



Bezayit Amare

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EDUCATION AND TRAINING

Master of Science (MSc) in Industrial and Environmental Biotechnology

Addis Ababa Science and Technology University — Feb 2021 – Aug 2023

City: Addis Ababa | Country: Ethiopia | Website: <http://www.aastu.edu.et/> | Final grade: 3.95 / 4.00 – Graduated Top of Class (Rank: 1st) | Thesis: "Shotgun Metagenomic Insights into Secondary Metabolite Biosynthetic Gene Clusters in Natural Farmland Soil."

- [Led shotgun metagenomic analysis on soil samples from two Ethiopian farmlands using Illumina sequencing and the metaSPAdes assembler.](#)
- Resolved critical DNA extraction challenges by adapting and optimizing the Verma (2017) metagenomic protocol to meet specific experimental conditions, ensuring high-quality DNA.
- Identified 274 biosynthetic gene clusters (BGCs) across 21 classes, including novel PKS, NRPS, RiPP, and terpene clusters.
- Revealed over 1,400 unique KEGG orthologs, highlighting extensive functional diversity within the microbial communities.
- Characterized biosynthetic pathways using InterProScan and KEGG Mapper, linking gene functions to metabolite production.

Bachelor of Science in Biotechnology

Addis Ababa Science and Technology University — Sep 2016 – Jan 2021

City: Addis Ababa | Country: Ethiopia | Website: <http://www.aastu.edu.et/> | Final grade: 3.84 / 4.00 – Ranked 2nd highest in class, | Thesis: Isolation of Cr (VI) Reducing Bacteria from Polluted River in Addis Ababa: Bioremediation Perspectives.

- Isolated and characterized *Klebsiella* spp. capable of reducing toxic hexavalent chromium (Cr VI) to its less harmful trivalent form (Cr III) from industrially polluted river water.
- Assessed chromium-reducing capacity across four concentrations (113.19, 150.92, 226.38, 452.77 mM), with one isolate exhibiting strong resistance under high-toxicity conditions.
- Quantified Cr(VI) reduction using spectrophotometry at 540 nm, achieving up to 97% reduction efficiency at lower concentrations.
- Conducted Gram staining and biochemical assays (TSI, Catalase, Citrate, LIA, MacConkey) to classify the isolate as a Gram-negative, lactose-fermenting, rod-shaped bacterium.
- Directed a team of 5 in conducting comprehensive research, culminating in a successful defense before a jury and earning an 'A' for the work.

WORK EXPERIENCE

🏢 *Hilltops Academy, Addis Ababa — Dec 2023 – Present – Addis Ababa, Ethiopia*

City: Addis Ababa | Country: Ethiopia

Environmental Science Teacher

- Delivered high-engagement science instruction aligned with STEM frameworks for 1,000+ students.
- Spearheaded 60 homeroom students in the successful completion of over 10 science fair projects, cultivating independent research skills.
- Designed and orchestrated hands-on experiments and environmental science projects, driving a 30% increase in class participation and retention based on teacher feedback and student performance.
- Implemented formative assessment strategies (quizzes, group evaluations, peer reviews) to track student progress and pinpoint learning gaps, resulting in a 10–15% improvement in average assessment scores.
- Achieved 95% positive student feedback on lesson clarity and engagement by integrating digital and physical teaching aids into the science curriculum.

- Coordinated a 12-student design and animation club, mentoring in digital art fundamentals, and guiding collaborative projects.
- Promoted from assistant teacher to lead science instructor in two months, overseeing curriculum development and classroom management.

 **Ethiopian Public Health Institute, Addis Ababa — Jul 2019 – Aug 2019 – Addis Ababa, Ethiopia**

City: Addis Ababa | Country: Ethiopia

Laboratory Technician Intern

- Prepared and quality-controlled 11 types of culture media (e.g., MAC, BAP, CHOC, TSI, LIA, SIM, MHA), following SOPs and sterility protocols.
- Assessed 60+ clinical samples through Gram staining, colony morphology, 7+ biochemical tests, and selective media to identify clinically relevant pathogens.
- Executed AST on 50+ isolates using the Kirby-Bauer method to assess resistance in pathogens like E. coli, S.aureus, and N. gonorrhoeae.
- Documented multi-drug resistance patterns, with isolates resistant to 6–9 antibiotics, including E. coli (Ampicillin, Cefazolin, Ciprofloxacin) and S. aureus (Penicillin, Clindamycin, Tetracycline).
- Showcased methodologies for processing and cataloging patient samples in Ethiopia's public health diagnostic initiative, earning an A for the internship.

LANGUAGE SKILLS

Mother tongue(s): Amharic

Other language(s):

English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

Microbial isolation and identification / Bioinformatics: quality control and analysis of raw sequence data / Tools: Unix command line, Python (basic), genomic databases & servers / DNA extraction and purification from environmental samples

CERTIFICATIONS

Data Analysis Fundamentals – Udacity

Certificate of Innovative Pedagogy – Kotebe University of Education & NUF Africa Research and Training Institute