Universidad de Navarra
Facultad de Ciencias

MASTER'S DEGREE IN BIOMEDICAL RESEARCH
Research Project Proposal
Academic year 2023-2024

Project Nº 23

Title: Valorization of vegetable organic wastes for health purposes

Department/ Laboratory: Environmental Biology (School of Sciences) and Pharmaceutical Technology and Chemistry (School of Pharmacy and Nutrition)

Director 1 Dr Carmen Sanmartín Grijalba
Contact: sanmartin@unav.es
Codirector: Dr Nieves Goicoechea Preboste
Contact: niegoi@unav.es

Summary

The environment is threatened by the continuous and huge production of wastes, some of them of vegetable origin generated in domestic and agricultural contexts. The current applications for these residues are almost limited to composting although it has been shown that they provide bioactive compounds with antioxidant properties that give them analgesic, anti-inflammatory, antipyretic, antimicrobial, antifungal and even anticancer effects.
Previous collaborations between Dr Sanmartín and Dr Goicoechea have verified the cytotoxic effect of grapevine leaf extracts against different cancer cell lines and recent studies have demonstrated household vegetable wastes can inhibit the development of mycotoxin-producing fungi that threaten food safety. Moreover, the team of Dr Sanmartín has wide experience on the role that selenocompounds can play against several diseases such as cancer, leishmanial, Chagas, bacterial infections, Alzheimer and cardiovascular affections. Her research group covers a wide numbers of stages of the drug discovery process including design, synthesis, structural characterization, biological evaluation and formulation.
The general objective of this TFM is to test the efficacy of extracts obtained from vegetable organic wastes and enriched with selenocompounds against harmful agents for the human health.
Growth of different fungi and bacteria will be assessed *in vitro* in Petri dishes whose growth medium will be supplemented or not with different vegetable extracts combined or not with selenocompounds. The antioxidant capacity of the vegetable extracts will be measured by the DPPH assay, the levels of total phenolics will be spectrophotometrically determined and the profiles of some groups of phenolics will be characterized by HPLC.

yes	
no	X

Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?