

DAVID NARTEY OBEMAH

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Researchgate: <https://www.researchgate.net/profile/Obemah-Nartey>

Dynamic and result-driven scientist with a passion and vision for creating novel, multidisciplinary approaches to drive research and development. An expert who demonstrated the ability to apply an understanding of soil environmental science to develop new techniques using experimental design principles to increase fundamental understanding and find solutions to environmental bioremediation, climate change mitigation, soil fertility and groundwater pollution control. Excellent communication skills, adept at concisely presenting research information and proposals to all organizational levels.

Areas of specialization:

Environmental Bioremediation, Greenhouse Gases and Ammonia Volatilization Quantification and Mitigation, Soil Fertility, Nutrient Cycling and Groundwater Pollution Control (Lysimeter), Biochar Production and Application, and Project Management.

EMPLOYMENT EXPERIENCE

Environmental Science Department, Kwame Nkrumah University of Science and Technology, Kumasi

Lecturer / Research Scientist 2022.12 – to Date

Council for Scientific and Industrial Research – Soil Research Institute – Soil Fertility Chemistry and Plant Nutrition Division,

Research Scientist 2021.11 – to 2022.12

Institute of Soil Science,
University of Chinese Academy of Sciences.

Postdoctoral Research Fellow: Environmental Science 2021.06 – 2022.09

Departments of Chemistry, Biochemistry and Biotechnology,
Kwame Nkrumah University of Science and Technology, Kumasi. 2014.07 – 2017.08

Senior Laboratory Technician

Lanzhou Municipal Waterworks General Cooperation, China. 2012.07 – 2012.11

Research Assistant (Industrial Attachment)

Asesewa Senior High School, Ghana. 2007.11 – 2009.09

Science Laboratory Technologist / Teacher

World Education (SHAPE PROGRAM) 2006.10 – 2007.08

Field and Administration officer (National Service)

EDUCATION

University of Chinese Academy of Sciences (UCAS)

Beijing, China

Institute of Soil Science, Chinese Academy of Sciences **Nanjing, China**

- **PhD in Soil (Environmental) Science** (Advisor Prof. Dr. Ding Weixin) **2017.8 – 2021.7**

Research directions: **Mitigation of field greenhouse gas and ammonia emissions, Conservation of stored effluent nutrients, and groundwater quality (lysimeter study).**

Thesis: Storage and application effect of dairy effluents on nitrogen gas emission and nitrogen leaching in upland fields

Lanzhou Jiaotong University **Lanzhou, China**

School of Environmental and Municipal Engineering

- **MEng. Environmental Science** (Advisor Prof. Zhao Baowei) **2010.9 – 2013.6**

Thesis: Preparation, characterization, and adsorptive properties of biochar derived from agricultural waste biomasses from Gansu province, China. A case study of cotton residue, cotton straw, potato residue, potato straw and swine manure.

Lanzhou Jiaotong University **Lanzhou, China**

School of International Studies

- **Chinese (Mandarin)** (Chinese Proficiency Certificate) **2009.9 – 2010.6**
- **HSK (Level 4)**

Kwame Nkrumah University of Science and Technology **Kumasi, Ghana**

College of Science

- **BSc. Chemistry** (Advisor Dr. Noah Kyame Asare-Donkor) **2002.9 – 2006.6**

Thesis: A study of the various raw materials used in the production of activated carbon in Ghana and their various uses, especially in the decolourization of methylene blue and purification of water. A case study of coconut and palm nutshells.

Manya Krobo Senior Secondary School **Odumase-Krobo, Ghana**

- General Science **1999.9–2001.12**

CURRENT RESEARCH INTEREST:

Biochar for Environmental Bioremediation and Sustainability, Soil fertility, Agricultural nutrient loss, Field greenhouse gas (GHG) and ammonia (NH₃) emissions Quantification and Mitigation, Groundwater Quality (lysimeter study), Nutrient Cycling, Dairy Effluent GHG and NH₃ mitigation strategies at Storage, and Waste Management.

