



# Curriculum Vitae

## Personal Data:

Bawa Mbage (Ph.D),  
University of Education, Winneba, Department of Chemistry Education, P.O. Box 25, Winneba,  
Ghana,  
+233243824760,  
[mbagebawa@yahoo.com](mailto:mbagebawa@yahoo.com)/[bmbage@uew.edu.gh](mailto:bmbage@uew.edu.gh)  
1<sup>st</sup> September, 1979  
Ghanaian

## Areas of Expertise or Professional Skills:

- Organic functionalized polyoxometalate nanoparticles applications
- Synthesis of Catalysts
- Detection of biomolecules
- Chemistry Educational Research,

## Professional Qualification(s):

<i>Rank</i>	<i>Supporting evidence</i>	<i>Period</i>
Ph.D in Chemistry	PhD Certificate	August, 2022 up to date
M. Phil Science Education	M Phil Certificate	February, 2012 to August, 2014
Tutor	B.Ed Science Certificate	September, 2010 to February, 2021
Teacher	Teachers Cert 'Á'	September, 2003 to August, 2010

## Professional Responsibilities

<i>Position</i>	<i>Office/Location</i>	<i>Period</i>
Lecturer	University of Education, Winneba	August, 2022 up to date
Assistant Lecturer	University of Education, Winneba	February, 2021 to August, 2022
Academic Counsellor	Department of Chemistry Education, UEW	February, 2023 up to date

Tutor	Dambai College of Education, Dambai	September, 2010 to August, 2021
Head of Science Department	Dambai College of Education, Dambai	September, 2015 to August, 2017
Coordinator of Professional Development Session (PDS)	Dambai College of Education, Dambai	September, 2014 to July, 2017
Hall Tutor	Dambai College of Education, Dambai	September, 2012 to August, 2015
Teacher	Dipah Junior High School, Dipah-Bimbilla	September, 2003 to August, 2006

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### Education:

<i>Qualification/Certificate obtained</i>	<i>Name of Institution Attended</i>	<i>Date</i>
Ph.D in Chemistry	Northeast Normal University (NENU), China	2017 - 2022
M. Phil Science Education	University of Education, Winneba	2012 -2014
B.Ed Science Education (Chemistry)	University of Education, Winneba	2006 -2010
3-year Certificate 'A'	E. P Training College, Bimbilla	2001- 2003
SSSCE Certificate	E. P. Senior Secondary School, Soboba	1995-1997
BECE certificate	Dipah Junior Secondary School	1991- 1994

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### Career History

<i>Position/Title</i>	<i>Responsibilities:</i>	<i>Name of Institution</i>	<i>Date</i>
Research Associate at IERIS	1. Support in conducting Educational Research 2. Support the institution for grantsmanship writing	University of Education, Winneba	2022 up to date
Lecturer	1.Lecture chemistry courses 2. Conduct and supervise research work 3. Engage in community services	University of Education, Winneba	August, 2021 up to date

Assistant Lecturer	1.Lecture chemistry courses 2. Conduct and supervise research work 3. Engage in community services	University of Education, Winneba	15 February, 2021 to 2022
Head of Science Department	1. Organised departmental meeting for tutor 2. Prepared budget and accounted on the expenditures 3. Reported on the activities of the department 4. Allocated subjects and periods to tutors 5. Attended academic board meetings 6. Organised training workshop for science teachers of Basic schools in Dambai Circuit 7. Participated in several committee works	Dambai College of Education	September, 2015 to July, 2017
Coordinator of Professional Development	1. Coordinated and weekly organized tutors for the College PDS 2.Planned and facilitated the activities and trainings of tutors in the College PD sessions	Dambai College of Education	June, 2014 to August, 2017
Tutor	1. Taught science courses at the college 2. Supervised student research works	Dambai College of Education	September, 2010 to July, 2021
Chemistry Teacher	1. Taught Chemistry 2. Participated extra curricula activities such as executions, sport and clubs	Nungua Presby SHS	September, 2009 to July, 2010
Teacher	1.Taught science Mathematics and Agric. 2. Assistant headmaster and acted as headmaster in his absence 3.Participated extra curricula activities such as executions, sport and clubs	Dipah Junior Secondary School (JSS).	September, 2003 to July, 2006

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**Publications, Research/Projects Conducted or Undertaken, Creative Works/Productions Produced:**

**Books Published:**

1. Bawa, M., Awuah, F., Adjerakor, G. J., Asekre J., Soh, N. K., Tsyawo, J., & Akpeleasi' A. (2017). *Improving Basic School Pedagogical Skills of College of Education Tutors- Dambai and Jasikan Colleges of Education for T-TEL challenge fund.* Kumasi: Impressive Image Prints.

