

Hasna Hafida

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Semarang, Central Java, Indonesia

Biochemist with experience in molecular biology and biomolecule development. Experienced in DNA extraction, plasmid sequencing, PCR, and synthetic biology construct design. Skilled in protein purification (affinity and size exclusion) and biophysical validation of biomolecules (mass spectrometry, SDS-PAGE, circular dichroism, dynamic light scattering, TEM). Proficient in data analysis using Python and computational tools, with capabilities in structured reporting and scientific writing. Aspiring to contribute to pharmaceutical innovation in Indonesia.

Education

Master of Science in Biochemistry | GPA 3.58/4.00, *with Merit*

University of Edinburgh, United Kingdom (2024–2025)

Bachelor of Science in Biology | GPA 3.65/4.00, *Cumlaude*

Universitas Sebelas Maret (UNS), Indonesia (2014–2018)

Research Experience and Employment

- **Research Associate, UNS (Part-time, Remote) (2026–Present):** Developed three research outputs: (1) ReSIST-TB proposal to DIPI Small Research Grant 2026 on structural analysis of *pncA* mutants and molecular screening of Indonesian natural compounds; (2) preliminary results presented as abstract at ASEAN4TB Symposium 2026; and (3) UNESCO MAB Young Scientist Award proposal applying genome-to-metabolite mapping for agarwood biosynthesis and conservation.
- **Research Collaborator, Univ. of Edinburgh (Part-time, Remote) (2025–Present):** Conduct manuscript preparation on biocatalysis, applying Python and PyMOL for data processing and visualization.
- **Postgraduate Researcher, Univ. of Edinburgh (2025):** Characterized glycoside hydrolases using enzyme assays, microbial culture, DNA extraction, PCR, sequencing, and data analysis using Python, achieving >20-fold catalytic enhancement on novel synergistic enzyme combinations.
- **Practical Project, Univ. of Edinburgh (2025):** Purified recombinant carbonic anhydrase; performed data analysis in R, biophysical validation (dynamic light scattering, circular dichroism, SDS-PAGE, thermal denaturation assay, mass spectrometry)..
- **Undergraduate Researcher, UNS (2018):** Synthesized biogenic silver nanoparticles using fungal isolates, biomaterial characterisation using dynamic light scattering and transmission electron microscopy.
- **Research Intern, LIPI (2017):** Characterized phosphate-solubilizing bacteria through microbial assays and documentation practices, contributing to PGPR bioprospecting for plant growth support.

Applied Science Employment

- **Scholarship & Study Abroad Mentor, Mata Garuda Jawa Timur & SatuTugu Mentorship (Part-time, Remote) (2026–Present):** Guide scholarship applicants through application strategy while applying monitoring and evaluation frameworks to track progress and outcomes.
- **Planning Officer, Busana Apparel Group (2021–2024):** Managed procurement and production workflows, ensuring bulk material complied with quality standards, and provided data-driven decisions for buyers.
- **Data Analyst & Tutor (2019–2020):** Conducted statistical analysis for biotechnology projects using SPSS while tutoring biology, strengthening analytical and communication skills.
- **Teaching Assistant, UNS (2017–2018):** Supervised laboratory sessions for enzymology and general biology, ensuring protocol adherence, experimental setup, and basic lab safety practices.

Publications and Presentations

- **Manuscript (in preparation):** *Engineering Protein Flexibility: Principles of Intrinsic Disorder for Tailoring Enzyme Function in Glycoside Hydrolases*. Target journal: *Biotechnology Journal* (Wiley, Scopus Q2).
- **Short Communication (Competition Submission):** *Engineering Thermostable Feed Enzymes for Tropical Pelleting: A Circular Bioeconomy Strategy for Livestock Systems*. Submitted to *Youth-Driven Innovations for Sustainable Livestock Systems* (FAO–BRIN), 2026.
- **Science Communication (3rd Runner-Up):** *The Scented Shield: How Elephant Poop and Smart Perfume Could Save Sumatra's Giants.*” *Animal Global Writing Competition* (Kompasiana × Geopix), 2025.
- **Conference Presentation:** *Screening and Identification of Silver Nanoparticle-Producing Fungi from Landfill Soil in Semarang City*. Presented at ICAMBF 2018.

Awards and Recognitions

- **Indonesian Endowment Fund for Education (LPDP) Scholarship Recipient (2024-2025):** Awarded a merit-based full-ride scholarship from Indonesia's Ministry of Finance to pursue postgraduate studies at a top-30 university.
- **Second place, Faculty of Natural Sciences and Mathematics (FMIPA) Academic Excellence Selection (Mawapres) (2017):** Authored and presented a review highlighting the diversity and functional significance of Indonesia's endophytic fungi.
- **National Scientific Writing and Poster Competitions (2017):**
 - Gold medal (Andalas University) - Presented the prospective use of fungal silver nanoparticle synthesis as a livestock feed additive.
 - Second Place (Mulawarman University) - Presented the potential of green synthesis of silver nanoparticles in fungi to combat antibiotic resistance in livestock.

Certifications and Coursework

- **Introduction to Industrial Bioprocess Development** (Denmark Technical University via Coursera, 2026)
- **Cosmetic Formulation Science and Product Development** (Olay via Coursera, 2026).
- **Molecular Modeling Workshop: Protein-Ligand Interaction Analysis** (Klinik Ilmiah, 2026).
- **Python for Genomic Data Science** (Johns Hopkins University via Coursera, 2025).
- **Researcher's Guide to Omic Data** (Fred Hutch Cancer Center via Coursera, 2025)
- **Quality Planning in Industries and Basics of Risk Management** (Indonesian Engineers Association, in collaboration with diklatkerja.com, 2025).

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THE UNIVERSITY
of EDINBURGH

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To Whom It May Concern:

Reference for Miss Hasna Hafida

I am a lecturer and Principal Investigator in the School of Biological Sciences, University of Edinburgh. I am writing in support of Miss Hasna Hafida's application for a laboratory position. Miss Hafida has recently completed our taught M.Sc. program in Biochemistry. I teach on the related M.Sc. programs in Synthetic Biology and Biotechnology, and Miss Hafida took one of the courses on which I teach, Applications of Synthetic Biology, achieving a good First Class mark. However, my main knowledge of her potential comes from my supervision of her final M.Sc. research project, which was conducted in my laboratory. This involved characterization of novel cellulases and related enzymes, and particularly looking at the synergy between different enzyme combinations. Techniques included PCR, plasmid sequencing, growth of microorganisms, and enzyme activity assays. Miss Hafida learned the required techniques very quickly and applied them meticulously to generate a very useful set of results, which will form a solid basis for further work. She worked very well with others in the laboratory, showing strong technical skills and good communication skills, and wrote a very clear and comprehensive report, which will be very useful for others carrying on this work. She received a high Upper Second Class grade for this dissertation.

Miss Hafida's other grades were also very good, with mostly First Class or high Upper Second Class marks especially in the second semester, showing excellent adaptability and good adjustment to our teaching system. I was also very impressed with her project work, which showed intelligence, good organization, excellent record keeping and strong communication skills. Her M.Sc. was awarded with Merit, well deserved.

In summary, I found Miss Hafida to be a highly intelligent and well organized student with excellent laboratory skills and a thorough understanding of biochemistry, coupled with a genuine scientific curiosity. I think she would be very well suited to a career in biological research. As such, I am happy to recommend her to you.

I hope this is useful. If you would like any further information, please feel free to contact me.

Yours Truly.

A handwritten signature in black ink that reads 'C French'.

Professor Christopher French.