GRANTS AND AWARDS

Conference support

- Conference support from the Institute of Soil Science, Nanjing, China, to participate and present research outcomes in a virtual conference held in New Zealand

Academic awards

1. Excellent International Student of University of Chinese Academy of Sciences, UCAS (2021)
2. Nanjing Government awards for the best international student (2018, 2019, 2020)

3. 2nd best graduating Student School of Environmental and Municipal Engineering, LZJTU 2012/2013
4. 1st Best graduating student Faculty of International Affairs, LZJTU 2012/2013
5. 3rd Best Chinese Proficiency student, LJU 2009/2010 Academic year
6. 1st Best International Master's student, LJU 2010/2011 Academic year
7. China Scholarship Council (CSC) 2009–2013

Fellowship award

1. CAS-TWAS President's Fellowship for PhD study in China (2017.9 – 2021.6)

Leadership/Administrative positions held

- Vice President: African student Association, Lanzhou Jiaotong University (Lanzhou, China) (2010–2012)
- Vice Secretary: Association of Chemistry Students (Kumasi), KNUST, Ghana (2003–2006)
- Founding member KNUST Krobo Student Union, (2004 –2005)

LANGUAGE SKILLS

- English (Very proficient: oral, written),
- Mandarin (Proficient: oral, written, HSK4),
- French (Basic: oral only)

Membership of Professional Associations

- Soil Science Society of Ghana,
- Ghana Science Association,
- Jiangsu Soil Science Society, China,
- PECB Quality Management System Practitioners,
- Organization of African Academic Doctors (O-AAD)

CERTIFICATES

- Certified Lead Auditor ISO 9001:2015, Quality Management System (QMS), Professional Evaluation and Certification Board (PECB), Canada.

Peer-Reviewed Publications

Nartey, O. D., Liu, D., Luo, J., Lindsey, S., Chen, Z., Yuan, J., Zaman, M., Hogarh, J. N., Ding, W., **2024.** Optimizing application of dairy effluent with synthetic N fertilizer reduced nitrogen leaching in clay loam soil. *Heliyon* **10**, 33900–33915.

A. I. Gabasawa, G. A. Abubakar, and **D. N. Obemah.,** 2024. Soil regeneration and microbial community on terrestrial food chain. Prospects for soil regeneration and its impact on environmental protection. Springer, 243 – 267

G. A. Abubakar, A. I. Gabasawa, L. A. Sale, and **D. N. Obemah.,** 2024. Advantages and disadvantages of soil regeneration. Prospects for soil regeneration and its impact on environmental protection. Springer, 297 – 305.

Nartey, O. D., Liu, D., Uwamungu, Y. J., Luo, J., Lindsey, S., Di, J. H., Chen, Z., Yuan, J., Ding, W. (2021) Corn cobs efficiently reduced ammonia volatilization and improved nutrient

value of stored dairy effluents. *Science of The Total Environment*, 769, 144712–144722.

- Nartey, O. D., Liu, D., Luo, J., Lindsey, S., Di, J. H., Chen, Z., Yuan, J., He, T., Ding, W. (2021) Optimizing the application of dairy farm effluent and manure to mitigate gas emission. *Journal of Soils and Sediments*, 21, 2935–2948.
- Uwamungu, Y. J., Nartey, O. D., Uwimpaye, F., Dong, W., Hu, C. (2019) Evaluating biochar impact on topsoil adsorption behavior on soil under no-tillage and rotary tillage treatments: isotherms and kinetics. *International Journal of Environmental Research and Public Health*, 16, 5034–5051.
- Zhao, B., and Nartey, O. D. (2015) Adsorption of Pb(II) onto biochars derived from biomasses originated from Loess soil areas. *International Journal of Applied Environmental Sciences (IJAES)*, 10(1), 239–248.
- Zhan, H., Jiang, Y., Yuan, J., Hu, X., Nartey, O. D., Wang, B. (2014) Trace Metal pollution in soil and wild plants from lead-Zinc smelting areas in Huixian County, North-western China. *Journal of Geochemical Exploration*, 147, 182–188.
- Nartey, O. D., and Zhao, B. (2014) Biochar preparation, characterization, adsorptive capacity and its effect on bioavailability of contaminants. An Overview. *Advances in Materials Science and Engineering*, 147, 715398–715410.
- Nartey, O. D., and Zhao, B. (2013) Adsorption of Pb(II) from aqueous solution onto biochar prepared from cotton residue. *Journal of Lanzhou Jiaotong University*, 32, 159–169.
- Zhao, B., Li, Z., Nartey, O. D., Li, R. (2013) Adsorption characteristics of Cu²⁺ on natural zeolite from Bayin, China. *Asian Journal of Chemistry* 25, 3161–3166.
- Zhong, J., Zhao, B., Zhu, K., Ran, J., Nartey, O. D. (2013) Interaction between Phenol and Cupric ion sorption on natural loess. *Fresenius Environmental Bulletin*, 22(11), 3132–3139.
- Zhao, B., Ma, F., Nartey, O. D., Ma, T., Li, W. (2012) Influence of type and concentration of surfactant on biodegradation of phenanthrene in an aqueous solution. *Fresenius Environmental Bulletin*, 21, 830–837.
- Zhong, J., Zhao, B., Zhu, K., Ma, F., Ran, J., Nartey, O. D. (2011) Solubilization kinetics of phenanthrene by surfactants and relationship between weight solubilization ratio (WSR) and hydrophile-lipophile balance value (HLB) of surfactants. *Environmental Chemistry*, 30, 10–19.
- Zhong, J., Zhao, B., Zhu, K., Ma, F., Ran, J., Nartey, O. D. (2011) The interaction between phenanthrene and Cu²⁺ sorption on dark Loessial soil. *Journal of Agro-Environmental Science*, 20, 1985–1990.
- Yan, Z., Zhang, G., Yang, J., Nartey, O. D., Xie, Z. (2011) Influence factors and mechanism of removing fluorides with Fe-Type sepiolites. *Water Resource and Environmental Protection*, 4, 2955–2958.

