors for the visual removal and detection of Pd(II) and Cu(II) ions", Microporous and Mesoporos Materials, 166, (**2013**), 159 - 205.
34) Sherif A. El-Safty, **Mohamed Ismael**, Ahmed Shahat, Mohamed A. Shenashen, "Mesoporous hexagonal and cubic aluminosilica adsorbents for toxic nitroanilines from water", Environmental Science and Pollution Research, 20, (**2013**), 3863- 3876.
35) Sherif A. El-Safty, Shima Abdellatef, **Mohamed Ismael**, Ahmed Shahat, "Optical nanosphere sensor based on shell-by-shell fabrication for removal of toxic metals from human blood", Advanced Healthcare Materials, 2, (**2013**), 854 - 862.
36) Mohamed Khairy, Sherif A. El-Safty, **Mohamed Ismael**, "Mesoporous nanomagnet supercaptors for selective heme-proteins from human cells", Chemical communications, 48, (**2012**), 1083210835.
37) **Mohamed Ismael**, Sherif A. El-Safty, "Nano-modeling adsorption of aniline compounds onto mesoporous structures", 4th WSEAS international conference on Nanotechnology, (**2012**), 420-425.
38) Sherif A. El-Safty, Mohamed A. Shenashen, **Mohamed Ismael**, Mohamed Khairy, Md. R. Awual, "Optical mesosensors for monitoring and removal of ultra-trace concentration of Zn(II) and Cu(II) ions from water", Analyst, 137, (**2012**), 5278 - 5290.
39) Sherif A. El-Safty, Mohamed A. Shenashen, **Mohamed Ismael**, Mohamed Khairy, "Encapsulation of proteins into tunable and giant mesocage alumina", Chemical communications, 48, (**2012**), 67086710.
40) Sherif A. El-Safty, Mohamed A. Shenashen, **Mohamed Ismael**, Mohamed Khairy, "Mesocylindrical Aluminosilica Monolith Biocaptors for Size-Selective Macromolecule Cargos", Advanced Functional Materials, 22, (**2012**), 3013 - 3021.
41) Sherif A. El-Safty, Mohamed Khairy, **Mohamd Ismael**, "Nanoadsorbent of Organic Compounds Based on Two- and Three- Dimensional Mesocylinder Monoliths", Journal of Environmental & Analytical Toxicology, 2, (**2012**), 1 - 8.
42) Mohamed Khairy, Sherif A. El-Safty, **Mohamd Ismael**, Hiroshi Kawarada, "Mesoporous NiO nanomagnets as catalysts and separators of chemical agents", Applied Catalysis B: Environmental, 127, (**2012**), 1 - 10.
43) Sherif A. El-Safty, Mohamed Khairy, **Mohamd Ismael**, Hiroshi Kawarada, "Multidirectional porous NiO nanoplatelet-like mosaics as catalysts for green chemical transformations", Applied Catalysis B: Environmental, 123-124, (**2012**), 162 - 173.
44) Sherif A. El-Safty, Mohamed Khairy, **Mohamd Ismael**, "Visual detection and revisable supermicrostructure sensor systems of Cu(II) analytes", Sensors and Actuators B: Chemical, 166-167, (**2012**), 253 - 263.
45) Sherif A. El-Safty, Ahmed Shahat, **Mohamd Ismael**, "Mesoporous aluminosilica monoliths for the adsorptive removal of small organic pollutants", Journal of Hazardous Materials, 201-202, (**2012**), 23 - 32.

