

## Curriculum Vitae

### (A) Bio-sketch

Name: Okoro, Uchechukwu Chris, *Ph. D, MNYAS, FCSN, FICCON*

Address: Department of Pure and Industrial Chemistry, University of Nigeria,  
Nsukka

E- mail: [uchechukwu\\_okoro@yahoo.com](mailto:uchechukwu_okoro@yahoo.com)  
[uchechukwu.okoro@unn.edu.ng](mailto:uchechukwu.okoro@unn.edu.ng)  
[uchechukwuokoro639@gmail.com](mailto:uchechukwuokoro639@gmail.com)

Tel: +2348038995403; +2347059643502; +2347081474361

Marital Status: Married to Mrs Roseline A. Okoro with six Children (3 boys & 3 girls)

Place of Birth: Ndeaboh, Aninri L G A, Enugu State, Nigeria.

Date of Birth: 12th October, 1956

Rank: Professor

### (i) Earned Degrees/Certificates

Degree	Year	University/School	Field	Specialization	Classification
<b>Ph. D</b>	1989	University of Nigeria, Nsukka.	Pure and Industrial Chemistry	Industrial Organic	A
<b>B. Sc</b>	1982	University of Lagos	Chemistry	Physical Organic	First Class
<b>WASC</b>	1976	Emekuku High School, Owerri	-	-	First Division
<b>FSLC</b>	1971	St. Georges School, Ndeaboh, Aninri LGA, Enugu State.	-	-	Distinction

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## ii) ACADEMIC HONOURS/AWARDS RECEIVED

Title	Organization	Date
Prize for being the student with Best all round performance at degree level	Faculty of Science, Unilag	June 1982
Prize for being the student with Outstanding performance in Chemistry	FSAS Sokoto, Nigeria	1977
Prize for being the student with Outstanding performance in Physics	FSAS Sokoto, Nigeria	1977
Recipient Federal Merit Award as Undergraduate student for outstanding Academic performance at the Univ. of Lagos	Federal Ministry of Education, Nigeria	1980-1982

## (iii) THESIS / REPORT WRITTEN

Title	Organization	Date
The Kinetics of the Reactions of Picryl chloride with substituted Anilines	Dept. of Chemistry Univ. of Lagos	1982
Development of Dyes & Pigments from New Phenothiazine & Phenoxazine Ring System	Dept. of Pure & Ind. Chem. UNN	1989

## Academic Progression at the University of Nigeria, Nsukka.

1983 – Graduate Assistant

1989 – Lecturer II

1992 – Senior Lecturer

2010 - Professor

## **(B) ONGOING RESEARCH.**

### **1. Synthesis of Biologically Active Compounds.**

Our group focuses on the synthesis of linear phenothiazine and phenoxazine compounds of pharmaceutical interest. Both base and acid catalyzed coupling reactions are employed in the synthesis of these compounds from readily available starting materials. Often synthesis involves creative manipulation of organic heterocyclic precursors. Synthesis and application of active herbicides are also undertaken in this direction.

### **2. Synthesis of Oligophenothiazines and Phenoxazines.**

Phenothiazine derivatives have become valuable spectroscopic probes in molecular and supramolecular arrangements for photo induced electron transfer (PET) studies and as functional motifs in material science. Our group therefore focuses on the synthesis of wire like oligophenothiazines and phenoxazine which can be regarded as models for polymers with electronically coupled chromophores.

### **3. Synthesis of Dyes and Pigments.**

We also focus on the synthesis and characterization of polycyclic angular phenothiazines that are deep coloured compounds. Often we are interested in molecular modifications of the angular systems to produce analogues capable of absorbing light in the region between 700-900nm in the visible region of the electromagnetic spectrum which makes these compounds applicable as laser dyes. Reactions employed here include base catalyzed coupling under anhydrous media as well as transition metal catalyzed coupling reactions typified by Suzuki- Miyaura, Mizoroki-Heck and Buchwald-Hartwig methodologies etc. Our mode of operation also involves green chemistry methodologies e.g solvent free reactions under microwave irradiations and in ionic liquids.

### **4. Bio-fuel Production.**

Our group is equally interested in the development of biodiesel and bioethanol from indigenous vegetable oils and biomass respectively. Research involves synthesis by transesterification reactions catalyzed by sodium hydroxide. Kinetic

studies are also undertaken. The production of bioethanol is usually by utilization of starchy/sucrose containing biomass.

#### **5. Climate Change Mitigation and Adaptation Technology.**

Our group focuses on the preparation of Biochar: a soil amendment that combats Global Warming and improves agricultural sustainability and environmental impacts. This is a carbon sequestration (carbon negative) technology.

#### **6. Hybrid Nanomaterial: Synthesis, Characterization and Application.**

Our current interest is on the synthesis of nanoporous materials including metal organic frameworks (MOF) and transformation into composites for the preparation of artificial photonic antenna frameworks.

### **(C) TEACHING EXPERIENCE**

#### **M. Sc Students Supervised**

1. Ezema B E  
Graduation Date: 1995  
Thesis Title: Synthesis of New Non-Linear Diazaphenoxazine Ring System.  
Employer/Position: Department of Pure & Industrial Chemistry, University of Nigeria, Nsukka, Lecturer
2. Ugwoke R.O.  
Graduation Date: 1995  
Thesis Title: Synthesis of New Non-Linear Diazaphenoxazine Ring System  
Employer/Position: Division of General Studies, University of Nigeria, Nsukka, Lecturer
3. Okwagi Patrick  
Graduation Date: 1998  
Thesis Title: Development of Agricultural Herbicides for Rice Farms.  
Employer/Position: College of Education, Agbor, Delta State, Nigeria,/ Lecturer.
4. Ekerendu Effiong E.  
Graduation Date: 2004  
Thesis Title: Assessment Herbicide Pollution Levels in Lower Anambra Irrigation Project Site Omor, Anambra State.  
Employer/Position: Economic and Financial Crime Commission (EFCC), Abuja, Nigeria,/ Enforcement Operative.

