101131420-PHENOCYCLES
HORIZON – MSCA –2022-SE-01

Funded by the European Union

Exploiting the multifunctional properties of polyphenols: from wastes to high value products (**PHENOCYCLES**)

ITALY
COORDINATOR **CREA** (CONSIGLIO PER LA RICERCA IN AGRICOLTURA E L'ANALISI DELL'ECONOMIA AGRARIA)
UNITO (UNIVERSITA DEGLI STUDI DI TORINO)
CNR (CONSIGLIO NAZIONALE DELLE RICERCHE)

SPAIN
UPV (UNIVERSITAT POLITECNICA DE VALENCIA)

ROMANIA
WUT (UNIVERSITATEA DE VEST DIN TIMISOARA)

POLAND
InHort (INSTYTUT OGRODNICTWA - PANSTWOWYINSTYTUT BADAWCZY)

ARGENTINA
UNLP (UNIVERSIDAD NACIONAL DE LA PLATA)
UNCo (UNIVERSIDAD NACIONAL DEL COMAHUE)

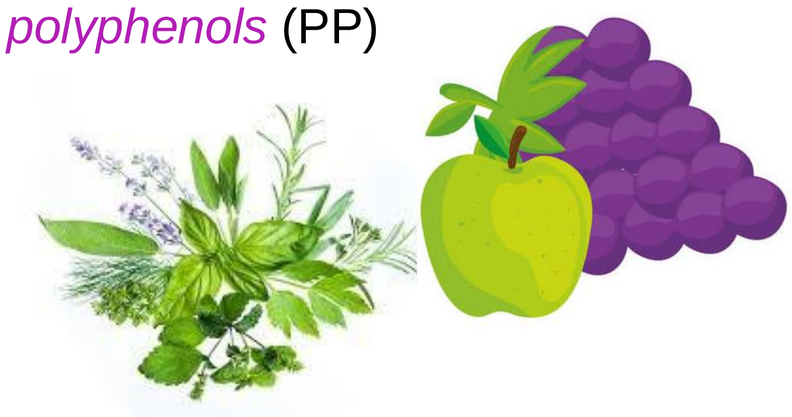
COLOMBIA
UdeA (UNIVERSIDAD DE ANTIOQUIA)

UZBEKISTAN
UPPSRI (UZBEKISTAN PLANT PROTECTION SCIENTIFIC RESEARCH INSTITUTE)

The consortium:

6 European Academic Institutions,
4 non-European Associated Partners

PHENOCYCLES provides support for 101 months of staff exchange for a *smart reuse* of agro-industrial refuses within a *circular economy* view.
Waste from crops of grapes, apples, berry and herbs are the source for the extraction of bioactive *polyphenols* (PP)

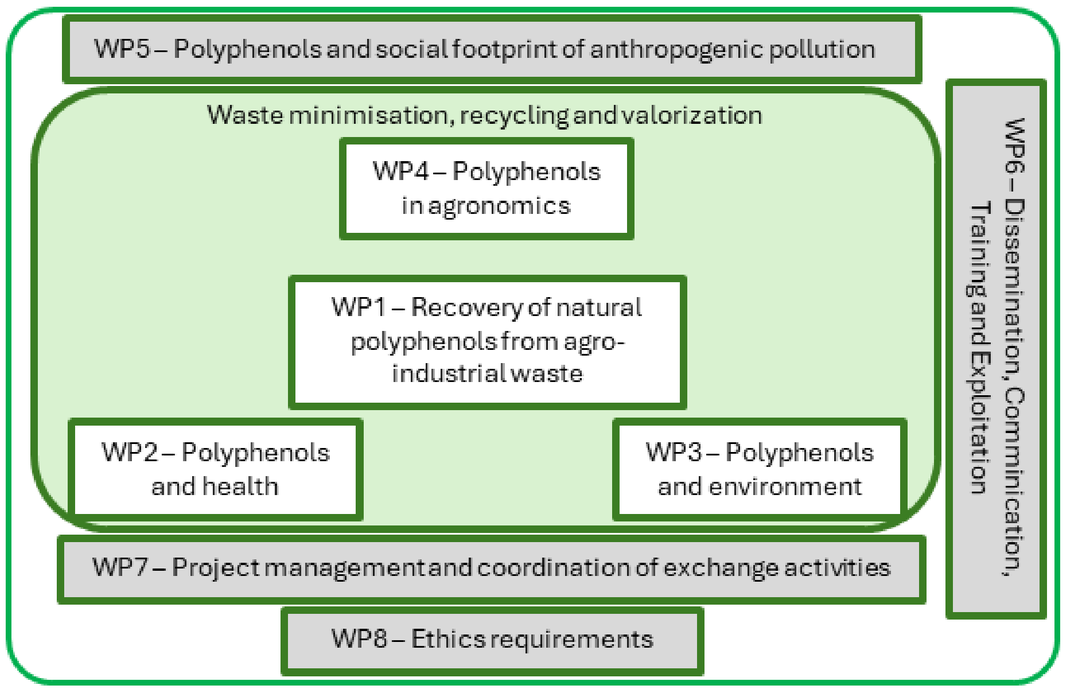


PHENOCYCLES aims at exploring *innovative uses of PP* and at *validating methods for their extraction* with a *green chemistry approach*. PP extracted from agro-industrial wastes and herbs with therapeutic value will be purified/fractionated with pilot-scale nano/ultrafiltration membranes to recover different PP fractions, to be employed in four distinct sectors:

- **human health**: synthesis of substances for photodynamic therapy and drug delivery, development of innovative phytocarrier systems, formulation of PP loaded micro/nano-scale systems, development of new food supplements (nutraceutics), and hypoallergenic cosmetics.
- **plant production**: PP-based nanomaterials for plant protection against soil-borne pests, to increase plant resistance to stresses, impacting on plant-organisms' trophic interactions.
- **environment protection**: use of PP as sensitizer or intermediate in the synthesis of materials for water disinfection and advanced oxidation processes.
- **material science**: synthesis of metal-based oxide nanostructures useful for photocatalytic applications.

To foster future exploitation of the innovations, a thorough assessment of the stakeholders' perception will be performed applying a *participatory approach* together with several *innovative dissemination activities* based on visual media.

The interdisciplinary exchanges planned in PHENOCYCLES are expected to *increase the knowledge* of researchers, particularly young ones, on the different methods utilized by the partners fostering further *developments in medicine, pharmacology, crop protection, food preservatives, nutraceuticals, cosmetics, and other industrial applications*.



Visit PHENOCYCLES website:
www.phenocycles.unito.it

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