

DR. ANA LUENGO ESCOBAR

AFFILIATIONS

Center of Plant, Soil Interaction and Natural Resources Biotechnology, BIOREN, Universidad de la Frontera.

CONTACT

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ACADEMIC DEGREES AND PROFESSIONAL STUDIES

Doctor en Ciencias de Recursos Naturales, Universidad de la Frontera.

Magister en Ciencias de Recursos Naturales, Universidad de la Frontera.

Licenciado en Ciencias Biológicas, Universidad Austral de Chile.

DOCTORAL THESIS

Effect of UV-B radiation on the photoprotective and antioxidant response in *Vaccinium corymbosum* L.: An approach to the UV-B resistance mechanisms. Advisor: Dr. Miren Alberdi Lag, Co-Advisor: Dr. Marjorie Reyes Diaz, International Co Advisor Dr. Laura Jaakola.

RESEARCH VISITS

International visit to Doctor Laura Jaakola, in Climate Laboratory, UiT The Arctic University of Norway (University of Tromsø) Tromsø, Norway. June 6th to July 2nd, 2014.

International internship research with Doctor Laura Jaakola, research leader of Climate Laboratory, UiT The Arctic University of Norway (University of Tromsø) Tromsø, Norway. March 30th to November 15th, 2013.

RESEARCH LINES

Plan stress tolerance
UV-B stress
Plant Physiology

PUBLICATIONS

Berríos G.A., **Luengo Escobar A.**, Alberdi M.R., Nunes-Nesi A., Reyes-Díaz M.M. (2019). Manganese toxicity amelioration by phosphorus supply in contrasting Mn resistant genotypes of ryegrass. *Plant Physiology and Biochemistry* 144: 144-156.

Luengo Escobar A., Alberdi M., Acevedo P., Machado M., Nunes-Nesi A., Inostroza-Blancheteau C., Reyes-Díaz M. (2017). Distinct physiological and metabolic reprogramming by highbush blueberry (*Vaccinium corymbosum*) cultivars revealed during long-term UV-B radiation. *Physiologia Plantarum* 160(1), 46-64.

Luengo Escobar A., Magnum de Oliveira Silva F., Acevedo P., Nunes-Nesi A., Alberdi M., Reyes-Díaz M. (2017). Different levels of UV-B resistance in *Vaccinium corymbosum* cultivars reveal distinct backgrounds of phenylpropanoid metabolites. *Plant Physiology and Biochemistry* 118: 541-550.

Zoratti L., Karppinen K., **Luengo Escobar A.**, Häggman H. and Jaakola L. (2014). Light-controlled flavonoid biosynthesis in fruits. *Frontiers in Plant Science* 5, 1-16.

BOOKS AND CHAPTER BOOKS

6th International Workshop "Advances in Science and Technology of Bioresources" Abstract Book. 29-30th of November and 1st of December, 2017. Universidad de La Frontera, Pucón, Chile. Ed. Marjorie Reyes, Ana Luengo Escobar.

RESEARCH PROJECTS

Extremophytes: The new promising models for discovering stress tolerance mechanisms and bioactive compounds. Network for Extreme Environment Research (NEXER) project NXE17-002. Principal researcher: Dr. Leon Bravo. Role in the project: Research assistant.

Phytohormones and its association with resistance mechanisms to Al and Mn toxicity in Highbush blueberry cultivars growing in acid soil: A strategy for improving yield and fruit quality of plants. FONDECYT Regular Competition N° 1171286. Principal researcher: Dr. Marjorie Reyes Diaz. Role in the project: Invited Researcher.

Role of organic phosphorus and C:N:P stoichiometry in smart and sustainable agriculture in volcanic soils. FONDECYT Regular Competition N° 1181050. Principal researcher: Dr. Maria de la Luz Mora. Role in the project: Research assistant.

Improving phosphorus efficiency use and aluminum detoxification on pastures growing in acid volcanic soils throughout biotechnological tools. FONDECYT Regular Competition N° 1141247. Principal researcher: Dr. Maria de la Luz Mora. Role in the project: Research assistant

Quality traits and fruit yield in hazelnut (*Corylus avellana L*) associate with Boron and Zinc levels and phenological stage of application in plantation of Southern Chile. FONDECYT N° 11160762.

Principal researcher: Dr. Cristian Meriño Gergichevich, BIOREN, Universidad de la Frontera, Temuco, Chile. Role in the project: Research assistant and invited researcher.