5. Ijeoma A. O.  
Graduation Date: 2005  
Thesis Title: Synthesis of New Non-Linear Polycyclic Diazaphenothiazine Ring System. Employer/Position: Department of Pure & Industrial Chemistry, University of Nigeria, Nsukka, Lecturer
6. Ofoefule A. U.  
Graduation Date: 2005  
Thesis Title: Synthesis of New 'Angular' Azaphenothiazine.  
Employer/Position: Energy Commission of Nigeria, Energy Research & Development Center UNN,/ Research Fellow.
- 7 Okpunor F  
Graduation Date: 2005  
Thesis Title: Synthesis of New Non-Linear Triazaphenoxazine Ring System  
Employer: Ogbmudein Mixed Secondary School, Agbor, Delta State,
8. Musa F.  
Graduation Date: 2007  
Thesis Title: Synthesis of Some New Anilino Derivatives of Angular Phenothiazinone of Pharmaceutical Interest.  
Employment/Position: Federal College of Education, Okene/ Lecturer.
9. Onwuachu U. I.  
Graduation Date: 2007  
Thesis Title: Synthesis of Some New Derivatives of 9, 11-Diazabenz[a]phenothiazin-5-one  
Employment/Position: Nwafor Orizu College of Education, Nsugbe, Anambra State.
10. Onoabedje E. A.  
Graduation Date: 2008  
Thesis Title: Synthesis of Non-linear Polycyclic Diazaphenothiazine & Its Anilino Derivatives  
Employment/ Position: Department of Pure and Ind. Chem. UNN/Lecturer
11. Lateef F A  
Date Enrolled: 2007  
Graduation Date: 2010  
Project Title: Batch Production of Fatty Acid Propyl Esters (Biodiesel) from Oil Seed Crops.  
Employer/Position: Fed. Poly. Idah. /Lecturer

12. Utime A.  
Graduation Date: 2010  
Thesis Title: A New Synthesis Some Polycyclic Triphenodioxazine Dyes and Pigments.
13. Ujah, A. E.  
Graduation Date: 2011  
Thesis Title: Synthesis of Functionalised Angular Phenoxazinones via Suzuki-Miyaura Cross-Coupling Reaction.
14. Oni, T. O.  
Graduation Date: 2011  
Thesis Title: Mizoroki-Heck Reaction in the Arylation of Angular Triazaphenoxazine and the Related Monoaza Analogue
15. Ayuk , E. L  
Graduation Date: 2011  
Thesis Title: Synthesis of Functionalised Angular Monoazaphenothiazine via Suzuki-Miyaura Cross-coupling Reaction
16. Jacob, A. D.  
Graduation Date: 2012  
Thesis Title: Rapid Access to 11-(*N*-Substituted)-Angular Triazaphenoxazine via Copper Catalysed *N*-Arylation
17. Egbujor, M. C.  
Graduation Date: 2012  
Thesis Title: Palladium Catalysed Amination of a Linear Monoazaphenothiazine
18. Ashishie, C. A.  
Graduation Date: 2012  
Thesis Title: Nickel Catalyzed Amidation of a Linear Monoazaphenothiazine
19. Odaa, E. M.  
Date Enrolled: 2011  
Graduation Date: 2014  
Thesis Title: Palladium Catalysed Amidation of Angular Diazaphenoxazine
20. Igori, W  
Graduation Date: 2012  
Thesis Title: Synthesis and Characterisation of Zinc Oxide Nanowires

21. Okongwu, V. I.  
Graduation Date: 2012  
Thesis Title: Nickel Catalysed Arylation of Angular Diazaphenoxazinone
22. Ihejieta, I. A.  
Graduation Date: 2012  
Thesis Title: Copper Catalysed *N*-Arylation of Angular Triazaphenothiazine
23. Nwelope, R. C.  
Graduation Date: 2012  
Thesis Title: Synthesis of New Aryl Derivatives of Angular Phenoxazines via Suzuki-Miyaura Cross-coupling Reaction
24. Okei, U. H. E  
Graduation Date: 2012  
Thesis Title: Heck Reaction in the Synthesis of Functionalised Angular Diazaphenoxazines and the Related Benzo[j]-Analogue
25. Okonkwo, N. C. G.  
Graduation Date: 2012  
Thesis Title: Rapid Access to 11-(*N*-Substituted)-Angular Triazaphenoxazinones via Buchwald-Hartwig Reaction
26. Egbo Peace I  
Date Enrolled: 2011  
Date of Graduation: 2013
27. Ojarikre Enno  
Date Enrolled: 2011  
Date of Graduation: 2013
28. Edeka Obianuju  
Date Enrolled: 2011  
Date of Graduation: 2013
29. Ali Florence  
Date Enrolled: 2011  
Date of Graduation: 2013
30. Nwafor Peace Ifeoma  
Date Enrolled: 2011  
Date of Graduation: 2015

31. Ugwu David I.  
Date Enrolled 2012  
Date of Graduation: 2014  
Project Title: Synthesis and Evaluation for Antimicrobial Activities of *N*-Heteroaryl Substituted *p*-Toluene Sulphonamoyl Ethanamides
32. Okwoigwe Modestus Ndubuisi  
Date Enrolled: 2011  
Date of Graduation: 2013
33. Chukwurah, D. T.  
Date Enrolled: 2012  
Date of Graduation: 2014  
Project Title: Nickel Catalyzed Synthesis of *N*-Aryl and *N*-Heteroaryl Substituted Benzene Sulphonamides
34. Ozoh, C. F.  
Date Enrolled: 2012  
Date of Graduation: 2014  
Project Title: Synthesis and Antimicrobial Activities of *N*-(Heteroaryl Substituted *p*-Toluene Sulphonamides
35. Ekoh, O. C.  
Date Enrolled: 2012  
Date of Graduation: 2015  
Project Title: Nickel Catalyzed Synthesis of *N*-Arylsubstituted- *p*-Toluene Sulphonamides and Evaluation of their Biological Activities
36. Igwe, C. N.  
Date Enrolled: 2012  
Date of Graduation: 2014  
Project Title: Synthesis of *N*-(Heteroaryl Substituted) Benzene Sulphonamides and their Biological Activities
37. Ochu., R. C.  
Date Enrolled: 2012  
Date of Graduation: 2015  
Project Title: Nickel Catalyzed Synthesis of *N*-(Heteroaryl substituted)-*p*-Toluene Sulphonamides and their Antimicrobial activities



38. Agbo Stephen Attah  
Date Enrolled: 2011  
Date of Graduation: 2014  
Project Title: Nickel Catalyzed Amidation in the Synthesis of Azaphenoxaxine  
Carboxamides
39. Orjioke Nwakego  
Date Enrolled: 2013  
Date of Graduation: 2015
40. Udeh Ajah N.  
Date Enrolled: 2013  
Date of Graduation: 2015
41. Okorie A. J  
Date Enrolled: 2013  
Date of Graduation: 2015
42. Atta Solomon  
Date Enrolled: 2013  
Date of Graduation: 2015

#### **Ph. D Students Supervised**

1. Nnabugwu M. A. N.  
Date of Graduation: 2010  
Thesis Title: Synthesis of New Aza Analogues of 'Angular' Phenothiazines of  
Industrial Interest.  
Employment/Position: Department of Pure and Industrial Chemistry,  
University of Nigeria, Nsukka/Lecturer
2. Godwin-Nwakwasi, E. U.  
Date of Graduation: 2012  
Thesis Title: Utility of Suzuki-Miyaura, Mizoroki-Heck and Buchwald-Hartwig  
Cross-coupling Reactions in the Synthesis of Non-Linear Polycyclic  
Phenothiazine Derivatives of Pharmaceutical Interest
3. Ofoefule, A. U.  
Date of Graduation: 2012  
Thesis Title: Biofuel Potentials of Some Biomass Feedstock for Bioethanol and  
Biogas
4. Ijeomah, A. O.  
Date of Graduation: 2012  
Thesis Title: Transition Metal Catalysed Synthesis of Functionalised Angular  
Phenothiazines of Industrial Interest
5. Onoabedje E. A.