2. Bawa, M., Awuah, F., Adjerakor, G. J., Asekre J., Soh, N. K., Tsyawo, J., & Akpeleasi' A. (2017). Improving the Mentoring Skills of Basic School Teachers for Effective Teaching. Dambai and Jasikan Colleges of Education for T-TEL challenge fund. Kumasi: Impressive Image Prints

#### Thesis Work:

1. The effect of Multimodal Instructional Approaches on College of education students' Understanding of Chemical Bonding. (*M. Phil. Thesis submitted to the School of Research and Graduate Studies, University of Education, Winneba*). 2014
2. Fabrication of Polyoxometalated-based artificial Enzymes for Colorimetric detection of sarcosine and Hydrogen peroxides. Doctoral Thesis, 2022

#### Peer-Reviewed Journal Articles:

1. Tibamba M. T., Youbao W., Raphael B. H. G', Bawa M., Abudu B. D., Nannan W., & Li B.,(2024). Mono and Simultaneous Adsorption of Aldrin and Toxic Metals from Aqueous Solution Using Rice Husk Biochar. "Rice husk biochar as adsorbent," *BioResources* 19(1), 257-275
2. Tibamba M. T., Youbao W., Raphael B. H. G', Bawa M., Abudu B. D., Nannan W., & Li B.,(2023). Multicomponent Adsorption of Pollutants from Wastewater Using Low-Cost Eco-Friendly Iron-Modified Rice Husk Biochar in the Era of Green Chemistry. *Sustainability* 15, 16348. <https://doi.org/10.3390/su152316348>
3. Bawa M, Yu Q, & Regina F,(2023). Self-Synthesized POM-Chitosan Material with Enzyme Mimetic Activities for Antioxidant Applications. *ChemicalSelect*, 8, (21), <https://doi.org/10.1002/slct.202300575>
4. Emmanuel K M., Ferdinand T, Francis O-K, Emmanuel T-D M, Lloyd L, & **Bawa M.**, (2023). Occurrence and Environmental Risk Assessment of Antibiotics in Water and Sediment from Fish Farms in the Lower Volta Lake of Ghana. *Chemistry Africa*, <https://doi.org/10.1007/s42250-023-00727-y>
5. **Bawa M.**, Yu Q & Regina F. (2023). Self-Synthesized POM-Chitosan Material with Enzyme Mimetic Activities for Antioxidant Applications, *Chemistryselect*. 8(21), <https://doi.org/10.1002/slct.202300575>
6. Kwame K R., & **Bawa M.** (2022). Variability of Carbonate Chemistry of seawater of the central Atlantic coastline of Ghana. *Journal of Phase Change Material*. 2(1); <https://doi.org/10.6084/jpcm.v2i1.24>
7. Wang, X., li, Y., Song, J., Jiang, **M.**, **Bawa**, M., Tian, Y., & Guangshan, Z. (2020). The fabrication of IMo<sub>6</sub>@iPAF-1 as an enzyme mimic in heterogeneous catalysis for oxidative desulfurization under O<sub>2</sub> or air†. *Journal of Material Chemistry A*. **8** (19), 9813-9824
8. Nabilah, A., Abdulwahab, S., **Bawa, M.**, Salah, A., Iram, Y., Ayman, A., & Bin Q., (2020). 3D nitrogen-doped porous graphene aerogel as high-performance electrocatalyst for determination of gallic acid. *Microchemical Journal*. 155, 104706
9. **Bawa, M.**, Li, Y., Si, H., Zhang, X., Li, Y., Wang, X., Abdulwahab, S., & Zhang, K. (2019). Fabrication of folate functionalized polyoxometalate nanoparticle to simultaneously detect H<sub>2</sub>O<sub>2</sub> and sarcosine in colorimetry. *Sensors and Actuators B: Chemical*. 304, 127429.
10. **Bawa, M.**, Tibamba, M. T., Agnes, S., & Xiaohong, W., (2019). Active learning of chemical bonds with gender responsive instructional method in the college chemistry. *International Journal of Recent Scientific Research*. 10(02), 0783-30788.

