

Universidad Católica de Santa María

Principal Applicant: **PhD Lena Gálvez Ranilla** Researcher in Food Science Universidad Católica de Santa María (UCSM) Arequipa - Peru

Area of relevant expertise: Biological and Agricultural Sciences

Current Research Line at UCSM: Applied biochemistry and biotechnology for the study of the health-relevant functionality of foods and bioactive compounds from Peruvian Food and Plant Biodiversity.



- Arequipa (southern city in Peru).
- Non-profit private university with around 14000 students (graduate and undergraduate).
- Vice-presidency of Research: 116 research projects (external and own resources) (from 2013 to the present).

Current problem

- ✓ Peru is the 3rd country in Latin American with more cases of overweight and obesity (53.8% of Peruvian people)¹.
 <u>Increase in NCCD:</u>
- ✓ Hyperglycemia and diabetes: 23% and 7% of prevalence in adults, respectively².
- ✓ Hypertension: 24% of prevalence in adults (2010)³
- ✓ Still double burden of NCCD and malnutrition (iron deficiency in children)

1.http://www.observateperu.ins.gob.pe/ 2. Seclén, S. 2015. Diabetes mellitys en el Perú: hacia dónde vamos. Rev. Med. Hered, 26:3-4.

3. Ruiz Mori, E. 2015. Epidemiología de la hipertensión arterial en el Perú. Diagnostico, 54:179-183.

Previous work

Bioactive compounds and health-relevant functional properties of cereals and legumes from Peru and Latin American

- Ranilla, L.G.; Apostolidis, E.; Genovese, M. I., Lajolo, F. M.; Shetty, K. 2008. Evaluation of indigenous grains from the Peruvian Andean region for antidiabetes and antihipertesion potential using in vitro models. Journal of Medicinal Food, 2: 704-713.
- Gonzalez-Muñoz, A.; Quesille-Villalobos, A.M.; Fuentealba, C.; Shetty, K.; Ranilla, L.G. 2013. Potential of Chilean native corn (*Zea mays* L.) acessions as natural sources of phenolic antioxidants and in vitro bioactivity for hyperglycemia and hypertension management. Journal of Agricultural and Food Chemistry, 61:10995-11007.
- Ranilla, L. G.; Christopher, A.; Sarkar, D.; Shetty, K.; Chirinos, R.; Campos, D. 2017. Phenolic composition and evaluation of the antimicrobial activity of free and bound phenolic fractions from a Peruvian purple corn (Zea mays L.) accession. Journal of Food Science, 82:2968-2976.

Potential proposal:

Areas: Novel food crops, food systems and double burden of obesity and malnutrition

Title: "Exploring the South Andean Peruvian food systems as sources of novel grain crops with nutritional potential along with health benefits for the management of hyperglycemia and hypertension"

Specific objectives:

- To identify most important traditional cereals and legumes from the South Andean Food Systems and to document their traditional preparations *in situ*.
- To screen the nutritional potential (macro and most relevant micro nutrients) of raw and prepared grain crops under traditional preparations.
- To screen the anti-hyperglycemia, antioxidant and the anti-hypertensive potential using *in vitro* models of raw and prepared grain crops under traditional preparations.
- To select most promising grain crop (cereal/legume) and to validate biochemical results with *in vivo* models for potentially understand the mechanism of action and metabolites linked to observed bioactivity.