Manuscripts in preparations

- Nartey, O. D., Liu, D., Luo, J., Lindsey, S., Di, J. H., Ding, W. (2021). Effluent split application reduced yield-scaled N₂O and NO emissions in a wheat-maize rotation system.
- Nartey, O. D., Liu, D., Luo, J., Lindsey, S., Di, J. H., Ding, W. (2021). Effect of inhibitors and lactic acid on ammonia volatilization, greenhouse gases emissions and nutrient value of stored dairy effluent.

Abstracts presented at conferences

Nartey, O. D., Liu, D., Luo, J., Lindsey, S., Di, J. H., Ding, W. (2020). Corn cobs efficiently reduced ammonia volatilization and improved nutrient value of stored dairy effluents. *New Zealand-China Water Research Centre Workshop Programme* (Oral Presentation ODN).

Nartey, O. D., Zhao, B. (2014). Characterization and evaluation of biochars derived from agricultural waste biomass from Gansu, China. *Advances in Civil, Environmental and Material Research* (ACEM14) (Poster presentation by ODN).

Nartey, O. D. (2015). Adsorption of Pb (II) from aqueous solutions onto biochar prepared from cotton residue in Northern China. *15th International Conference on Environmental Science and Technology, (1010RJA070)*. (Oral presentation ODN).

Nartey, O. D., Yan, Z., Zhang, G., Yang, J., Xie, Z. (2011). International symposium on water Resource and Environment Protection, Xian, Shanxi Province, China. 2012. *International Symposium on Geometric for Interested Water Resource Management, Lanzhou, Gansu Province, China*. (Poster presentation by ODN).

Reviewer

- American Journal of Environmental Science and Engineering, Scientific Reports, Frontiers in Sustainable Food Systems Qeios, Ghana Science Association.

Master's students supervision

- Assessing the efficiency of the Obuasi (Diawuoso) wastewater stabilization pond
- Air pollution: a bibliometric analysis of current state of research in west Africa

Undergraduate supervision

- Preparation, characterization and evaluation of endocarp of *prunus dulcis* l-derived biochar for bioremediation and soil fertility enhancement
- Assessing the impact of *prunus dulcis* l-derived biochar quantity on heavy metal remediation in mining-tailing contaminated soil in Obuasi, Ghana
- Assessment of mercury and cyanide levels in backyard gardens at Obuasi (akaporiso) Ghana
- impact of effluent from facultative stabilization ponds on soil health and crop quality. a case study in Obuasi (Diawuoso), Ghana.
- Assessing residual pollution and its impact on crop cultivation in soil 44 years after gold mine tailings spillage in Obuasi, Ghana.
- Assessment of effluent suitability from facultative stabilization ponds for irrigation purposes in Obuasi (Diawuoso), Ghana.

Referees

Provided upon request