11. Li, Y., Wang, S., Tang, Z., Bawa, M., Ji, Y., Wang, X., & Zhang, K. (2019). Visual detection of H<sub>2</sub>O<sub>2</sub> and melamine based on PW<sub>11</sub>MO<sub>39</sub><sup>n-</sup> (M = Cu<sup>2+</sup>, Co<sup>2+</sup>, Mn<sup>2+</sup>, Fe<sup>3+</sup>) and PW<sub>9</sub>M<sub>3</sub>O<sub>34</sub><sup>n-</sup> (M = Cu<sup>2+</sup>, Co<sup>2+</sup>, Mn<sup>2+</sup>, Fe<sup>3+</sup>). *New Journal of Chemistry*. 43, 18018—18026
12. Salah, A., Al-Ansi, N., Adlat, S., **Bawa, M.**, He, Y., Bo, X., & Guo, L. (2019). Sensitive nonenzymatic detection of glucose at PtPd/porous holey nitrogen-doped graphene. *Journal of Alloys and Compounds*. 792, 50-58.
13. Zhang, D., Li, Y., Gao, Y., **Bawa, M.**, Huo, M., Wang, X., & Zhu, S. (2019). Fast degradation of phthalate acid esters by polyoxometalate nanocatalysts through adsorption, esterolysis and oxidation. *Journal of Hazardous Materials*. 368, 788–796.
14. Li, Y., Zhang, H., Jiang, Y., Shi, M., **Bawa, M.**, Wang, X., & Zhu, S. (2019). Assembly of metallophthalocyanine-polyoxometalate hybrid for highly efficient desulfurization of organic and inorganic sulfur under aerobic conditions. *Fuel*, 241, 861–869.
15. Zhang, X., Zhang, H., Li, Y., **Bawa, M.**, Wang, S., Wang, X., & Jiang, Z. (2018). First triple-functional polyoxometalate Cs<sub>10.6</sub>[H<sub>2.4</sub>GeNb<sub>13</sub>O<sub>41</sub>] for highly selective production of methyl levulinate directly from cellulose. *Springer Nature; Cellulose*. 2(11), 6405–6419
16. **Bawa, M.**, (2018). Effect of Multimodal Instructional Approaches on Students Learning of Chemistry Concepts in Selected Colleges of Education. *International Journal of Chemistry Education*. 3(1), 028-035

### Professional Development:

### Training Sessions:

<i>Course Title</i>	<i>Course Instructor (if desired)</i>	<i>Period</i>
Professional Development and Best Research Practices Organised by the Faculty of Science Education	Elmina Beach Resort	26-29 <sup>th</sup> August, 2021
Training of research assistant	UEW, Central Campus	10 - 2021
Grants and Proposal Writing Seminar (Developing a Convincing Research Proposal by the Directorate of Research Innovation and Development	UEW, North Campus	1 <sup>st</sup> June, 2021
Basic School Teacher Mentors training	Instructor for the training	2014 to 2016

### Seminars and Workshops:

<i>Course Title</i>	<i>Location</i>	<i>Period</i>
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Workshop series on Grantsmanship	Institute for educational research and innovation studies, UEW	22-23 <sup>th</sup> September, 2022
Early career seminar	University Teachers' Association, Ghana (UTAG)	11th August, 2021
Seminar on Capacity Building for Young Educators from Developing Countries including in the Belt and Road Initiative	Bud-hotel Changchun, China	24 -27 <sup>th</sup> October 2019
Seminar on Capacity Building for University Teachers from the country included in the Belt and Road Initiative	Bud-hotel Changchun, China	4-8 <sup>th</sup> September, 2019
Seminar on Capacity Building for Primary and Secondary School Principals from the countries included in the "Belt and Road" Initiative	Bud-hotel Changchun, China	12 <sup>th</sup> September, 2019
Seminar on Capacity Building for University Teachers from the country including in the Belt and Road Initiative	Bud-hotel Changchun, China	9- 29 <sup>th</sup> June, 2018
College of Education Leadership Professional Development programme on operations leadership. National Council for Tertiary Education (NCTE), in collaboration with Cambridge Education, UK; National Accreditation Board, Ghana, and National Teaching Council,	Capital View Hotel, Koforidua	October 2015
Transforming Teacher Education and Learning (T-TEL) Challenge Fund Project. UKaid through the Transforming Teacher Education and Learning (T-TEL) in Ghana	Capital View Hotel, Koforidua	October 2015 and July 2017
Professional Development Workshop for organizing and training Tutors, UKaid through the Transforming Teacher Education and Learning (T-TEL) in Ghana Programme	Capital View Hotel, Koforidua	September 2014, and July 2017
Basic Education Quality Improvement Programme (BEQUIP) on Active Learning for Basic Schools, IBIS Global for Educational Development.	Bolga	14- 18 <sup>th</sup> September, 2015

### Conference(s):

Inter-University Conference for Doctoral Studies working in Collaboration with the School of Graduate Studies, organised by Graduate School of University of Education, Winneba at Josphus Anamuah-Mensah's Conference Centre on the theme Promoting Staff Development through Collaboration Research and Quality Teaching in Education on 15<sup>th</sup>-16<sup>th</sup> September, 2022 (Participant)