Date Enrolled: 2010

Date of Graduation: 2014

Project Title: Palladium - Xphos Mediated Suzuki-Miyaura, Sonogashira and Stille Synthesis of Phenothiazine and Phenoxazine Derivatives and their Antimicrobial Properties.

6. Egu Atta Samuel

Date Enrolled: 2010

Date of Graduation: 2015

Project Title: New Synthesis and Antimicrobial Activities of Functionalized Quinolinequinone and the Related Carbocyclic Analogue

7. Ibeanu F.

Date Enrolled: 2005

Date of Graduation: 2015

Project Title: Synthesis of Functionalized Angular Phenothiazines and Phenoxazines of Pharmaceutical Interest Via Transition Metal Catalyzed Tandem Reactions

8. Ani, J. U.

Date Enrolled: 2007

Date of Graduation: 2016

### **M. Sc Students under Supervision**

1. Ukogu Kingsely

Date Enrolled: 2011

Expected Date of Graduation: 2015

2. Ugwuede Chika Augustine

Date Enrolled: 2011

Expected Date of Graduation: 2015

## **Ph. D Students under Supervision**

1. Ugwoke R. O.  
Date Enrolled: 2011  
Expected Date of Graduation: 2015  
Project Title: Design, Synthesis and Biological Evaluation of New Sulphonamide Derivatives as Antimicrobial Agents.
  
3. Ekerendu E. E.  
Date Enrolled: 2008  
Expected Date of Graduation: 2014  
Project Title: Transition Metal Catalyzed Reactions in the Synthesis of Linear Polycyclic Azaphenothiazine Heterocycles.
  
4. Ezegbirika Paul I  
Date Enrolled: 2010  
Expected Date of Graduation: 2017  
Project Title: Synthesis and Characterization of Nanoporous–Phenothiazine and Phenoxazine Hibrid Nanomaterials.
  
5. Ugwu David I  
Date Enrolled: 2014  
Expected Date of Graduation: 2017
  
6. Eze Florence  
Date Enrolled: 2014  
Expected Date of Graduation: 2019
7. Egbujoh Melford  
Date Enrolled: 2014  
Expected Date of Graduation: 2019
8. Jacob, A. D.  
Date Enrolled: 2014
9. Ayuk , E. L  
Date Enrolled: 2015
10. Okongwu, V. I.  
Date Enrolled: 2013
  
11. Egbo Peace I  
Date Enrolled: 2015

12. Ekoh, O. C.  
Date Enrolled: 2015

13. Igwe, C. N. Igwe, C. N.  
Date Enrolled: 2015

14. Ihejieta, I. A.  
Date Enrolled: 2015

15. Ojarikre Enno  
Date Enrolled: 2015

16. Tunde Aranimbo  
Date Enrolled: 2015

17. Ugwuja Daniel  
Date Enrolled: 2015

18. Ikpa C.  
Date Enrolled: 2013

**(D) ACADEMIC PUBLICATIONS AND CREATIVE WORKS.**

**Journal Articles/Books/Scientific Presentations/Industrial R&D Innovations**

1. **U C Okoro** and C O Okafor, A new Synthesis of 'Three Branched' Diazaphenothiazine Dyes, *Dyes and Pigments* **9**, 427(1988).
2. **U C Okoro**, Synthesis of New Triaza and Tetraaza Analogues of phenothiazine, *Indian J. Chem.* **29B**, 177 (1990).
3. **U C Okoro** and C O Okafor, An Unequivocal Synthesis of benzo[a][1,4]benzoxazino[3,2-] phenoxazine, *Journal of the Nigeria Academy of Science* **2**, 77 (1990).
4. **U C Okoro**, Synthesis of New 'branched' benzoxazinophenothiazine Ring System, *Indian J Chem.* **30B**, 18 (1991)

5. **U C Okoro**, The First Aza-analogues of Dibenzotriphenodithiazine Ring System, *Indian Journal of Chemistry 30B*, 22(1991).
6. **U C Okoro** and C O Okafor, New Non-Linear Polycyclic Azaphenothiazine Dyestuffs, *Dyes and Pigments* 16, 149 (1991)
7. **U C Okoro** Pigments Used in Paints, *Proceedings of CSN Enugu State Chapter Workshop on the Science and Technology of Paints*, **1**, 42 (1992).
8. **U C Okoro**, J U Oguakwa, C A Nwadinigwe, F A Onwodi & F I Nwabue, Principles of Inorganic Chemistry .....The Fundamental Aspects. The Academic Publishers, Nsukka , 1997
9. **U C Okoro**, S O Onyiriuka, C A Nwadinigwe, M N Nwaji & L E S Akpanisi, Principles of Organic Chemistry..... The Fundamental Aspects, The Academic Publishers, Nsukka, 1997.
10. **U C Okoro**, Solutions to Problems in Basic Organic Chemistry..... With Notes,  
Academic Publishers Nig. Ltd, Nsukka, 1999.
11. **U C Okoro**, P A Obuasi, M J Kelleher & J I Ume, Basic Principles of Physical Chemistry, John Best Publishers Nig. Ltd, Enugu, 2001
12. **U C Okoro**, Intermediate Organic Chemistry Vol. One, Academic Publishers Nigeria Ltd, Nsukka, 2003.
13. **U C Okoro**, Manual of Basic Organic Chemistry Practicals, Academic Publishers Nig Ltd, Nsukka, 2004.
14. **U C OKoro** B E Ezema, Synthesis of New Non- Linear Diazaphenothiazine Ring System, *International Journal of Chemistry*, **16(3)** (2006).
15. **U C Okoro** and A O Ijeoma, Synthesis of New Non-Linear Polycyclic Diazaphenothiazine Ring System, *International Journal of Chemistry*, **16(4)** (2006).
16. **U C Okoro** and A U Ofoefule, Synthesis of Some New Aryl Derivatives of 1, 11-Diaza-5H- benzo[a]phnothiazin-5-one, *International Journal of Chemistry*,  
**18(3)**, 109 (2008)

