

PE10: Research and Innovation network on food and nutrition: Sustainability , safety and security on Foods

Spoke : Smart and circular food system and distribution

Proponent: Professor Lucia Panzella

Project Information

Research project title

Recovery, structural characterization and evaluation of the functional properties of phenolic compounds from agri-food by-products and wastes

Key words Phenolic compounds, antioxidants, lignins, tannins, deep eutectic solvents, mechanochemistry, waste valorization

Research project abstract.

The research activity will be directed to the valorization of tannins, lignins and low molecular weight phenolic compounds from agri-food and forestry by-products and waste. Specific aims of the project will be: 1)Development of green extraction methodologies for the recovery of the phenolic compounds involving e.g. mechanochemical approaches and/or use of natural deep eutectic solvents; 2)Structural characterization of the main recovered phenolic compounds through customary chromatographic and spectro(photo)metric methods (for low molecular weight compounds) and solid-state techniques (ATR-IR, CP-MAS ^{13}C NMR, EPR) coupled with chemical degradation methods (for polymeric lignins and tannins); 3)Evaluation of the functional properties of the recovered compounds for their applications in the food (e.g. as antioxidants for active food packaging or as functional food ingredients) and cosmetic (as photoprotectors or anti-aging agents) sectors.