PRESENTATION AT NATIONAL/INTERNATIONAL CONGRESSES

7th International Workshop Advances in Science and Technology of Bioresources. Poster “Leaves extracts (*Deschampsia antarctica* and *Colobanthus quitensis*) inhibits the viability and migration of gastric cancer cells (AGS). Calderon C., Pérez I., Weber H., Luengo Escobar A., Leal P., Bravo L., Reyes-Díaz M. 2-4 December 2019, Pucón, Chile.

IV Congreso Chileno de Berries. Porter “Respuesta diferencial de cultivares de arándano alto (*Vaccinium corymbosum* L.) frente a la toxicidad por manganeso” Luengo Escobar, A., Cáceres-Gómez, C., Calderón, C., Godoy, K., Alberdi, M., Reyes-Díaz, M. 2-4 October 2019, Valdivia, Chile.

6th Symposium on Phosphorus in Soils and Plants (PSP6). Poster: “Optimizing ryegrass P acquisition and productivity by using enriched labile P manure bio-fertilizer in contrasting Andisol soils under different Ca and N fertilization” Luengo Escobar A., Paredes C., Millaleo R., Duran P., Barra P., Jorquera M., Mora M. 10-13 September 2018, Leuven, Belgium.

6th International Workshop Advances in Science and Technology of Bioresources. Poster: “Influence of polyphenol oxidase (PPO) on the degradation of pigments in murtilla fruits”. Cáceres-Gómez C., Calderón C., Seguel I., Luengo Escobar A, Reyes-Díaz M. 29-30 November and 1 December, Universidad de La Frontera, Pucón, Chile

Plant Biology Europe 2014. Poster: “UV-B light exposition induces phenylpropanoid pathway genes in Blueberry leaves at the short term”. Luengo-Escobar, A., Jaakola, L., Reyes-Diaz, M., Alberdi, M. June 22-26th, 2014, Dublin, Ireland.

2nd international symposium “Soil, Plant and microorganism”. Presentación oral: “High UV-B radiation (280-320) differentially affects morphology, phenolic accumulation and photosynthetic pigments in leaves of *Vaccinium corymbosum* cultivars. Luengo-Escobar A., Godoy K., Reyes-Díaz M., Alberdi M. November 24-26, Pucón, Chile.

Olomouc Biotech 2013 Plant Biotechnology: Green for Good II. Olomouc, Czech Republic, June 17-21, 2013. Poster: “*Vaccinium corymbosum* cultivars exhibit different strategies in response to UV-B radiation”. Luengo-Escobar, A., Reyes Díaz, M., Ribera AE, Cartes, P., Acevedo, P., Inostroza-Blancheteau, C. and Alberdi, M

PlantBio 2013, the Second National Plant Biology Conference. Symposium V: Plant cells, T19. Presentación oral. “Effect of UV-B light exposition on *Vaccinium corymbosum* cultivars on the role of induction of flavonoid pathway: flavonol biosynthesis is a resistant mechanism? 7- 8 Noviembre, 2013, Tromsø, Norway. Luengo-Escobar, Ana, Jaakola, Laura, Reyes-Díaz, Marjorie, Alberdi, Miren.

4th International workshop Advances in science and technology of Bioresources. “Flavonol biosynthesis and its role in Ultraviolet-B protection in *Vaccinium corymbosum* L.: A molecular approach”. 4- 6 de Diciembre, Universidad de La Frontera, Pucón, Chile, 2013. Luengo-Escobar, A., Jaakola, L., Reyes-Diaz, M., Alberdi, M.

Plant Biology 2012, 20-24th July, Austin, Texas, United States of America. Poster (1): "Effect of UV-B radiation on growth and antioxidant response of *Vaccinium corymbosum* L. cultivars". Luengo-Escobar, A, Reyes-Díaz, M., Ribera, A., Cartes, P., Acevedo, P., Alberdi, M. Poster (2) "Combined effect of UV-B radiation and nitrogen fertilization on physiological and biochemical responses of *Vaccinium corymbosum* L. cultivars". Duran-Troncoso, M., Reyes-Díaz, Marjorie, Ribera, A., Cartes, P., Acevedo, P., Luengo-Escobar, A., Yañez-Mansilla, E., Alberdi, M.

