

SERLY EFENDI

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SUMMARY

Analytical and detail-oriented Chemistry graduate from Universitas Brawijaya with a strong interest in the petrochemical and chemical manufacturing industries. Hands-on experience in surfactant synthesis for Enhanced Oil Recovery (EOR), ASTM-based chemical analysis, and material characterization through research and laboratory activities. Proficient in performing chemical analysis using conventional and instrumental analytical methods, including FTIR and UV-Vis spectrophotometry, with the ability to interpret analytical data and deliver reliable laboratory results. Eager to contribute strong analytical, problem-solving, and teamwork skills to quality control, laboratory operations, process optimization, and research & development within the petrochemical industry.

PROFESSIONAL EXPERIENCE

Laboratory Assistant for Identification Chemistry Reaction Topic – Malang, Indonesia August – Dec 2025

- Assisted 42 students for identifying basic chemical reactions, including explaining reaction concepts and indicators of chemical reaction.
- Instructed students on balancing chemical equations and guided them through fundamental laboratory procedures.
- Evaluated and graded students’ laboratory reports, providing feedback to improve their understanding and performance.

Laboratory Assistant for Physical Chemistry – Malang, Indonesia August – Dec 2025

- Guided 37 students through the determination of refractive index for methanol–ethanol mixture solutions.
- Demonstrated the principles and procedures of distillation for separating binary liquid mixtures (Methanol and Ethanol).
- Assisted students in processing experimental data to construct vapor–liquid and liquid–liquid phase equilibrium diagrams.

EDUCATION

Brawijaya University – Malang, Indonesia Aug 2022 – July 2026

Undergraduate Student in Chemistry (GPA: 3.92/4.00)

- Basic Physics Tutor (2023) – Led review sessions for Waves, Optics, Electricity-Magnetism, and Modern Physics exam preparation, assisting students in grasping key concepts and problem-solving techniques.
- PT Adaro Scholarship awardee (2024/2025) and (2025/2026)– Chosen as one of 20 students to receive the prestigious PT Adaro scholarship, recognizing academic excellence and leadership potential.
- Physical Organic Chemistry Tutor (2024) – Conducted tutoring sessions on acid-base effects and functional group interactions in organic chemistry, helping students for their exams.

PROJECT EXPERIENCES

Undergraduate Thesis Research– Brawijaya University Feb-July 2026

Preparation and Characterization Hydrogel for Dye Removal

- Optimized hydrogel formulation through characterization using swelling degree testing, FTIR, and SEM analysis.
- Performed adsorption studies by varying contact time, dye type, and pH; adsorbent performance was evaluated using UV-Vis Spectrophotometer and FTIR, achieving up to 90% dye removal efficiency.
- Conducted adsorption kinetic analysis using pseudo-first-order (PFO) and pseudo-second-order (PSO) models, and presented using OriginPro software.

Production of VCO – Brawijaya University August – Dec 2025

Production of Virgin Coconut Oil using Bromelain Enzyme Derived from Pineapple Extract

- Designed the experimental workflow and performed a literature study to optimize enzymatic VCO production using bromelain enzyme extracted from pineapple.
- Evaluated product quality by testing moisture content and Free Fatty Acid (FFA) levels using manual titration methods based on SNI 7381:2008 (Indonesian National Standard for Virgin Coconut Oil).
- Successfully produced 1 liter of VCO with 98% purity from two production batches, including project budgeting and material requirement calculations.

Synthesis Surfactant – Badan Riset dan Inovasi Nasional (BRIN) Feb – July 2025

Synthesis of Polyalkyl Oleat Sulfonate Surfactant for EOR Application

- Synthesized polyalkyl oleate sulfonate surfactant through esterification (oleic acid with PEG/PPG) followed by sulfonation using H<sub>2</sub>SO<sub>4</sub>.
- Characterized raw materials, intermediate, and final products using acid, ester, saponification, and iodine number analysis (ASTM) and FTIR.
- Evaluated surfactant performance through interfacial tension (IFT) testing, achieving a reduction tention of 24.1 mN/m between crude oil and formation water from Langgak field.

CERTIFICATIONS AND TRAINING

Chemical Oxygen Demand (COD) Analytical Technique– Lab Mania July 2026

- Learned COD principles, pollutant sources, and oxidation-based analysis methods for water/wastewater quality testing.
- Studied COD measurement methods: open reflux, closed reflux, and spectrophotometric techniques, along with their calculation formulas.

Particle Size Analyze workshop – Laboratorium Riset Terpadu, Brawijaya University June 2026

- Learned the principles of Particle Size Analysis (PSA), measurement techniques (Laser Diffraction & DLS), and zeta potential analysis including optimal value ranges for good colloidal stability.

Internal Audit ISO 9001:2015 Training – Kelas.com May 2026

- Learned ISO 9001:2015 Quality Management System principles, including PDCA (Plan-Do-Check-Act) cycle and risk-based thinking
- Studied internal audit processes and techniques, including audit stages, assessment methods, and clause 9.2 requirements on internal audit

Water Treatment in Oil and Gas Industry - Society of Petroleum Engineers (SPE) May 2026

- Learned Total Oil & Grease (TOG) and Water-Soluble Organics (WSO) measurement, regulation, and extraction methods in produced water/oil systems.
- Studied produced water treatment and reuse practices from a global oil & gas industry perspective, including nanoparticle-based treatment technology applications.
- Understood crude oil emulsion formation (water-in-oil and oil-in-water systems), surfactant types, and factors affecting emulsion stability.
- Studied emulsion stability/destabilization concepts including Winsor's R-ratio, HLB (Hydrophilic-Lipophilic Balance), and HLD (Hydrophilic-Lipophilic Deviation)

Royal English – Malang, Indonesia Oct 2024

- Certificate in TOEFL Prediction (Score: 557/680)

TECHNICAL SKILL

- Analytical Instruments (FTIR, UV-Vis Spectrophotometer, Turbidimeter, Colorimeter, IFT)
- Laboratory Equipment (Reflux Systems, Shaker, Microscope, Distillation Apparatus, Microscope, Three-Neck Flask & Condenser Reactor Setup, Centrifuge, pH meter, Vacuum Filtration System, Desiccator, Refractrometer)
- Analytical Techniques (Gravimetric Analysis, Titrimetric Analysis, Destilation, Column Chromatography, Extraction)

TOOLS

- Proficient in Molecular Modeling (Marvin Sketch, Chem Draw)
- Skilled in Data Visualization (Gnuplot, Origin)
- Graphics Design and Editing (Canva, Capcut)
- Microsoft Office (Word, Excel, PowerPoint)

LANGUAGE

- Indonesian
- English

SOFT SKILL

- Leadership
- Time Management
- Conflict Resolution
- Communication
- Teamwork
- Critical Thinking
- Problem Solving
- Adaptability