Jose M. Barraza-Chavez

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https://github.com/ChemistryPlus

Other names: Manuel Barraza, Jose Manuel Barraza Chavez.

Education

'24–'29 **PhD, Chemical Engineering & Applied Chemistry**, *University of Toronto & Vector Institute*, Toronto, ON

Thesis: "Deep learning for enzyme modeling and biological property prediction."

Supervisors: Benjamin Sanchez-Lengeling.

Skills: Python (PyTorch, RDKit, Scikit-learn), Linux, active learning, basic robotics, wet-lab procedures.

'17–'22 **Bachelor's Degree in Biochemical Engineering**, *Autonomous University of Sinaloa (UAS)*, Sinaloa, México

Professional experience

'22–'23 **Research engineer**, *Industrias de Culiacan S.A. de C.V.*, Sinaloa, México, Research and development.

'22–'23 **Thesis intern**, *Faculty of Chemical and Biological Sciences, Autonomous University of Sinaloa*, Sinaloa, México, Undergraduate thesis. **Project:** Biotechnological use of white corn residues for bioethanol production by *Saccharomyces bayanus*.

'22 **Research assistant**, *Faculty of Chemical and Biological Sciences, Autonomous University of Sinaloa*, Sinaloa, México, Undergraduate research assistantship, Biotechnological lab. **Project:** Biotechnological use of white corn residues for bioethanol production by *S. cerevisiae*.

'21–'22 **Research assistant**, *Faculty of Chemical and Biological Sciences, Autonomous University of Sinaloa*, Sinaloa, México, Undergraduate research assistantship, Biotechnological lab. **Project:** Extraction of fermentable sugars from white corn residues by chemical hydrolysis for bioethanol production.

Research Focus

Topics: Molecules, proteins, enzymes, generative models, bioprocesses, microorganisms, extremophiles, AI-guided discovery, deep learning modeling.

Publications and Presentations

[1] J. Barraza, R. Ahmed Barghout, R. Almada, A. Jinich, and B. Sanchez-Lengeling. "Graph Data Modeling: Molecules, Proteins, Chemical Processes." In: *ACS In Focus* (accepted) (2025).

Posters

- J. Barraza, J. Valdez, Y. Ríos, O. Hernández, M. González, J. Ortíz, R. Castillo, and C. Alarid. "Biotechnological use of white corn residues for bioethanol production by *Saccharomyces bayanus*." Poster presentation at the 2022 CIOES Congress, Mazatlán, Sinaloa, México (October 2022).
- J. Valdez, J. Barraza, Y. Ríos, O. Hernández, M. González, J. Ortíz, R. Castillo, and C. Alarid. "Production of bioethanol from white corn residues by *Saccharomyces cerevisiae* by submerged fermentation." Poster presentation at the 2022 CIOES Congress, Mazatlán, Sinaloa, México (October 2022).
- J. Barraza, J. Valdez, Y. Ríos, O. Hernández, M. González, J. Ortíz, R. Castillo, and C. Alarid. "Extraction of fermentable sugars from white corn residues by chemical hydrolysis for bioethanol production." Poster presentation at the XLIII National Meeting of AMIDIQ, Puerto Vallarta, Jalisco, México (August 2022).

Languages

Native level in Spanish and TOEFL iBT 100 (reading 29/30, listening 27/30, speaking 22/30, writing 22/30).