VII Reunión de Biología Vegetal, 2012, 3- 6 de Diciembre, Pucón, Chile. Poster: "UV-B radiation differentially induces phenolic compounds in *Vaccinium Corymbosum* L. cultivars". Luengo-Escobar, A., Reyes-Díaz, M., Ribera, A.E, Cartes, P., Acevedo, P. Lobos, W., Duran-Troncoso, M., and Alberdi, M.

6th International Symposium of Interactions of Soil Minerals with Organic Components and Microorganisms (ISMOM), 26th June – 1st July, Montpellier, France. 2011. Poster: "Gypsum application ameliorates Al-stress in *Vaccinium corymbosum* L. growing in an Andisol: a cultivar dependent effect". Luengo-Escobar A, Durán-Troncoso M, Meriño-Gergichevich C, Reyes-Díaz M, and Alberdi M.

3rd International workshop Advances in science and technology of science resource. November 2-4, Universidad de La Frontera, Pucón, Chile, 2011. Poster (1): "Calcium sulfate effect during two harvest season on net photosynthesis and antioxidant capacity of *Vaccinium corymbosum* L. growing in an Andisol". Durán-Troncoso, M., Luengo-Escobar, A., Reyes-Díaz, M. and Alberdi, M. Poster (2): Short-term exposure to high UV-B dose on *Vaccinium corymbosum* L. cultivars. "Effect on photochemical efficiency of PSII and their relation to leaves spectral reflectance". Luengo-Escobar A., Durán-Troncoso M., Inostroza-Blancheteau, C., Acevedo, P., Reyes-Díaz M, and Alberdi M.

2nd International workshop Advances in science and technology of science resource. October 27-29, Universidad de La Frontera, Pucón, Chile, 2010. Poster: "Antioxidant activity and flavonoids compounds in fruits of *Vaccinium corymbosum* L. treated with calcium sulfate in an Andisol". Luengo-Escobar, A., C., Alberdi, M, Reyes-Díaz, M.

ACADEMIC ACTIVITIES

Undergraduate courses:

2019 Invited professor ICQ-353 Fisiología. Lecture "Metabolismo secundario en plantas". Biochemistry, Universidad de la Frontera.

2018 Elective course: ICQ-453 Enzimas y Medio Ambiente. Module I: Ensayos y análisis de actividad enzimática antioxidante en plantas. Biochemistry, Universidad de la Frontera. Practice Professor Ad Honorem.

2014 Laboratorio Química general ICQ-250, (2 hrs) I semestre. Departamento de Ciencias Químicas y Recursos Naturales, Universidad de la Frontera, Temuco, Chile. Practice Professor Ad Honorem.

2012 Laboratorio Bioquímica ICQ-047, (2 hrs) II semestre. Departamento de Ciencias Químicas y Recursos Naturales, Universidad de la Frontera, Temuco, Chile. Practice Professor Ad Honorem.

Postgraduate courses:

2020 Invited professor. Fundamentos Científicos de la Producción Agroalimentaria (DCA001-1) Unidad 2: Bases Científicas de la Producción Vegetal. Programa de Doctorado en Ciencias Agroalimentarias y Medio Ambiente, Universidad de la Frontera.

Outreach activities***Extension Projects***

7th International Workshop Advances in Science and Technology of Bioresources. Proyecto de Extensión Académica. EXS19-0283. Dr. Paula Cartes Indo. Facultad de Ingeniería y Ciencias, Universidad de la Frontera. Co-responsable.

Scientific association's participation

Plantae (ASPB, USA), 2016. American Society of Plant Biologists (ASPB, USA), 2012.

Reviewer

Journal of Soil Science and Plant Nutrition (5), Brazilian Journal of Botany (3).

Editorial functions in scientific journals

Editorial production staff of the "Journal of Soil Science and Plant nutrition". Vicerrectoría de Investigación y Postgrado, Universidad de la Frontera. 2018.

AWARDS AND DISTINCTIONS

Incentive to the most cited articles 2020, Dirección de Investigación, Universidad de la Frontera. Thematic area: Life Sciences.

Travel Award, 6th Symposium on Phosphorus in Soils and Plants (PSP6). KU Leuven, awarded in 2018.

Beca de pasantía Doctoral CONICYT Beca Chile, awarded in 2013.

Beca de Apoyo a la realización de Tesis Doctoral, CONICYT awarded 2012.

Capital Humano Avanzado, CONICYT, awarded in 2010.

English scholarship, CORFO, awarded 2010.