17. **U C Okoro** and F Okpunor and R O Ugwoke, The First 'Angular' Triazaphenoxazine and the Related Diaza- Analogues and Derivatives by Metal Catalyzed Coupling Reactions, *International Journal of Chemistry*, **19(3)**, 107 (2008)
18. **U C Okoro**, M A N Nnabugwu and C A Nwadinigwe, Synthesis of Some New 'Angular' Diazaphenothiazine and their Anilino Derivatives as Stable Cyclic Quinoneimines, *International Journal of Chemistry* **18(4)**, 171(2008)
19. **U C Okoro**, E A Onoabedje and E M Odin, The First 'Angular' Triazaphenothiazinone, the Related Diaza-Analogue and their Anilino Derivatives, *International Journal of Chemistry*, **19(4)**, 197 (2009)
20. **U C Okoro**, U I Onwuachu and F Musa, Palladium Catalysed Regioselective Synthesis of Some Anilino Derivatives of Angular Diazaphenothiazinone and the Related Diaza Analogue, *International Journal of Chemistry*, **19(3)**, 208 (2009)
21. **U. C. Okoro** , E. U. Godwin-Nwakwasi, S O Onyiriuka, Synthesis of Novel Allylic *N*- alkylated Anilines Using Phosphate Esters and Crotyl Chloride, *African J. Bio. Sci.* **3(1)**, 33 (2010).
22. M. A. Nnabugwu and **U, C Okoro**, New Dyes for Petroleum Products, *J. Emerging Trends in Engr. and Appl. Scis* , **3(1)**, 8-11 (2011)
23. **U C Okoro**, A Utime and M N Nnabugwu, Synthesis of Functionalized Triphenodioxazines via Palladium Catalyzed Cross-Coupling Reactions, *International J. Chem*, **21(3)**, 20 (2011).
24. **U C Okoro**, M A Nnabugwu, C A Nwadinigwe and L E S Akpanisi, Synthesis of 1,9,10-triaza-5*H*-benzo[a]phenothiazin-5-one Derivatives, *Intl. J. Chem.* **21(3)**, 201(2011).
25. **U C Okoro**, *Principles of Organic Chemistry...the Fundamental Aspects*, 2<sup>nd</sup> Edition, Academic Publishers, Nsukka, 2012.
26. A U Ofoefule, **U C Okoro** and O D Onukwuli, Biogas Production from Waste By-product of Ethanol Production: 1. Digestion of Pure Waste, *Int. J. Current Res*, **4(11)**, 82-85, (2012)

27. A U Ofoefule, **U C Okoro** and O D Onukwuli, Biogas Production from Waste By-product of Ethanol Production: 2, Effect of Batch co-digestion with Some Animal and Plant Wastes on Biogas Production, *Int. J. Current Res*, 4(11), 86-91, (2012)
28. A U Ofoefule, **U C Okoro**, C N Ibeto and OD Onukwuli, Biodiesel Production from Tigernut (*Cypenis esculartus*) oil and Characterization of its Blend with Petrodiesel, *Physical Review and Research Intl.* 3(2), 145-153, (2013)
29. A U Ofoefule, **U C Okoro** , O D Onukwuli and C. N. Anyanwu, Biogas Production from Waste By-product of Ethanol Production: 3, Modeling of Gas Yield with Time, *Physical Review and Research Intl.* 3 (1), 18-27. (2013).
30. **U C Okoro** and A D Jacob Copper-Catalyzed Arylation Reaction in the Synthesis New Derivatives of Angular Triazaphenoxazinone, *J. Chemistry and Materials Research*, 6(9), 37-40 (2014).
31. D. I Ugwu, and **U. C Okoro**, Synthesis, Characterisation and Antifungal activities of [4- methylphenyl sulphonamide]-*N*-(pyridin-2-yl)acetamide derivatives, *Medicinal Chemistry*, 4, 330-333 (2014).
32. C.F. Ozoh, **U.C Okoro**, and D.I Ugwu, (2014) Synthesis and Antimicrobial activities of *N*-(heteroaryl substituted)-*p*-toluene sulphonamides, *Organic Chemistry International*, 2014, doi:10.1155/2014/748257
33. D. I Ugwu and **U. C. Okoro** Synthesis, (2014) Characterisation and Evaluation for Antibacterial Activities of *N*-Pyridin-2-yl Substituted-*p*-Toluene Sulphonamoyl Ethanamides, *Int. J. Sci. Res.* 3(9), 35-38,
34. D.I. Ugwu, **U .C Okoro.**, T.D. Chukwurah (2014).Nickel Catalyzed Synthesis of *N*-aryl and *N*-heteroaryl Substituted Benzene Sulphonamides and their Biological Activity Evaluation. *Med Chem.* 4:357-360,
35. C. N. Igwe and **U. C. Okoro**, ( 2014) Synthesis, Characterization and Evaluation for Antimicrobial and Antifungal Activities of *N*-Heteroaryl Substituted Benzene Sulphonamides, *Org. Chem. International*, doi.org/10.1155/2014/419518
36. S. A. Egu, **U. C. Okoro** and T. Wirth, Scienceopen Research, 2015, (doi:10.14293/S2199-1006.1.SOR-CHEM.AALL9P.v1)
37. MC Egbujor, UC, Okoro and DI Ugwu, Synthesis of New Derivatives of 1-Azaphenothiazine via Buchwald-Hartwig Amination methodology, *Asian Journal of Chemistry*, 27(4), 1469-1472, (2015).

