Quinoa leaves, a sustainable source for plant-based new food ingredients

GONZEZ A. (1), CAMPOS V. (2), SKEWES R. (2), ENRIONE J. (1)
1 Universidad de los Andes, Santiago, Chile
2 In-Biotech SpA , Valparao, Chile

Quinoa seeds has been highlighted as a good source of nutrients, among them, proteins, and their amino acid profile, for this reason has a constant growth market. Nevertheless, the global world population is increasing and the demand of proteins and protein-based products as well. For that, new proteins sources must be evaluated. In this regard, it has been indicated in a few reports, that quinoa leaves could be a sustainable alternative and can combat mega-droughts caused by global warming since it is a by-product of the seed harvest, which has not currently been valued. The objective of this research was to evaluate the parameters to obtain quinoa leaves concentrates, characterize it in terms of molecular weight, zeta potential, FT-IR, and evaluate some physicochemical and technological properties of interest, such as solubility, water retention capacity and emulsifying. The quinoa leaves used in this study was composed in a 32% (dry weight) by proteins, higher than 14% of proteins in seeds. There are different approaches to evaluate the protein extraction, starting with the leaves and subject to a pressing process to separate the fiber and thus obtain a high-protein juice. Another way is to dry the leaves, grind it and in this way obtain the concentrates. Among them, press the quinoa leaves allowed to obtain a higher extraction yield. Then, it was characterized and the molecular weight of proteins conforming the concentrate, and there was between 6 and 200 kDa and according to literature it was present the protein Rubisco (14 and 53 kDa). Zeta potential it was more positive and more negative (alkaline pH) as it moved away from the isoelectric point. With these results we are now determining technological properties in order to evaluate their use in food matrices as a plant-based food ingredient.