

Marshall A. Azeke PhD (Bonn)



Department of Biochemistry
Faculty of Life Sciences
Ambrose Alli University
Ekpoma.
Tel: +234 813 3429879
E-mail: azeke@aauekpoma.edu.ng

PROFILE

SEX: MALE
MARITAL STATUS: MARRIED
CHILDREN: THREE
DATE OF BIRTH: MAY 20 1969
PLACE OF BIRTH: BENIN CITY, NIGERIA
NATIONALITY: NIGERIAN

A professor of Biochemistry with over 25 years of local and international experience in independent and collaborative research in diversified areas of Biotechnology, Food and Nutrition Biochemistry. Research interests covers use of local flavonoid-rich plant sources in the reduction of serum cholesterol and as antidiabetics and antihypertensives, Phytochemicals, antioxidant assays, food analysis and biotechnology. Highly competent in the use of Fast Protein Liquid Chromatography (FPLC) for protein purification, High Performance Liquid Chromatography (HPLC) and Gel electrophoresis. Areas of expertise include optimising and validating analytical techniques for nutritional and antinutritional/toxic factors in many plant foods. Knowledgeable Polymerase Chain Reaction.

SCHOOLS ATTENDED WITH DATES

- BENDEL STATE UNIVERSITY, EKPOMA, EDO STATE 1987 - 1991.
- EDO STATE UNIVERSITY, EKPOMA, EDO STATE 1993 - 1995.
- UNIVERSITY OF BONN, BONN, GERMANY 2000 - 2003.
- EGHOSA GRAMMAR SCHOOL 1981 - 1986

ACADEMIC QUALIFICATIONS

- **Ph.D.**, Nutrition Science -University of Bonn, Germany, 24th August 2003 (magna cum laude, 1.0)
- **M.Sc.**, Biochemistry - Ambrose Alli (Edo State) University Ekpoma, Nigeria, July 1995
- **B.Sc.** (Hons) (second class, upper division), Biochemistry - Ambrose Alli (Edo State) University, Ekpoma, Nigeria, 1991

HONORS AND AWARDS

- Alexander von Humboldt Senior Research Fellowship, Germany, August 2019- January 2020; September - November 2015; September 2013 and August-September 2012.
- Alexander von Humboldt Post-Doctoral Research Fellowship, Germany, October 2006 - March 2008.
- German Academic Exchange Service (DAAD) Scholarship to pursue a Ph.D. in Nutrition Sciences in the Federal Republic of Germany, 1999 - 2003
- UNESCO-MCBN fellowship of University of Bern, Switzerland to visit drug metabolism laboratory, University of Zimbabwe, Harare 1999
- Head of Department's prize for best biochemistry student 1989, 1990
- Head of Department's prize for best graduating student in Biochemistry 1991

POST-GRADUATE SUPERVISION

Successfully Completed

- Evaluation of the Effects of *Acalypha wilkesiana* Leaf Extracts on Salt Loaded and Normal Experimental Rabbits. (PhD, 2014)
- Comparative assessment of kenaf core and rhamnolipid as nutrient stimulants to microbes for enhanced bioremediation of oil spill in Niger Delta. (PhD, 2021)

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- Phytochemical profile, antioxidant properties and hypoglycemic effect of *Picralima nitida* extracts (seed, leaf and root) in alloxan induced diabetic rats (**MSc, 2021**)
- Antioxidant Activity and Carbohydrate Digestive Enzyme Inhibitory Effect and Anti-Diabetic Properties of Methanol Extract From Avocado Pear (*Persea americana*) (**MSc, 2020**)
- Effects of *Synclisia scabrida* Plants Extract (Leaves, Root and Stem) on Alloxan Induced Diabetic Rat (**MSc 2019**)
- Effect of sprouting and boiling on the antioxidant potentials of garlic (*Alium sativum* L) (**MSc, 2016**).
- Effect of Sprouting and Boiling on the Antioxidant Potentials of Onions (*Alium cepa* L.) (**MSc, 2016**)
- Antioxidant Properties of the Different Extracts from Almond Plant (*Terminalia catappa*). (**MSc 2014**)
- Studies on the anticholesterolemic effect of Garlic in egg-yolk induced hypercholesterolemia using rabbit models (**MSc, 2012**)
- The effect of garlic administration on the serum cholesterol profile of growing rabbits. (**MSc, 2011**)
- Phytase activity in Nigerian grown cereals and legumes and the effect of sprouting. (**MSc, 2010**)