38. **U .C. Okoro**, C. N. Igwe, S. I. Egba, N.E. Nwankwo and E. G. Anaduaka (2015), The Activity of Synthesized N-heteroaryl Substituted Benzene Sulphonamides on the Liver and Kidney Marker Enzymes of *Plasmodium berghei* Infected Mice, *J. Pharm.Chem. Biol Sci* 3(1) 6-16
39. E. L. Ayuk, S. U. Ilo, A. N. Njokunwogbu, G. A. Engwa, T. O. Oni and U. C. Okoro (2015), Synthesis and Characterization of 6-(4-Bromophenyl)-10-methyl-11-azabenzothiazin-5-one, *Int. J. Materials and Chemistry*, 5(2), 44-47, doi:10.5923/j.ijmc.20150502.03.
40. F. U. Eze and U. C. Okoro, (2015) Synthesis of Monoazaphenoxazine Derivatives via Buchwald-Hartwig Tandem Amination Protocol, *Asian J. Chem.*, 27(12), 4401-4404.
41. T. O. Oni, U. C. Okoro and D. I. Ugwu, (2015), Synthesis of 1-azabenzothiazin-5-one and 11-amino-1,8,10-triazabenzothiazin-5-one and their Functionalized Aryl Derivatives via Mizoroki-Heck Arylation Methodology, *Oriental J. Chem.*, 31(1), 371-378.
42. Ofoefule A.U., **Okoro, U.C** and Onukwuli O.D. (2015). Effect of hydrolysis reaction time on the reducing sugar yield of Acha (*Digitaria exilis*) and Finger millet (*Eleusine coracana*) starch for bioethanol production. **Chem. Sci. Trans** 4 (2), 331-336 , DOI:10.7598/cst2015.986
- 43 W. Igori, V. E. Okposhi, B. C. Obi and U. C. Okoro (2015), Synthesis and Characterization of Zinc Oxide (ZnO) Nanowire, *Nanomedicine and Nanotechnology*, dx.doi.org/10.4172/2157-7439.1000321.
44. Odaa, ME, **Okoro, UC**, Ugwu, DI (2015) Synthesis of Novel Angular Diazaphenoxazinone Derivatives via Palladium Catalyzed Buchwald-Hartwig Amidation Protocols, *Asian Journal of Chemistry*, 27(8), 3069-3073
45. Ugwu, DI, **Okoro, UC**, Ezema, BE, Eze, FU, Ekoh, OC, Egbujor, MC, Ugwuja, DI. (2015) Syntheses and Pharmacological Applications of Chalcones : A Review, *Int. J. Chem. Sci.*: 13(1), 459-500
46. Edoaka, OL, Okoro, UC, Ugwu, DI (2015) Synthesis of New Derivatives of 1,9-Diazaphenoxazine Carboxamide Derivatives via Buchwald-Hartwig Amidation Protocol, *Asian Journal of Chemistry*, 27(9), 3463-3467



47. F. A. Lateef, O. D. Onukwuli, U. C. Okoro, P. M. Ejikeme, and P. Jere, (2014), Some Physical Properties and Oxidative Stability of Biodiesel Produced from Oil Seed Crops, *Korean J. Chem.*, 31(5), 725-731.
48. N.J.N. Nnaji, J.U. Ani, L.E. Aneke O.D. Onukwuli, U.C. Okoro and J.I. Ume (2014), Modelling the Coag-Flocculation Kinetics of Cashew nut Testa Tannins in an Industrial Effluent, *J. of Industrial and Engineering Chem.*, 20, 1920-1935.
49. M.N. Orjioke, U.C. Okoro, C.N. Igwe, A.N. Udeh (2015), Synthesis and Characterization of Zeolite and its Application in Adsorption of Nickel from Aqueous Solution, *J. of Pharmaceutical, Chemical and Biological Sciences*, 3(4), 592-600.
50. **U C Okoro** , J. Ayogu, U.C. Okoro and E. Ojarikre, (2016), Synthesis of New Hetero-Phenylamino Derivatives of Benzo[a]phenoxazin-5-one via Palladium-catalyzed Buchwald-Hartwig Amination Protocol. *JUKULL Journal*, 66(4), 131-140.
51. **U C Okoro**, M. A Ezeokonkwo, E A Ujah and R C Nwelope, (2016), Synthesis of Highly Functionalized Angular Azaphenoxazines and related Benzo Analogues via Suzuki-Miyaura Cross-coupling Reaction, *Asian J. Chem.* **28(2)**, 317-324.
52. **U C Okoro** , and E L Ayuk, A. N. Njokunwogbu, S. U. Ilo, G. A. Engwa and T. O. Oni (2015), Tandem Catalysis of New Aza Angular Phenothiazine Ring System, *American J. Org. Chem.* 5(2), 78-81
53. **U C Okoro**, A. E. Onoabedje and D.W. Knight, A. Sarka (2015), Functionalization of phenothiazine and phenoxazine ring systems via Suzuki Miyaura Cross-Coupling Reactions, *J. Het. Chem.*, doi: 10.1002/jhet2485
54. E.A Onoabedje, U. C. Okoro, D. W. Knight, and A. Sarka (2016), Synthesis and Structure of New Alkynyl Derivatives of Phenothiazine and Phenoxazine, *J. Sulfur Chem.*, dx.doi.org/10.1080/17415993.2015.1131827.
55. **U C Okoro**, and A.D. Jacob (2014), Copper- catalyzed Arylation Reaction in the Synthesis of New Derivatives of Angular Phenoxazine, *Chem and Materials Research*, 6(9), 37-40.
56. A.I. Ihejieta, U.C. Okoro and A.D. Jacob (2015), Copper Catalyzed N-Arylation of Angular Triazaphenothiazine, *Chem and Materials Research*, 7(4), 144-146.

57. A U Ofoefule, **U C Okoro** and O D Onukwuli, (2016), Modeling of gelatinization time against water content for some starch feedstock for bioethanol production, *Chem. Sci. Trans.* 5(1), 35-40.
58. A U Ofoefule, **U C Okoro** and O D Onukwuli,(2015), Effect of Hydrolysis reaction time on the reducing sugar yield of Acha (*Digitaria exilis*) and Finger millet (*Eleusine coracanna*) starch for bioethanol production, *Chem. Sci. Trans*, (2016), 4(2), 331-336
59. . Ofoefule A.U., **Okoro, U.C** and Onukwuli O.D. (2015). Effect of hydrolysis reaction time on the reducing sugar yield of Tacca (*Tacca involucrata*) and Tigernut (*Cyperus esculentus*) starch. *Der Pharma Chemica.* **7(6), 324-329**
60. C. B C. Ikpa and U. C. Okoro (2016), Synthesis of New Paratoluene Sulphonamide Derivatives of Amino Acids and their Antibacterial Activities, *IOSR J. Appl Chem.* 9(6), 31-34.
- 61.S. A. Egu, U. C. Okoro and E. A. Onoabedje,(2016), New Aryl Derivatives of Quinolinequinone and Related Heterocyclic Compounds, *J. Het. Chem.*, DOI:10.1002/jhet.2745
62. J. I Ayogu, U. H. Okei and U. C. Okoro, (2016), Synthesis of Functionalized Aryl Derivatives of 1,11-Diazabenz[a]phenoxazin-5-one and 1-Azadibenzo[a,j]phenoxazin-5-one via Pd-Catalyzed Mizoroki-Herk Reaction, *Int. J. Scientific Res.*, 5(7), 2277-8179
63. E. I. Ayuk, U. C. Okoro and M. O. Ugwu, (2016), A Review on Biological Catalysts in Organic Synthesis, *Int. J. Adv. Engr. Res and Appl.*, 2(6) 296-321.
64. D. Ugwuja and U. C. Okoro, (2016), Computer Aided Drug Discovery - Structure and Ligand Based Design, *FUW Trends in Scie and Tech J.* 1(1), 158-164.
65. E. A. Onoabedje, A. Ibezim, S. N. Okafor, U. S. Onoabedje and U. C. Okoro , (2016) Oxazin-5-one as a New Class of Penicillin Binding Protein Inhibitors: Design, Synthesis and Structure Activity Relationship, *Plos-one*, DOI:10.1371/journal.pone.0163467.
66. C. B. C Ikpa, U. C. Okoro, C. I. Ubochi and K. O. Nwanorh, (2016), Synthesis, Characterization and Antimicrobial Activity of 2-Phenylsulphonamide Derivatives of Some Amino Acids, *Intl. Letters of Chem., Phy and Astro*, 70, 2299-3843

