

Diana Milena Ramirez Gutierrez

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EDUCATION

- Doctor of Philosophy in Agricultural and Biological Engineering** Expected Graduation: **December 2022**
Purdue University, West Lafayette, IN
Advisor: Dr. Michael Ladisch
- Master of Science in Agricultural and Biological Engineering** **2019**
Purdue University, West Lafayette, IN GPA:3.5/4
Advisor: Dr. Klein Iileleji
- Bachelor's Degree, Agricultural Engineering** **2016**
National University of Colombia, Bogotá, Colombia GPA:3.9/5

RESEARCH PROJECTS

- Biomass Liquefaction by enzymatic hydrolysis -US Department of Energy (DOE)** **2020- Present**
PhD Project
Purdue University, WL, IN
- Development of a strategy for large scale production and transformation of biomass pellets and aggregates using enzymatic liquefaction, in partnership with the INL (Idaho National Lab).
 - Characterization of biomass chemical composition and rheology properties.
 - Improving the liquefaction efficiency by identifying the best process parameters and reduction of enzymatic inhibition.

- Solar drying technologies for medium growers of specialty crops in Georgia, California, and Indiana.** **2017 – 2019**
Master's project
Purdue University, WL, IN
- Modeled the drying kinetics of dehydration performance in specialty crops (tomato, apples, and mint) using two solar crop drying technologies (DEHYTRAY™ and DEHYMELEON™ and by thin layer drying after diurnal cycles of solar drying.
 - Characterized the product quality of dried specialty crops, based on color, antioxidant activity (AOX), total phenols, vitamin C content and phytosanitary performance based on microbial counts.
 - Developed extension activities with Indiana and California farmers for training on the usage of drying technologies.

- Testing of a novel Solar Drying Technology Purdue – California USDA-ARS Lab Collaboration** **8/2018**
Research Visitor
USDA -ARS Western Regional Research Center: Albany, CA
- Measured quality changes on fresh and dehydrated products (tomatoes and nectarines), on Vitamin C, antioxidant activity, total phenols, and microbial growth variation.

- Development of a Solar Dryer Technology for developing countries in Africa** **6/2015–12/2015**
Visiting Research Scholar
Agricultural and Biological Engineering Dept., Purdue University, WL, IN
- Led the design process of a foldable tray for a solar dryer, selecting materials and structure.
 - Carried thin layer drying experiments for the understanding of drying kinetics at certain temperatures on field for the development of the drying technology.

PROFESSIONAL EXPERIENCES

- Faculty of Engineering, National University of Colombia, Bogotá** **01/2016 –06/2017**
Project Coordinator "Technologies and product design for the support of logistics systems for fresh products in the Cundinamarca Region".
- Led the engineering team to develop postharvest and harvesting tools as well as technologies for recollecting systems, sanitation and classification systems, packaging innovations and exhibition of 21 different agricultural products.
 - On site analysis of rural areas for recognition of the challenges of postharvest and harvesting practices on field, and the transfer of the developed technologies to small and medium farmers.

SKILLS

Software: ANSYS, Origin Pro, Minitab, COMSOL, RStudio, Python and Assembler.

Laboratory: Wet chemistry analysis techniques, food microbiology, and food physical properties analysis, HPLC.

Certifications: Management of Rural and Agricultural Innovation. National University of Colombia (2016-2017)

Languages: *English (Fluent), Spanish (Native), Portuguese (Intermediate)*

LEADERSHIP EXPERIENCES

Bayer Innovation Bootcamp

Spring 2021

Leadership experience Feeding the world, without starving the planet

Agricultural & Biological Engineering Graduate Students Association

President

2019-2020

Vice-president / Braking Barriers Engineering Program Ambassador

2018-2019

Latinos Leaders in Agriculture

2018

Purdue ABE ambassador

PUBLICATIONS & CONFERENCE PROCEEDINGS

Ruiz, H.A., Galbe, M., Garrote, G., **Ramirez-Gutierrez, D.M.**, Ximenes, E., Sun, S., Lachos-Perez, D., Rodríguez-Jasso, R.M., Sun, R., Yang, B., Ladisch, M.R.(2021).*Severity factor kinetic model as a strategic parameter of hydrothermal processing (steam and liquid hot water treatments) for biomass fractionation under biorefinery concept.* BITE-D-21-05405. Bioresource Technology. In press

Dos Santos, A. C. F., Overton, J. C., Szeto, R., Patel, M. H., **Ramirez-Gutierrez, D. M.**, Eby, C., ... & Ladisch, M. R. (2021). *New strategy for liquefying corn stover pellets.* Bioresource Technology, 125773.

Ramirez-Gutierrez, D. M., K. E. Ileleji and A.J. Deering. 2021. *Evaluation of novel portable passive and cabinet solar dryers in sun drying of mint leaves under Indiana weather conditions.* Trans ASABE,(in press)

D.M Ramirez-Gutierrez, K. E Ileleji, Zusongying Zhao, C. Ogden. 2018. *Applying thin-layer drying principles to optimize solar drying of apples.* Paper 1800847, 2018 ASABE Annual International Meeting. Detroit.

Zusongying Zhao, Klein Erhekabor Ileleji, **D.M Ramirez**, Zhian Zheng. 2018. *Effect of pretreatment on allicin degradation and color change in the dehydration of garlic.* Paper 1800951, 2018 ASABE Annual International Meeting. Detroit.

C.P. Pérez, J.E Naranjo, **D.M. Ramírez**, A. E Jaimes, J. D. Arévalo Arias). 2017. *Characterization of an agricultural area of Cundinamarca, its problems, and possible solutions.* Logistics Facing Challenges of Food Security and Environmental Protection. International Forum on Agri-Food Logistics. Poznań University of Life Sciences ISBN: 978-83-7160-866-7 Poland.

A.L Rodriguez, Y. Ortiz, YP Ochoa, A. Barrero, **D.M Ramirez**, G. Montano, RA Ramirez, F. Parada, CP Pérez. 2014. *Effect of the application of UV-B radiation in the essential oil of peppermint (Mentha spicata L.).* XV Latin American Congress of Chromatography and Related Techniques and VII Colombian Congress of Chromatography - Cartagena de Indias, Colombia.

PATENTS

Klein E. Ileleji; Jesumayomikun Lumi; Diana M. Ramirez Gutierrez. 2018, Modular Collapsible Solar Dryer for Multipurpose Drying. Patent Number US 10746464 . August.8, 2018.

AWARDS & SCHOLARSHIPS

Best Poster Award-Colombian Gian Leaps – Colombia Purdue -2020 Research Symposium **8/2020**

Scholarship Attendance Conference Latinos Leaders in Agriculture. Dallas **11/2018**

Poster Award-2nd Place- Conference Innovation for International Development (I2D) Lab - Purdue **2018**

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