

POLYOIL

Use of natural polyphenols for the stabilization of oils rich in polyunsaturated fatty acids



Type of activities: Research

Financing : Marshall Plan of the Walloon region

Key-words: oils, polyphenols

Durée: 1^{er} April 2011 – 31 March 2014.

Context :

The POLYOIL project will permit the elaboration and the development of products or ingredients which have a proven health benefit and/or match with a better nutritional quality. The health benefit of linseed oil rich in omega 3 has already been demonstrated. Nevertheless, these oils are sensitive to oxidation and to the development of toxins; the development of a linseed oil with a better oxidative stability through the addition of natural polyphenols will have a direct impact on human health and will be an innovative solution to protect it from oxidation.

Description of the project :

Objective

The objective of the research project POLYOIL is to obtain a linseed oil with a better organoleptic and oxidative stability by the addition of natural polyphenols with high antioxidant properties. The project aims at developing innovative products with a higher added value such as,

- liposoluble natural polyphenols, selected for their ability to protect from oxidation of ω -3 fatty acids specific of the linseed oil,
- a linseed oil enriched in natural polyphenols

Expected results

The works realised under the framework of this project aim at developing a new product combining the specific advantages of the linseed oil (naturally rich in fatty acids ω -3) with a storage time significantly improved by the addition of polyphenols, as natural conservative. The project aims at controlling the extraction of the polyphenolic products and their incorporation or formulation with linseed oil and to make sure of the stability of the oil enriched in polyphenolic extracts.

Contribution of the CRA-W

The CRA-W contributes through its expertise in methods of rapid analyses, in particular in the field of Raman spectroscopy, NIR and MIR. It will work on the implementation of the appropriated analytical method for the combination of oil/polyphenol products. Its knowledge in the analysis of fats (oils) and of

bioactive molecules (polyphenols) will be a significative element to bring to a successful conclusion its role within this project. It will perform ageing tests and will estimate the antioxidant effect of the polyphenols in the linseed oil in addition to the identification and the quantification of the degradation products of polyphenols and the fatty acids during time.

Main Partners :

A consortium of five partners was created in the framework of the project POLYOIL :

- 2 industrials (Stiernon SA, entreprise coordinatrice, and Vandeputte SA),
- 2 university departments (UCLouvain – Institut des sciences de la vie - Biochimie de Nutrition (BNUT), ULg Université de Liège - DDA Département des Sciences des Denrées alimentaires de la Faculté de médecine vétérinaire),
- a public research centre, CRA-W (Centre wallon de Recherches agronomiques).

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