67. E. U. Godwin-Nwakwasi, **U C Okoro**, A. O. Ijeoma and M. A. Ezeokonkwo (2017), Palladium Catalyzed Transformation and Antimicrobial Screening of Novel Angular Azaphenothiazines, Asian J. Chem., 29, 742-748.

#### **Conferences attended and Paper Read**

1. **U C Okoro** and C O Okafor, New Triangular Phenothiazine & Phenoxazine Dyestuffs for Textiles, Paints, Shoe Polish & Vanish Industries, Presented at the 11<sup>th</sup> Annual National Conference of the Chemical Society of Nigeria Held at Sheraton Hotels, Lagos from 21-24 September, 1986.
2. **U C Okoro**, 'Novel Benzooxazinoazaphenothiazine Vat Dye for Textiles' presented at the 14<sup>th</sup> Annual National Conference of the Chemical Society of Nigeria, held at the Petroleum Training Institute, Effurun – Warri from 26-29 September, 1989.
3. **U C Okoro**, Resource Person in 'POSA 89+ Cosmetics' a workshop on small-scale chemical based Industries held at the Institute of Management and Technology Enugu, Nigeria on 29<sup>th</sup> November, 1989.
4. **U C Okoro** and U J Nwosu 'Indigenous Castor Oil: A cheap raw material for Alkyd resin Synthesis' presented at the 5<sup>th</sup> Annual Conference of the Chemical Society of Nigeria Enugu State Chapter held at the Institute of Management and Technology Enugu – Nigeria on 3<sup>rd</sup> July, 1991.
5. **U C Okoro** and S N Onyenacho, 'Development of some Surface Coating Inorganic Pigments from Indigenous Ores' presented at the 6<sup>th</sup> Annual Conference of the Chemical Society of Nigeria, Enugu State Chapter held at the University of Nigeria Nsukka on 25<sup>th</sup> June, 1992.
6. **U C Okoro** and I N Ani, 'Development of Biologically Active Herbicides for Rice Farms' presented at the 8<sup>th</sup> Annual Conference of the Chemical Society of Nigeria, Enugu State Chapter held at the University of Nigeria, Nsukka on 28<sup>th</sup> July, 1994.
7. **U C Okoro**, 'Pigment used in Paints' presented at an Industrial Workshop on the Science and Technology of Paints organized by the CSN Enugu State Chapter on the 24<sup>th</sup> and 25<sup>th</sup> August 1992 at Guest House, 10 Umunachi Street, New Heaven, Enugu.

8. **U C Okoro**, M A Nnabugwu and C A Nwadinigwe, Synthesis of Some New Diaza Analogues of phenothazines as Stable Cyclic Iminoquinones of Pharmaceutical Interest, Presented at the 2007 International Conference of Chemical Society of Nigeria, at Merit House , Abuja.
9. **U C Okoro** and P Okwagi, 'Selective Herbicidal Activities of 2, 4-Dinitrophenylacetate and 4-Chlorophenylethanamide (Synthesis, Application and Bioremediation) presented at 2007 CHEMRAWN International Conference **in Stellenbosch, Cape Town, South Africa.**
10. **U C Okoro** E A Onoabedje and E M Odin, The First 'Angular' Trizaphenothiazinone and the Related Diaza Analogue, presented at the 2008 Internanationl Conference on Organic Synthesis ( ICOS-17) held **at Daejeon Convention Centre, South Korea.**
11. **U C Okoro**, U I Onwuachu and F Musa, Palladium Catalyzed Regioselective Synthesis of Some Anilino Derivatives of Angular Diazaphenothiazinone and the Related Monoaza Analogue,presented at the 2008 International Conference of the Chemical Society of Nigeria held at the PTI Conference Centre , Effrum, Warri.
12. **U C Okoro** Participant in the International Workshop on Renewable Energy for Sustainable Development in Africa Organized by National Centre for Energy Research and Development, University of Nigeria, Nsukka, in collaboration with Italian Agency for New & Renewable Energy Technologies, Trisaia, Italy, July 29-August 1, 2007.
13. **U C Okoro**, A Utime and M A Nnabugwu, 'Rapid Access to Functionalize Triphenodioxazines via Suzuki-Miyaura Cross Coupling Reaction', presented at the 33<sup>rd</sup> Annual Intl. Conference, Workshop and Exhibition held at Ogun State Cultural Centre, Kuto, Abeokuta, 20-24 Sept. 2010.
14. M A Nnabugwu and **U C Okoro**, 'New Dyes for Petroleum Products' presented at the 33<sup>rd</sup> Annual Intl. Conference, Workshop and Exhibition held at Ogun State Cultural Centre, Kuto, Abeokuta, 20-24 Sept., 2010.
15. **U C Okoro** and T O Oni, 'Synthesis of Scaffolds of Non Linear Triazaphenoxazine and the Related Monoaza Analogue via Mizoroki-Heck Reaction' presented at the 34th Annual Intl. Conference, Workshop and Exhibition held at the University of Ilorin, Kwara State, Nigeria, 19-23 Sept. 2011.