Ongoing

- The Effects of Extracts of the Leaves and Rhizome of *Achomanes difformes* on the blood glucose and lipid levels of wistar rats. (PhD)
- Studies on the anticarcinogenic potentials of selected Nigerian grown medicinal herbs. (2 PhDs)
- Effects of different drying methods on the antioxidant, antihypertensive and neuroprotective potentials of aqueous extract of *Hibiscus sabdariffa*. (PhD)
- The Effects of maturity and processing on the antioxidant potentials of cashew seeds (*Anacardium occidentale*) (MSc)
- Effect of domestic processing on the antioxidant properties of *Allium* species. (MSc)

POSITIONS OF RESPONSIBILITY

- **Dean**, Faculty of Life Sciences, Ambrose Alli University, Ekpoma; September 2020 to date
- **Director**, Directorate of Information and Communications Technology (ICT), Ambrose Alli University, Ekpoma; 1st June to 31st August 2020.
- **Member, Edo State Committee** on Science, Technology and Innovation (STI) and **Chairman, Sub-Committee** on the drafting of STI Policy of Edo State
- **Dean** Faculty of Basic Medical Sciences, Edo State University, Uzairue; October 2018-September 2019.
- **Head of Department**, Department of Biochemistry, Ambrose Alli University; February 2014-2018
- **Chairman/Coordinator**, Computer Based Examination Committee, Ambrose Alli University, Ekpoma. 2017-Date
- **Chairman**, Committee on Learning Management Systems, Edo University, Iyamho, 2018-2019
- **Chairman**, Senior Staff Disciplinary Committee, Ambrose Alli University, Ekpoma. 2017-2018
- **Chairman**, Ambrose Alli University Research Grant Allocation Committee, 2017-2019
- **Chairman**, Faculty of Life Sciences Ceremonial and Seminar Committee, August 2012 - 2019.

EXTERNAL EXAMINATION

- Undergraduate and Post Graduate External Examiner to
- i. Federal University of Technology, Akure
 - ii. Michael Okpara University of Agriculture, Umudike
 - iii. Delta State University

EXTERNAL ASSESSMENT OF PROFESSORIAL CANDIDATES

Served as External Assessor for candidates to the professorial cadre at the

- i. University of Portharcourt
- ii. Nigerian Defence Academy
- iii. Adekunle Ajasin University, Akungba
- iv. Alex Ekweme Federal University, Ndufu Alike

JOURNAL EDITORIAL ASSIGNMENTS

- Editor-in-Chief, Nigerian Journal of Nutritional sciences, a Publication of the Nutrition Society of Nigeria.
- Member, Editorial Board of the Nigerian Annals of Natural Sciences.
- Manuscript Reviewer for Food Research International (Elsevier Publishers), Journal of Food Science and Technology (Springer Publishers), Journal of the Science of Food and Agriculture (Wiley-Blackwell), International Journal of Food Sciences and Nutrition (Informa Healthcare)

COMMUNITY-BASED SERVICE

- Esan-West Local Govt. Coordinator of the Christian Student Fellowship (for Secondary Schools) **aka Success Club**, 2007/2008 - Date.
- Delivered a talk on **Aids to Memory Improvement** to Secondary School students attending the Youth Retreat of the Deeper Life Bible Church, Ishan Region, June 2006.

MEMBERSHIP OF PROFESSIONAL ASSOCIATION

- Member, Nutrition Society of Nigeria (NSN) since 2006.
- Member, Nigerian Society for Biochemistry and Molecular Biology
- Member, Council for Tropical and Subtropical Agricultural Research (ATSAF), Germany since 2001.
- Member, European Grain Legume Association (AEP) since 2001.

ON-GOING RESEARCH

1. Studies on the antibiotic potential of some nano particles when included in food packaging materials
2. The use of different types of tea for the purpose of serum cholesterol reduction.

PERSONALITY AND SKILLS

- Practising Christian
- Self motivated and detail oriented individual dedicated to completing a task
- Ability to work well under pressure and with deadlines
- Equally effective as an individual or as a member of a team
- Able to grasp new ideas and concepts very quickly
- Ability to take up new challenges

RECENT PUBLICATIONS/CONTRIBUTIONS TO CONFERENCES

A: BOOK

1. **Azeke, M. A. (2003)** Characterization and improvement of the nutritional value of African yambean (*Sphenostylis sternocarpa*) by non-traditional processing methods. ISBN 3-8322-1906-4 Shaker Publisher, Aachen, Germany, 160 pages.