15<sup>th</sup> Annual interdisciplinary Conference (AIC)-2022 organised by the University for Development research (UDS) at the international conference centre, UDS, Tamale Campus on the theme Contemporary Global Crises: threats and opportunities for Research and Academic Freedom on 7 – 8<sup>th</sup> September, 2022 (Participant)

International Conference for Graduate Students in Chemistry research, organized by the Institute of applied Chemistry, Changchun, China. 8<sup>th</sup> - 9<sup>th</sup> November 2019. (Presenter)

The 18<sup>th</sup> Beijing conference and Exhibition on Instrumental Analysis for young scientist, organized by China science association, Beijing Conference Centre, China 18<sup>th</sup> – 20<sup>th</sup> September 2019. (Presenter)

The 1<sup>st</sup> GRASAG Research conference ‘Policy Formulation in Ghana, the use of Postgraduate Research’, Graduate Students Association of Ghana (GRASAG) National Secretariat. February 22nd, 2013 (Presenter)

#### **Membership of Professional Association(s):**

<i>Name of Association</i>	<i>Position held</i>	<i>Period</i>
American Chemical society (ACS)	Member	2022 to date
Ghana Science Association (GSA)	Member	2022 to date
University Teacher Association of Ghana (UTAG)	Member	2021 to date
National Association of Graduate Teachers (NAGRAT)	Member	2013- 2018
Colleges of education Teachers Association of Ghana (CETAG)	Member	2010- 2021
Ghana National Association of Teachers (GNAT)	Member	2003 2013

#### **Institutional Service:**

<i>Name of Committee(s) and/or Board (s)</i>	<i>Position or role</i>	<i>Period</i>
Project and Collaboration Committee	Member	20 <sup>th</sup> February, 2023
Planning Committee for Certificate in Herbal Medicine Education -Sandwich Programme	Member	5 <sup>th</sup> March, 2021
Planning Committee for Certificate in Herbal Medicine Education -Sandwich Programme	Member	3 <sup>rd</sup> October, 2022
Review of Courses for the department of Chemistry Education	Member	12 <sup>Th</sup> July, 2021
Committee for external support to established a research laboratory	Member	12 <sup>Th</sup> May, 2021
Membership of Departmental Strategic Plan Implementation and Monitoring Committee	Member	5 <sup>th</sup> March, 2021

#### **Community Service:**

<i>Name of Institution/Organisation)</i>	<i>Position(s) held</i>	<i>Period</i>
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Developing school improvement plan for SHS in Ghana organized by Ghana Education Service in collaboration with Transforming Teacher Education and Learning (T-TEL) Ghana	School Improvement Advisor (SIA)	28 <sup>th</sup> October, 2022 up to date
American Chemical Society Chemistry in collaboration Department of Chemistry Festival, UEW. Organized Chemistry festival activity for selected Basic School pupils in Effutu Municipality	Chairman	6 <sup>th</sup> August, 2022
Evaluation of the Ghana Teacher Licensing Examinations (GTLE) by Institute for Educational Research and Innovation Studies (IERIS), UEW, for Ministry of Education	Research Assistant	17 <sup>th</sup> November to 23 <sup>rd</sup> December, 2023
American Chemical Society Chemistry in collaboration Department of Chemistry Festival, UEW. Organized Chemistry festival activity for selected Basic School pupils in Effutu Municipality	Chairman	19 <sup>th</sup> September, 2021
Organised and facilitated Professional Development sessions (PDS) for Tutors of Dambai College of Education (DACE) and Teacher Basic Schools in Krachi East Municipality	Coordinator and facilitator	2015-2017
Organised and facilitated several INSETs and workshops for teachers at DACE Demonstration School and Lakeside JHS in Dambai	Facilitator	2016-2017

**Grants, Honours, Awards, Prizes or Professional Recognition and other Key Accomplishments:**  
**AWARDS**

<i>Name/Type of Award</i>	<i>Awarding Institution or Organisation</i>	<i>Period</i>
NENU Outstanding International Graduating Ph.D Student	Northeast Normal University, China	14 <sup>th</sup> June, 202
Best Outstanding International Students Award	Ministry of Education, China	11 <sup>th</sup> October, 2020
Outstanding Academic Achievement for International Students Award	Northeast Normal University, China	18 <sup>th</sup> December, 2019
Outstanding Academic Achievement for International Students Award	Northeast Normal University, China	21 <sup>th</sup> December, 2018

**GRANTS WON**

<i>Name/Type of Award</i>	<i>Awarding Institution or Organisation</i>	<i>Period</i>
American Chemical Society Chemistry festival grants	American Chemical Society	July 2020–March 2022
American Chemical society Chemistry festival grants	American Chemical Society	July 2022



**Referees:**

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