16. **U C Okoro**, M A Nnabugwu and A Utime, 'New Triphenodioxazine Scaffolds via Tandem Amination Catalysis' presented at the 34th Annual Intl. Conference, Workshop and Exhibition held at the University of Ilorin, Kwara State, Nigeria, 19- 23 Sept. 2011.
17. **U C Okoro** and E L Ayuk 'Tandem Catalysis in the Synthesis of Angular Phenothiazine Scaffolds of Industrial Interest' presented at the 34th Annual Intl. Conference, Workshop and Exhibition held at the University of Ilorin, Kwara State, Nigeria, 19-23 Sept. 2011.
18. **U. C. Okoro** and E. A. Uja, Palladium Catalysed Functionalization of Dibenzo[a,j]phenoxazinone and the Related Azabenzo[a]phenoxinone Dyes, presented at the 34th Annual Intl. Conference, Workshop and Exhibition held at the University of Ilorin, Kwara State, Nigeria, 19-23 Sept. 2011.
19. B. E. Ezema and **U C Okoro**, Synthesis of New Angular Diazaphenothiazine Ring System, presented at the 29<sup>th</sup> Annual intl. Conference of the Chemical Society of Nigeria held at Airport Hotel Ikeja, Lagos , September 26-30, 2006.
20. V I Okongwu and **U C Okoro**, Nickel Catalyzed Arylation of Angular Diazaphenoxazinone, presented at the 14<sup>th</sup> Annual Conference of the Chemical Society of Nigeria, EnuguState Chapter, held at UBA Hall of Fame, University of Nigeria, Nsukka, 20<sup>th</sup> June, 2012.
21. M C Egbujor and **U C Okoro**, Palladium Catalyzed Amination Reaction in the Synthesis of New Derivatives of 1-Azaphenothiazine, presented at the 14<sup>th</sup> Annual Conference of the Chemical Society of Nigeria, EnuguState Chapter, held at UBA Hall of Fame, University of Nigeria, Nsukka, 20<sup>th</sup> June, 2012.
22. C A Ashishie and **U C Okoro**, Synthesis of New Derivatives of 1-Azaphenothiazine via Tandem Amination Methodology, , presented at the 14<sup>th</sup> Annual Conference of the Chemical Society of Nigeria, EnuguState Chapter, held at UBA Hall of Fame, University of Nigeria, Nsukka, 20<sup>th</sup> June, 2012.
23. **U C Okoro** and A I Ihejieto, Synthesis of New *N*-Arylated Derivatives of Angular Triazaphenothiazine via Copper Catalyzed *N*-Arylation Protocol, , presented at the 14<sup>th</sup> Annual Conference of the Chemical Society of Nigeria, EnuguState Chapter, held at UBA Hall of Fame, University of Nigeria, Nsukka, 20<sup>th</sup> June, 2012.

24. J U Ani, N J Nnaji, **U C Okoro** and L E Aneke, The Potentials of the Testa of *Anacardium occidentale* (Cashew) as Coagulant Source for Waste Water Treatment, , presented at the 14<sup>th</sup> Annual Conference of the Chemical Society of Nigeria, EnuguState Chapter, held at UBA Hall of Fame, University of Nigeria, Nsukka, 20<sup>th</sup> June, 2012.

25. A D Jacob and **U C Okoro**, Copper Catalyzed N-Arylation Reaction in the Synthesis of New Derivatives of Angular Triazaphenothiazinone, , presented at the 14<sup>th</sup> Annual Conference of the Chemical Society of Nigeria, EnuguState Chapter, held at UBA Hall of Fame, University of Nigeria, Nsukka, 20<sup>th</sup> June, 2012.

26. A U Ofoefule , **U C Okoro** and O D Onukwuli, Biogas Production from Waste By- Product of Ethanol Production, presented at the PACN Nigeria Conference held at Eko Hotels, Lagos, 2-4 July, 2012

27. U C Okoro, P Okwagi and M A Ezeokonkwo, Environmentally Friendly Selective Herbicide Composite Gave 100% Control of Mono- and Dicot- Weeds in Rice Farm Presented at the PACN Congress on Agricultural Productivity, Water and Waste, Held at the United Nations Conference Centre, **Addis Ababa, Ethiopia**, 26-27 Nov. 2012

28. M A Ezeokonkwo and U C Okoro, Effect of Refuse Dump on Soil and Agricultural Crops, Presented at the PACN Congress on Agricultural Productivity, Water and Waste, Held at the United Nations Conference Centre, **Addis Ababa, Ethiopia**, 26-27 Nov. 2012

29. **U. C. Okoro** and E. Godwin-Nwakwasi, Palladium Catalyzed Tandem Amidation of Non-linear Diazaphenothiazine Presented at the 4th International Congress of African Societies of Chemistry held at **Marrakech, Morocco**, 5-7 May, 2013.

30. **U. C. Okoro**, E. A. Onoabedje, A. Sarker and D. W. Knight. Utility of Palladium-Xphos Mediated Cross Coupling Reactions in the Alkynylation of Phenothiazine and Phenoxazine, presented at the 13th Ibn Sina International Conference on Pure and Applied Heterocyclic Chemistry, 14-17 February 2015 at Hurghada Egypt.

- **Industrial R & D Innovations**

1. **U C Okoro** and U E Amuho, 'Sulphonation of Linear Akyl Benzene, R & D project for small scale production of sulphonic acid at Cottage Industry level, 1991.

2. **U C Okoro** and U E Amuho, 'Design and Formulation of Industrial Degreaser' R & D project for small-scale Commercial production of Degreasers at Cottage Industry level, 1991.
3. **U C Okoro** and O C Njoku 'Synthesis of Alkyd Resin from Indigenous Soybean Oil' R & D project for the production of surface coating binders for local Industries, 1992.
4. **U C Okoro** and J M Ogoh, 'Design and Formulation of Printing Ink from Soybean oil based Alkyd Resin' R & D project for small-scale production of printing ink for the local printing industries, 1992.
6. **U C Okoro** & O S Ichu, 'Design and Formulation of Liquid Detergent from Sulphonic Acid' R & D project for commercial production of Liquid Detergent at cottage Industry Level, 1991.
7. **U C Okoro** & S U Ememanka, 'Benefication of PALMITIC ACID in Palm oil' R & D project for Commercial production of palmitic acid for the cosmetic Industries, 1993.
8. **U C Okoro** & E C Ubabuko, 'Design and Production of Gypsun and Plaster of Paris (POP) from the Nigerian Chemical grade Limestone of Mfamosin, Ukpilla and Jakura' R & D project for the production of raw material for the school chalk Industries, 1991.
9. **U C Okoro** & I G Orjiako, 'Design and Formulation of high grade Detergent Powder from sulphonic acid' R & D project for small-scale commercial production of detergent powder, 1995.
10. **U C Okoro** & O Amele, 'Design and Formulation of good quality wood glue from essentially local raw materials' R & D project for the production of wood glue at cottage Industry level, 1993.
11. **U C Okoro** & I A Okorie, 'Design and Formulation of good quality Book Binders Adhesive from Gelatin' R & D project for the production of adhesives from animal skin, 1992.
12. **U C Okoro** & L C Amaefule, 'Design and Formulation of gloss paint from Soybean oil alkyd resin' R & D project for the production of gloss paint of high percentage local raw material input, 1991.

