**Dottorato:** Food Science

**Titolo:** Genomic analysis of functional traits linked to inanimate post-biotic activity.

**Proposing supervisor: Francesca De Filippis**

**Co-supervisor: Marco Pane (Probiotical SpA)**

**Objectives of the research project and interdisciplinary collaborations**

The project aims at building evidence on the functional properties of inanimate probiotics for their potential use as bio-therapeutics.

The activities will be organised in three main phases: i) literature data collection of the possible \*beneficial mechanisms or pathways or molecules described for inactivated probiotics; ii) functional genomic analysis to reveal the presence of the genes of interest in Probiotical probiotic strains (on already available genomes or on strains to be processed for WGS); iii) based on evidences obtained during the genomic explorative analysis, the verification of the activity(ies) by in vitro and in vivo studies.

\*Probiotical is mainly interested in probiotic traits correlated to vaginal-oral-skin health.

**Innovation and originality of the project in relation to the state of the art:**

The use of post-biotics for human health is still at a preliminary stage and, compared to products containing live microbial strains (probiotics), only a few products are available on the market. Therefore, this project is at the forefront in the study of genomic characteristics that favour the use of microbial strains as post-biotic, with a significant impact on the sector.

**Grant availability (funds to support the research activities)**

Prog. FOODMICROHERITAGE – granted by the Italian Ministry of International Cooperation (PI Francesca De Filippis)

**Collaborations with foreign institutions**

The PhD student will spend at least 6 months at the University College of Cork (Ireland) in the group of Prof Paul O’Toole

**Collaborations with industries**

The PhD student will spend at least 6 months at Probiotical SpA (Novara, IT) that will co-fund the PhD fellowship