46) Mohamed Khairy, Sherif A. El-Safty, **Mohamed Ismael**, Mohamed A. Shenashen, "Green chemical transformation of phenolic pollutants using mesoporous NiO nanocrystals with sheet-like morphology", 4th WSEAS international conference on Nanotechnology, (**2012**), 414 - 419.
47) **Mohamed Ismael** and Carlos A. Del Carpio, "Elucidate the origin of CYP flexible structural variation using molecular dynamics calculation", J. Toxicol. Environ. Health Sci., 3 (**2011**), 335.
48) Shah Md. Abdur Rauf, **Mohamed Ismael**, Kamlesh Kumar Sahu, Ai Suzuki, Michihisa Koyama, Hideyuki Tsuboi, Nozomu Hatakeyama, Akira Endou, Hiromitsu Takaba, Carlos A. Del Carpio, Momoji Kubo, Akira Miyamoto, "The effect of R249S carcinogenic and H168R–R249S suppressor mutations on p53–DNA interaction, a multi scale computational study", Computers in Biology and Medicine, 40 (**2010**), 498 - 508.
49) K. Kumar Sahu, **Mohamed Ismael**, S. Md. Abdur Rauf, A. Suzuki, R. Sahnoun, M. Koyama, H. Tsuboi, N. Hatakeyama, A. Endou, H. Takaba, C. A. Del Carpio, M. Kubo, A. Miyamoto, "Applying Ultra-Accelerated Quantum Chemical Molecular Dynamics Technique for the Evaluation of Ligand Protein Interactions" Med Chem. Res. , 19 (**2010**), 1 - 10.
50) Shah Md Abdur Rauf, **Mohamed Ismael**, Kamlesh Kumar Sahu, Ai Suzuki, Riadh Sahnoun, Michihisa Koyama, Hideyuki Tsuboi, Nozomu Hatakeyama, Akira Endou, Hiromitsu Takaba, Carlos A Del Carpio, Momoji Kubo, Akira Miyamoto, "A graph theoretical approach to the effect of mutation on the flexibility of the DNA binding domain of p53 protein", Chemical Papers, 63 (6), **2009**, 654 - 661
51) **Mohamed Ismael**, Riadh Sahnoun, Ai Suzuki, Michihisa Koyama, Hideyuki Tsuboi, Nozomu Hatakeyama, Akira Endou, Hiromitsu Takaba, Momoji Kubo, Shinkichi Shimizud, Carlos A. Del Carpio, Akira Miyamoto, "A DFT study on the carbamates formation through the absorption of CO_2 by AMP", International Journal of Greenhouse Gas Control, 3 (5), **2009**, 612 - 616
52) **Mohamed Ismael**, C. A. Del Carpio, A. R. Shaikh, H. Tsuboi, M. Koyama, A. Endou, M. Kubo, E. Broclawik and A. Miyamoto, "A DFT Study of the Heme Role in the N-Demethylation of Theophylline Mediated by Compound I of Cytochrome P450", Mat. Tran., 48 (**2007**), 730 - 734.
53) C. A. Del Carpio, **Mohamed Ismael**, E. Ichiishi, M. Koyama, M. Kubo, A. Miyamoto, "An Evolving Automaton for RNA Secondary Structure Prediction", (IEEE), (**2006**), 2226 - 2233.
54) A. R. Shaikh, **Mohamed Ismael**, C. A. Del Carpio, H. Tsuboi, M. Koyama, A. Endou, M. Kubo, E. Broclawik, A. Miyamoto., "Threedimensional quantitative structure activity relationship (3D-QSAR) and docking studies on (benzothiazole-2-yl) acetonitrile derivatives as c-Jun N-Terminal kinase-3 (JNK3) inhibitors" , Bio. Med. Chem. Let., 16 (**2006**), 5917 - 5925.
55) A. R. Shaikh, E. Broclawik, **Mohamed Ismael**, H. Tsuboi, M. Koyama, M. Kubo, C. A. Del Carpio,A. Miyamoto., "Hyperconjugation with lone pair of morpholine nitrogen stabilizes transition state for phenyl hydroxylation in CYP3A4 metabolism of (S)-N-[1-(3-morpholin-4-yl phenyl) ethyl]-3- phenylacrylamide", Che. Phy. Let., 419 (**2006**), 523 - 527.
56) E. Broclawik, A. Rajjak Shaikh, **Mohamed Ismael**, H. Tsuboi, M. Koyama, M. Kubo, Carlos A. Del Carpio and A. Miyamoto, "Metabolism of arene substrates on iron site in cytochrome P450: Quantum chemical DFT modeling" Lecture Series on Computer and Computational Science (T. Simos, Ed., ISBN 90-6764-442-0), Vol. 4B, (**2005**), 1367-1370.