B: CHAPTERS IN EDITED BOOKS

2. **Azeke, M. A. (2018)** Plant Protein: Essential Agents in Alleviating Malnutrition in Nigeria. In: Roadmap to Improve Livelihoods in Africa. Osundahunsi, O. F. (Ed). Simplicity Press, Akure, Nigeria Pp: 299-313.
3. **Azeke, M. A.** PhD (Bonn), Eigbobo, M. U., Iniaghe, O. M. and Ugbenyen, A. M. (2017) Advancing Nutrigenomics Research through Nutraceuticals In: Functional Foods: Unlocking the Medicine in Foods. Ganiyu Oboh (Ed) Braceland Prints, Akure Pp 310 - 322.

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4. **Azeke**, M. A. (2010). The nutritional and environmental implications of phytase supplementation of animal feed and alternative sources of phytase for the animal feed industry. In: Biotechnology Development and threat of climate change in Africa: The case of Nigeria. Adebooye, O. C., Taiwo, K. A. and Fatufe, A. A. (Eds). Cuvillier Publisher, Göttingen, Germany. Pp 193 – 207.
5. **Azeke**, M. A. and Büning-Pfaue, H. (2008). The potential of Biotechnology in legume processing: the African yambean example. In: Food, Health and Environmental Issues in Developing Countries: The Nigerian Situation. Adebooye, O. C., Taiwo, K. A. and Fatufe, A. A. (Eds). Cuvillier Publisher, Göttingen, Germany. Pp 153 – 166.
6. **Azeke** M. A. (2005). Carbohydrates. In: Biochemistry for Beginners. A. O. Onigbinde (Ed.). Aniko Publishing Inc. Benin City. Pp 43 – 72.

C: JOURNAL ARTICLES

7. Godwin Ezemwenghian Orumwense · Aishat Mary Osagie · Sylvia Oghogho Omage · Kingsley Omage, Marshall Arebojie **Azeke**. (2022) *Synclisia scabrida* protects against oxidative stress, hepatotoxicity and hyperglycaemia in alloxan-induced diabetic rats. Journal of Diabetes & Metabolic Disorders. <https://doi.org/10.1007/s40200-022-01029-9>
8. Erwin Osiele Onyekachukwu, Erwin Osiele Onyekachukwu, Aishat Mary Osagie, Sylvia Oghogho Omage, Kingsley Omage, Marshall Arebojie **Azeke** (2021) Picralima nitida Protects against Hepatotoxicity and Oxidative Stress in Alloxan-Induced Diabetic Rats. Comparative Clinical Pathology. <https://doi.org/10.1007/s00580-021-03297-y>
9. Osagie Mary Aishat, Orobator Nicholas Owamagbe, Orobator Stephanie Ehimwenma and **Azeke** Arebojie Marshall (2021). Effects of Moringa oleifera leaf powder on some chemical, phytochemical and antioxidant properties of bread: Potential control for NCDs. Journal of Pharmacognosy and Phytochemistry; 10(3): 50-55.
10. Ebhomienlen, J. O., **Azeke**, M. A., Ebhohimen, I. E And Edemanria, L. (2021). The Effects of Different Concentrations of Sprouted and Boiled Onions Extracts on the Antioxidant Potentials of Onions (*Allium cepa* L.). IOSR Journal of Biotechnology and Biochemistry. Volume 7, Issue 4 (Jul. – Aug. 2021), PP 18-25.
11. Ugbenyen, Anthony Moses Ikhimalo, Odufa Patience and **Azeke**, Marshall Arebojie (2020) Comparative Studies of the Antioxidant and Phytochemical Activities of Three Traditional Plant Species used Medicinally in Nigeria. Nigerian Journal of Nutritional Sciences. Volume 41(1): 98-110
12. Omage, Kingsley and **Azeke**, M. A. (2019) *Acalypha wilkesiana* regulates fluid volume but affects selected tissues in salt loaded rabbits. Clinical Phytoscience International Journal of Phytomedicine and Phytotherapy. 5:10 (Springer Publishers: <https://doi.org/10.1186/s40816-019-0103-5>)
13. Kingsley Omage, **Marshall A. Azeke** and Sylvia O. Omage (2018) Evaluation of the efficacy of *Acalypha wilkesiana* leaves in managing cardiovascular disease risk factors in rabbits exposed to salt-loaded diets. Clinical Phytoscience. 4:1 (Springer Publishers: DOI 10.1186/s40816-018-0060-4)
14. Kingsley Omage, **Marshall A. Azeke**, Jerry N. E. Orhue and Sylvia O. Iseghohi (2017) Toxicological implications of the therapeutic use of *Acalypha wilkesiana* leaves in traditional