13. **U C Okoro** and R U Okoye, 'Synthesis and application of Aniline Black in the formulation of printing ink' R & D project for the production of printing ink using organic pigment, 1990.
14. **U C Okoro** and A E Obi, 'Design and Formulation of self vulcanizing rubber solution from local rubber latex' R & D project for small scale commercial production of neoprene adhesive, 1992.
15. **U C Okoro**, 'Design and Production of iron oxide pigments (Red & Yellow) from waste Iron 'Shavings' of the foundry workshop' R & D project for the production of pigments for the surface coating Industries, 1995.
16. **U C Okoro** and E Oguzie, 'Utilization of local Indian bamboo in the production of  $\alpha$ -cellulose' R & D project for small scale production of raw material for the synthesis of sodium carboxymethylcellulose (SCMC) 1994
17. **U C Okoro** and E Oguzie, 'Design and synthesis of sodium carboxymethylcellulose (SCMC)', R & D project for the commercial production of SCMC at cottage Industry level(1994).
18. **U C Okoro** & A N Chukwu, 'Design and synthesis of Nitrocellulose from local saw dust', R & D project for the local sourcing of industrial raw material for the production of wood finish and other surface coating products (1996).
19. **U C Okoro** & L L Agubama, 'Recycling of spent engine oil and formulation of Grease from the recycled oil' R & D project for commercial production of grease from cheap raw materials. (1996)
20. **U C Okoro** and H O Okonkwo, 'Utilization of waste lime in the formulation of school chalk' R & D project for local exploitation of waste lime from acetylene manufacture, ('1996).
21. **U C Okoro** and I N Ani, 'Development of some agricultural Herbicides for rice farms', R & D project for local manufacture of herbicides at cottage industry level (1994).
22. **U C Okoro** and V N Okafor, 'Benefication of Bees wax from local honey comb wastes', R & D project for the exploitation of waste honey comb for use as raw material in the cosmetic and allied industries, (1996).
23. **U C Okoro** and Aniagudo O C, Development of Moulder (POP) Interior



Decoration Works, R & D project for the exploitation of Nigeria Abundant Limestone Deposits, (2012).

24. **U C Okoro** and Anichebe L I, Development of Cold Water Starch for the Laundry Industries, R & D production of Cold Water Starch at Cottage Industry Level (2011)

(ix) **Consultancy Works Undertaken**

1. Analysis for pollution levels in Bore-hole waters for MUM Mineral Company Ltd. ENUGU, (1989)
2. Analysis for the assessment of limestone quality for MUM Mineral Company Ltd. ENUGU, ('1989)
3. Analysis of some Lead Sulphide Ores (Galena) for Emerson General Company Ltd. ABA, (1990)
4. Development of detergent powder (FABRICLEAN<sup>®</sup>) for A C Colac Enterprises Ltd. KADUNA, (1992)
5. Development of Surfactant Powder for washing Baby Nappies (NAPICLEAN<sup>®</sup>) FOR Mother and Child Industries Ltd. ONITSHA, Anambra State (1991)
6. Development of Laundry liquid starch, Utensil Scrubbing Powder and greaseless creams from essentially local raw materials for Mother and Child Industries, ONITSHA, (1991)
7. Development of organic and inorganic Dyes and Pigments from local plants ores and aromatic compounds for Raw Materials Research and Development Council (RMRDC), LAGOS, (1992)
8. Commercial production of Sulphonic Acid at cottage Industry level for Satellite Food and Chemical Company Ltd. ENUGU, (1992).

**ADMINISTRATIVE EXPERIENCE**

- Headship of the Department of Pure and Industrial Chemistry, University of Nigeria, Nsukka 2005- 2007

- Member Senate Examination Committee, University of Nigeria, Nsukka, 1997 -2004
- Member Senior Staff Housing Committee, University of Nigeria, Nsukka, 1997 -1998
- Senate Representative, Faculty of Physical Sciences, 2004 -2005.
- Member Faculty Examination Committee, University of Nigeria, 1997 -2004.
- Member Faculty, Time Table Committee, University of Nigeria, 1999 -2002.
- Member Departmental and Faculty Postgraduate Committees (2009-2013)
- Chairman, Faculty Postgraduate Committee and Faculty of Physical Sciences Representative at the Board of School of Postgraduate Studies (2012 –2013)
- External Examiner for a number of Nigerian Universities.
- Member Accreditation Teams for Sciences in Nigerian Universities and other Tertiary Institutions and have been Chairman in one of the Accreditation Exercise.
- Member Local Organizing Committees of many Conferences in Nigeria and served as member of Working Group in Royal Society of Chemistry London(RSC) and Pan African Chemistry Network (PACN) Conference held at Eko Hotel, Lagos, 2-4 July, 2012.
- Chairman, Ad-hoc Committee on Review of Criteria for selection of Candidates for Postgraduate Prizes and Awards (2013).
- Member Ad-hoc Committee on Review of Qualifications for illegibility to Supervise Postgraduate work (2013).
- Hon. Commissioner, Ministry of Education, Enugu State, 2013 - 2015
- Member, Enugu State University of Science and Technology Governing Council, 2013 - 2015
- Member of Board of ESUT Teaching Hospital, 2013 - 2015.
- Member of Governing Council of Teachers' Registration Council of Nigeria Representing South East Geopolitical Zone, 2013 - 2015

### **Recognitions**

1. Fellow Chemical Society of Nigeria, 2014
2. Hon. Commissioner, Ministry of Education, Enugu State, 2013-2015
3. DFID Award for Outstanding Performance in Public Office 2016
4. DFID Medal for Integrity in Public Office, 2016
6. Fellow Rocana Institute of Technology, Enugu, 2015
7. Recipient of Chieftency Title of 'KPAKPANDO' 1 of Ndeaboh, 2015

### **Referees**

1. Prof. Bato N. Okolo

Former Vice Chancellor, University of Nigeria,  
Nsukka.

2. . Professor B. I. Alo  
Department of Chemistry  
University of Lagos

3. . Professor C. O. Okafor  
Department of Pure and Industrial Chemistry  
University of Nigeria, Nsukka