Curriculum Vitae

Full Name: Gemechu Lemessa Gusu

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Career Objective

A dedicated environmental researcher and educator with over nine years of experience in water science, sustainability, and environmental chemistry. Seeking a position where I can apply my expertise in water treatment technologies, low-cost adsorbents, and community-based research to advance sustainable development and contribute to organizational goals.

Education

Ph.D. in Water Science and Technology

Africa Center of Excellence in Water Management (ACEWM), Addis Ababa University, Ethiopia, 20 March, 2025

Dissertation title: Development of magnetic nanocomposite from bagasse and diatomite for adsorptive removal of Cd(II) and Cr(VI) from wastewater

Master of Science in Physical Chemistry

Haramaya University, Ethiopia (2016)

- **Thesis**: Synthesis and Characterization of Co-doped Nickel-ZnO/Polypyrrole Nanocomposites, and Their Effect on Photocatalytic Degradation of P-Nitrophenol under Solar Irradiation
- Advisors: Prof. O.P. Yadav and Prof. Tesfahun Kebede

Bachelor of Science in Chemistry

Madda Walabu University, Ethiopia (2011)

Professional Experience

Researcher and Academic Staff

Wollega University and Jigjiga University, Ethiopia (2011–2021)

- Conducted and led experimental teaching sessions in chemistry for undergraduate students.
- Designed and implemented community-based research addressing environmental and water management challenges.
- Directed laboratory operations, trained technicians on advanced instruments, and maintained an optimal learning environment for students.

- Evaluated research projects, organized seasonal progress presentations, and facilitated thematic research areas for community-focused studies.
- Served as a college research committee member, reviewing and advising on research initiatives.

Key Achievements:

- Initiated low-cost and locally sourced water treatment research projects for resource-limited communities.
- Developed sustainable and reusable magnetic adsorbents for heavy metal removal from wastewater.

Publications

Gemechu Lemessa, Chebude, Y., Demesa, A. G., Fadeev, E., Koiranen, T., & Alemayehu, E. (2024). Development of suitable magnetite–diatomite nanocomposite for Cd (II) adsorptive removal from wastewater. *Scientific African*, *24*(March), e02213. https://doi.org/10.1016/j.sciaf.2024.e02213

Gemechu Lemessa*, Yonas Chebude, Esayas Alemayehu (2023) Adsorptive removal of Cr(VI) from wastewater using magnetite-diatomite nanocomposite, under revision in aqua water infrastructure ecosystems and society, AQUA - Water Infrastructure Ecosystems and Society; DOI: 10.2166/aqua.2023.132

Gemechu Lemessa* Nigus Gabbiye and Esayas Alemayehu,(2023). Waste-to-resource: Utilization of waste bagasse as an alternative adsorbent to remove heavy metals from wastewaters in sub-Saharan Africa: A review, Water Practice & Technology, Vol 18 (2), 393, doi: 10.2166/wpt.2023.011

Gemechu Lemessa; Dunkana Negussa and P. S. Bedi (2018). Synthesis and Characterization of Co-doped Nickel-ZnO/Polypyrrole Nano-composites, and Their Effect on Photo-catalytic Degradation of P-nitrophenol under Solar Irradiation, *International Research Journal of Pure & Applied Chemistry; 17(2).1-12.*

Chala Boru and Gemechu Lemessa (2018). Detection of Methylene Blue from textile by Differential Pulse Voltammetry Using Cobalt Hexacyanoferrate Modified Carbon Paste Electrode; *Chemical Science International Journal, 25(2): 1-10, 2018; Article no.CSIJ.45825*

Presentations

- *National Conference on Science, Technology, and Innovation Applications for Development*, Wollega University, Ethiopia (June 2018).

- *Sustainable Water During the Pandemic in Sub-Saharan Africa*, hosted by TU Braunschweig and Bahir Dar University (October 2022, Virtual).
- *13th Green Chemistry Postgraduate Summer School*, Venice (July 2021, Virtual)

Honors and Awards

- Certificate of Recognition for Peer Reviewing – *Scientific African Journal* (March 2018).
- Certificate of award for recognitions of his contributions to 1 manuscript in 2024 for scientific report, Springer nature journal

Research Interests

- Development of low-cost and sustainable water treatment technologies.
- Kinetic and mechanism studies of adsorption processes.
- Application of nanoparticles and nanocomposites in environmental remediation.
- Reusable magnetic adsorbents for wastewater treatment.

Skills

- Expertise in water treatment technologies and adsorption processes.
- Synthesis and characterization of nanoparticles and nanocomposites.
- Laboratory management and training in advanced instruments.
- Strong academic writing and peer reviewing for scientific journals.
- Effective communication and presentation skills.

References

1. **Prof. Dr.-Ing. Esayas Alemayehu**
   College of Water and Environmental Engineering, Jimma Institute of Technology, Jimma, Ethiopia
   Email: esayas16@yahoo.com
2. **Associate Prof. Yonas Chebude**
   College of Natural and Computational Science, Addis Ababa University, Ethiopia
   Email: yonaschebude@aau.edu.et
3. **Prof. Feleke Zewge**
   Director, Africa Center of Excellence in Water Management, Addis Ababa University, Ethiopia
   Email: felekezewge@aau.edu.et
4. **Associate Prof. Beteley Tokola**
   School of Chemical and Biological Engineering, Addis Ababa University, Ethiopia
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