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- medicine. *Clinical Phytoscience* 3:15-22 (Springer Publishers: DOI 10.1186/s40816-017-0053-8)
15. Omage Kingsley, **Azeke A. Marshall**, Orhue N. E. Jerry and Iseghohi O. Sylvia (2016) Histological and Aminotransferase Implications of Administration of Extracts of *Acalypha wilkesiana* Leaves in Normal Rabbits *British Journal of Medicine & Medical Research* 18(4): 1-7.
 16. Omage K., **Azeke M.A.** and Ihimire I.I. (2015). Biochemical Implications of Oral Administration of Extracts of *Acalypha wilkesiana* Leaves in Rabbits. *Nig. J. Life Sc.* 5(1): 131 - 138.
 17. Kingsley Omage, Marshall A. **Azeke** and Jerry N.E. Orhue (2015) Implications of oral administration of extracts of *Acalypha wilkesiana* leaves on serum electrolytes, urea and creatinine in normal experimental rabbits. *Biokemistri* Vol. 27 (no. 2) 56–62.
 18. Osagie-Eweka, E. S.D and Azeke, M. A (2015). The Effects of Garlic (*Allium Sativum*) on the Lipid Profile of Rabbits. *Journal of Medical and Biological Sciences* 2: 84-105.
 19. Omage, Kingsley and **Azeke, A. Marshall.** (2014). Serum Aminotransferase Activities and Bilirubin Levels in Salt Loaded Experimental Rabbits Treated with Aqueous and Ethanol Extracts of *Acalypha wilkesiana* Leave. *Nigeria Journal of Experimental and Clinical Biosciences.* 2(1): 37 - 41.
 20. Omage, Kingsley and **Azeke, A. Marshall.** (2014). Medicinal Potential of *Acalypha wilkesiana* Leaves. *Advances in Research.* 2(11): 655 - 665.
 21. Rafaat M. Elsanhoty, Mohamed Fawzy Ramadan, Sahar S. El-Gohery, M.F. Abol-Ela, M. A. **Azeke** (2013) Ability of selected microorganisms for removing aflatoxins *in vitro* and fate of aflatoxins in contaminated wheat during baladi bread baking. *Food Control* 33: 287-292. (Elsevier Publishers, <http://dx.doi.org/10.1016/j.foodcont.2013.03.002>)
 22. **Azeke, M. A.,** Greiner, R. and Jany, K. (2011). Purification and Characterization of two intracellular phytase from the tempeh fungus *Rhizopus oligosporus*. *Journal of Food Biochemistry.* 35: 213 - 227. (Wiley Blackwell Publisgers, DOI: 10.1111/j.1745-4514.2010.00377.x)
 23. **Azeke, M. A.,** Ekpo, K. E. and Ihimire I. G. (2011). The effect of particle size on the functional properties of African yambean (*Sphenostylis stenocarpa*) seed flours. *Nigerian Annals of Natural Sciences.* Volume 12(1): 8 - 15.
 24. **Azeke, M. A.,** Elsanhoty, R. M., Egielewa, S. J. and Eigbogbo, M. U. (2011) The effect of germination on the phytase activity, phytate and total phosphorus contents of some Nigerian-grown grain legumes. *Journal of the Science of Food and Agriculture.* 91: 75 - 79. (Wiley Publishers, DOI: 10.1002/jsfa.4150)
 25. **Azeke, M. A.,** Chukwuedo, M. E. (2011) Estimation of non-enzymatic browning and acrylamide formation in fried plantain (*Musa balbisiana*). *Nigerian Annals of Natural Sciences.* Volume 12(1): 1 - 7.
 26. **Azeke, M. A.,** Egielewa, S. J., Eigbogbo, M. U. and Ihimire, I. G. (2011). Effect of germination on the phytase activity, phytate and total phosphorus contents of rice (*Oriza sativa*), maize (*Zea mays*), millet (*Panicum miliaceum*), sorghum (*Sorghum bicolor*) and wheat

