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## Polygal Project overview

In order to increase even more the shelf life of their products, food industries use different strategies, among which (new) preservatives authorized in European and international food legislation.

In this context, 4 Belgian food companies (Detry, Gabriel, Galactic, Stierson) and R&D centres (Quality Partner, UCL, ULg) have submitted an innovating research & innovation project (POLYGAL project) to the WAGRALIM Walloon competitiveness cluster in the purpose of using natural preservatives such as lactates and polyphenols-concentrated plant extracts used in synergy.

### \* Partners :

- Industries: Detry SA, Gabriel SC, Galactic Inc, Stierson SA/NV.
- Scientific institutions : ULg-DDA, UCL-MIAE, Quality Partner SA.



## Polygal general objectives

- **The use of these natural preservatives** could extend shelf life and also limit organoleptical alterations of the products.
- Follows a “strategic axis” of the cluster willing to offer :
  - to customers, a healthier food,
  - to distributors, a longer shelf life
  - and to industries, a way to limit the growth of pathogens and spoilage micro-organisms.



## ULg Food Science Department tasks

On basis of the expertise areas of the Department of Food Science at the University of Liège (ULg) in the field of food quality and safety management, the research team will systematically study bacteriostatic or bactericid effects of lactates/polyphenols synergic formula on food.

## Specific Objectives

- Evaluate bacteriostatic or bactericid effects of preselected lactates/polyphenols combinations on food matrixes (mainly meat and fish).
- Durability studies in lactates/polyphenols supplemented products.
- Assess the effects of lactates/polyphenols combinations on food organoleptical quality.

## Expected results

- Analysis of micro-organisms growth under different storage conditions should provide pathogen growth parameters in lactates/polyphenols supplemented products.
- Selection of combinations in order to replace (or as alternative to) synthetic additives which are not allowed (or not authorized) for food products.

## Materials and methods

### Materials :

Ground fresh meat, cold-smoked salmon, cooked meat products or fish products.

### Methods :

The different combinations will be sprayed on products or incorporated in it, according to standardized and validated protocols.

Two kinds of tests will be carried out, in collaboration with the food producers:

- Durability tests will assess the efficacy of lactates/polyphenols combinations on microbial flora during the shelf life of the products (AFNOR, 2004).
- Standardized microbiological challenge tests will be used (AFSSA, 2008) in order to follow the growth of pathogen and resident flora in meat and fish products artificially contaminated with *Listeria monocytogenes*, *Salmonella*, *E. coli* O157:H7.

## Conclusions and perspectives

The aim of the project is to transfer incorporation methodologies of lactate/polyphenols-concentrated plant extracts combinations in products to food companies. If successful, these combinations of lactates and polyphenols-concentrated plant extracts could lead to a new technology for natural food preservation by limiting alteration as well as enhancing products shelf life. This new technology would get a powerful advantage in terms of competitiveness at the regional or international level.