• Funded Research Projects

- ❖ CO-PI. Newton - Mosharafa Institutional Links for two years (Grant No. 172726574, ID. 18435) entitled "Development of next-generation screen-printed electrochemical sensors/biosensors to provide substantial benefits in their performance utilised in biomedical, environmental, and industrial analyses"
- ❖ CO-PI of the German-Egyptian Joined Research Project Funded by STDF and BMBF (Project ID: 5064) entitle "Hematite Nanostructures for Solar Hydrogen Production (SolHyd)".
- ❖ Member of capacity building project funded from STDF "Developing the materials characterization lab at Sohag University, ID 22829).
- ❖ Member of capacity building project funded from STDF "Advanced microscopic lab for nanotechnology applications, ID 38287)
- ❖ Global COE Research Grant, Tohoku University, Study the mutants effect on the structural and function of CYP enzyme

• Major Recognitions and Honors

- ❖ State Encouragement Award in Chemistry, 2013
- ❖ Century Center of Excellence (COE) Fellowship, Tohoku University, Japan 2007
- ❖ Japanese Aoba Engineering Foundation Postgraduate Scholarship, Sendai, Japan, 2003

• conference Publications and Presentations

1. Mohamed Ismael, "Reaction Time Accelerated Molecular Dynamics Technique to Investigate the Drug Metabolism Mediated by CYP Enzyme", 1-ICCA, 2016 November, Hurghada, Egypt.

2. Mohamed Ismael, Study the Capture of CO_2 by Alkanolamines Using Ultra Accelerated Quantum Chemical Molecular Dynamics. Alexander von Humboldt workshop, "Nanotechnology and Nanomaterials For Sustainable Development" 02-04 February, Jan. 2016 Luxor, Egypt.
3. Mohamed Ismael, "Modeling the carbon dioxide absorption by alkanolamines using ultra-accelerated quantum chemical molecular dynamics technique", Ibn-Sina International Conference, 2015 March, Hurghad.
4. Mohamed Ismael, Serif. A. El-Safty, "Nano-modeling adsorption of aniline compounds onto mesoporous structures", 4th WSEAS international conference on Nanotechnology, (2012), 420-425
5. Mohamed Ismael, "Reaction Mechanisms of CO2 Absorption by Alkanolamine Solutions: DFT Study", 11 ICCA, 2010 November, Luxor, Egypt.
6. Mohamed Ismael, "Theoretical Investigation on the mechanism of CO2 Absorption by Aqueous Alkanolamine Solutions", ECCMF, 2009 January, Sendai, Japan.
7. Mohamed Ismael, "Structural analysis of the disease-causing mutations in protein structure using accelerated quantum chemical molecular dynamics technique", CBI, 2008 October, Tokyo, Japan.

• Journals Cover Page and Highlight

- Mohamed Khairy, Sherif A. El-Safty and Mohamed Ismael, Mesoporous nanomagnet supercaptors for selective heme-proteins from human cells, Chemical Communications, 2012, 48, 10790-10790. DOI: 10.1039/C2CC90368G
- Sherif A. El-Safty, Mohamed A. Shenashen, Mohamed Ismael, Mohamed Khairy, Md. R. Awual, Optical mesosensors for monitoring and removal of ultra-trace concentration of Zn(II) and Cu(II) ions from water, Analyst, 2012, 137, 5442-5442, DOI: 10.1039/C2AN90097A

• Thesis Supervision

- Aly Abdou (PhD) Design and preparation of transition metal complexes based on Schiff base ligands for biological and phenoxazinone Synthase-like activities, Sohag University, 2018-2020
- Gehad B. El-Sarrag (M. Sc.) Design, Structural Characterization, DNA Interaction and Biological Evaluation of Some Novel Transition Metal Complexes, Sohag University, 2017-2021
- Basma M. Emam (M. Sc.) Ecotoxicological studies of oxytetracycline and some heavy metals on earthworm in Sohag- Egypt, Assuit University, 2015-2018
- Ebtehal Abdel Hameed (M. Sc.) synthesis, characterization and biological activity measurment of Schiff bases containing pyridine and thiazole derivatives and their complexes, Sohag University, 2015-2017
- Aly Abdou (M. Sc.) Synthesis, Characterization, Antimicrobial evaluation and DFT calculations of transition metal complexes of tridentate ONO donor ligands, Sohag University, 2016-2017