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- (*Triticum aestivum*). Journal of Food Science and Technology. 48(6):724–729. (Springer Publishers, DOI 10.1007/s13197-010-0186-y)
27. **Azeke, M. A.** and Ekpo, K. E. (2009) Egg yolk cholesterol lowering effect of garlic and tea. *Journal of Medicinal Plants Research* Vol. 3(12), pp. 1113-1117
 28. Elsanhoty, R. M. and **Azeke, M. A.** (2009). Assessment of the ability of some probiotic bacteria to bind and remove aflatoxin from contaminated wheat during baladi bread making. *Nigerian Annals of Natural Sciences*, 9(1): 49 – 59.
 29. Ekpo, K. E., **Azeke, M. A.** and Ugbeyen, A. M. (2008). Functional properties of dried *Imbrasia belina* larvae flour as affected by mesh size and pH. *Nigerian Annals of Natural Sciences*. 8(1): 6 – 9.
 30. **Azeke, M. A.**, Fretzdorff, B., Buening-Pfaue, H. and Betsche, Th. (2008) Microbial and pH changes accompanying African Yambean tempeh production under non-sterile and sterile condition. *Nigerian Journal of Nutritional Sciences*. 29(2): 164 – 173.
 31. **Azeke, M. A.** and Ekpo, K. E. (2008) Egg yolk cholesterol lowering effect of garlic and tea. *Journal of Biological Sciences* 8(2):456–460.
(<http://scialert.net/qredirect.php?doi=jbs.2008.456.460&linkid=pdf>)
 32. **Azeke, M. A.**, Fretzdorff, B., Buening-Pfaue, H. and Betsche, Th. (2007) Comparative effect of boiling and solid substrate fermentation using the tempeh fungus (*Rhizopus oligosporus*) on the flatulence potential of African yambean (*Sphenostylis stenocarpa* L.) seeds. *Food Chemistry*. Vol. 103: 1420–1425. (Elsevier Publishers; doi:10.1016/j.foodchem.2006.10.058)
 33. **Azeke, M. A.**, Fretzdorff, B., Buening-Pfaue, H. and Betsche, Th. (2007) Nutritional value of African yambean (*Sphenostylis stenocarpa*, L): improvement by solid substrate fermentation using the tempeh fungus *Rhizopus oligosporus*. *Journal of the Science of Food and Agriculture*. Vol. 87, (2): 297-304. (Wiley Publishers, DOI: 10.1002/jsfa.2721)
 34. **Azeke, M. A.**, Fretzdorff, B., Buening-Pfaue, H., Holzapfel, W. and Betsche, Th (2005) Nutritional value of African yambean (*Sphenostylis stenocarpa*, L): improvement by lactic acid fermentation. *Journal of the Science of Food and Agriculture* Vol. 85(6): 963 – 970. (Wiley Publishers, DOI: 10.1002/jsfa.2052)
 35. Thomas Betsche, Barbara Fretzdorff and Marshall A. **Azeke** (2004). New Products for the improvement of the African nutritional status: how microorganisms transforms the hard-to-cook African yambean (**in German language**). *Forschungsreport* 2: 16 – 19.
 36. Thomas BETSCHE, **Marshall A. AZEKE**, Hans BUENING-PFAUE and Barbara FRETZDORFF Fermentation as a tool to improve the nutritional value of African yambean: potential of unconventional processing to promote legume extension. *Conference Proceedings of the 5th European Conference on Grain Legumes*. 7 – 11 June 2004, Dijon France. Pp 31 – 32.
 37. Alaiya, H. T., **Azeke, M. A.**, Nwokolo, S. C. Omoyemi, M. E. A. (2004) Studies of some anti-nutritional factors in African yambean as affected by cooking. *Nigerian Journal of Nutritional Sciences*. 25(1): 44 – 47.
 38. **M. A. Azeke**, Th. Betsche, H. Büning-Pfaue, and B. Fretzdorff (2002). A comparative assessment of the nutritional value of three varieties of African Yambean (*Sphenostylis stenocarpa*) and of other legumes. *Lebensmittelchemie* 56: 29-31.

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39. Tp Proph, **M. A. Azeke**, H. Alaiya, D. Adeji and W. Osebor (2000). Effect of some local chewing sticks on salivary amylase activities. *Journal of Medical Laboratory Science* 9: 99 – 102.
 40. Prohp, tp., **Azeke, M. A.**, Aigbe, A. and Uriewhu, J. (1999) Pattern of cyanide distribution in intact seeds, leaves and roots of lima beans (*Phaseolus lunatus*) at various levels of growth. *Nigerian Annals of Natural Sciences* 4(1): 32 – 38.
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