



Dra. Idania Valdez Vazquez, Investigador Titular B
Unidad Académica Juriquilla, Instituto de Ingeniería, UNAM
ValdezV@ii.unam.mx



Especialidad:

Biorrefinerías celulósicas; Bioconversión de CO₂; Bioprospección microbiana

Sinopsis curricular

Es Ingeniero Ambiental egresado de la Unidad Profesional Interdisciplinaria de Biotecnología del IPN. Realizó sus estudios de Doctorado en Biotecnología Ambiental en CINVESTAV, obteniendo el grado en 2007. Actualmente es Investigador Titular B de tiempo completo de la Unidad Académica Juriquilla del Instituto de Ingeniería de la UNAM. Sus líneas de investigación contemplan: la revalorización de residuos agrícolas y agroindustriales y aguas residuales para la obtención de bioenergía; el desarrollo de biorrefinerías celulósicas; bioconversión de CO₂; la bioprospección microbiana; el estudio ecológico de las comunidades microbianas presentes en biorreactores anaerobios; el estudio de la sostenibilidad de sistemas de producción de bioenergía.

Es Investigador Nacional nivel 2. Cuenta con más de 40 publicaciones internacionales indizadas con 1,500 citas acumuladas (índice h 15). Ha dirigido 11 estudiantes de licenciatura y 18 estudiantes de posgrado. Cuenta con más de 100 trabajos en eventos académicos.

Publicaciones (últimos 5 años):

- 2020 Molina-Guerrero CE, **Valdez-Vazquez I**, Sánchez A, Vázquez-Castillo JA, Vazquez-Nuñez E. 2020. A biorefinery based on the biomechanical configuration of the digestive system of a ruminant for ABE production: a consolidated bioprocessing approach. *Biomass Conversion and Biorefinery*.
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- 2019 Pérez-Rangel M, Barboza-Corona E, Buitrón G, **Valdez-Vazquez I**. 2019. Essential nutrients for improving the direct processing of raw lignocellulosic substrates through the dark fermentation process. *Bioenergy Research*.
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- Valdez-Vazquez I**, Castillo-Rubio LG, Pérez-Rangel M, Sepúlveda-Gálvez A, Vargas A. 2019. Enhanced hydrogen production from lignocellulosic substrates via bioaugmentation with *Clostridium* strains. *Ind Crops Prod* 2019 137:105-111.
- Hernández C, Alamilla-Ortiz ZL, Escalante AE, Navarro-Díaz M, Carrillo-Reyes J, Moreno-Andrade I, **Valdez-Vazquez I**. Heat-shock treatment applied to inocula for H₂ production decreases microbial diversities, interspecific interactions and performance using cellulose as substrate. *Int J Hydrogen Energy* 2019 44(26): 13126-13134.
- Hernández C, Escamilla-Alvarado C, Sanchez A, Alarcón E, Ziarelli F, Musule R, **Valdez-Vazquez I**. Wheat straw, corn stover, sugarcane, and Agave biomasses: chemical properties, availability, and cellulosic-bioethanol production potential in Mexico. *Biofuel Bioprod Bior* 2019 13,1143–1159.
- García-Depraect O, **Valdez-Vazquez I**, Rene ER, Gómez-Romero J, López-López A, León-Becerril E. Lactate- and acetate-based biohydrogen production through dark co-fermentation of tequila vinasse and nixtamalization wastewater: Metabolic and microbial community dynamics. *Bioresour Technol* 2019 282:236-244.
- Muñoz-Páez KM, Alvarado-Michi EL, Buitrón G, **Valdez-Vazquez I**. Distinct effects of furfural, hydroxymethylfurfural and its mixtures on dark fermentation hydrogen production and microbial structure of a mixed culture. *Int J Hydrogen Energy* 2019 44(4): 2289-2297.
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- 2018 Molina-Guerrero CE, de la Rosa G, González-Castañeda J, Sánchez Y, Castillo-Michel H, **Valdez-Vazquez I**, Balcazar E, Salmerón I. Optimization of culture conditions for production of cellulase by *Stenotrophomonas maltophilia*. *Bioresources* 2018, 13(4): 8358-8372.
- Molina C, de la Rosa G, Castillo-Michel H, Sánchez A, García-Castañeda C, Hernández-Rayas A, **Valdez-Vazquez I**, Suarez-Vázquez S. Physical-chemical characterization of wheat straw during a continuous pretreatment process. *Chem Eng Technol* 2018 41(7):1350-1350.
- Valdez-Vazquez I**, Sanchez A. Proposal of biorefineries based on mixed cultures for lignocellulosic biofuel production: a techno-economic analysis. *Biofuel Bioprod Bior* 2018 12(1):56-67.
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- 2016 Navarro-Díaz M, **Valdez-Vazquez I**, Escalante AE. Ecological perspectives of hydrogen fermentation by microbial consortia: What we have learned and the way forward. *Int J Hydrogen Energy* 2016 41(39):17297-17308.
- Valdez-Vazquez I**, Torres-Aguirre GJ, Molina C, Ruiz-Aguilar GML. Characterization of a lignocellulolytic consortium and methane production from untreated wheat straw: dependence on nitrogen and phosphorous content. *Bioresources* 2016 11(2):4237-4251.