

**Type of activity:** Research

**Financing :** Marshall Plan (Walloon Region)

**Keywords:** polyunsaturated fatty acids, polyphenols, food

**Duration:** November 2006 - October 2010

**Last update:** 29 August 2008

### Context :

The WalNut-20 project "*Development of products and ingredients answering to nutritional and/or health allegations using specific tools*" has innovating dynamics of collaboration which aims to develop synergies between the scientific community and the industry of the agro-food Walloon sector. It concerns products and ingredients answering to nutritional allegations. WalNut-20 is one of the priority actions for the future of the Walloon region in food preventive topics. It aims to offer to the consumer products with a good organoleptic as well as nutritional quality

### Description of the project :

#### Objectives

WalNut-20 is a project undertaken in the framework of the **Marshall plan of the Walloon region**. It aims to develop, validate and improve tools permitting to discover and to highlight the nutritional properties of foodstuffs ingredients. The aim is to confirm their effects on human health and to study the possibility to create or to find synergies or complementarities by mixing these various bioactive compounds. The ingredients and studied compounds belong to three principal families of food components: **polyunsaturated fatty acids, fiber food and polyphenolic compounds**. The studies on their functional effects concern two of the principal problems of the public health: **the metabolic syndrome and the intestinal function**. The project is organized in several working groups having for objectives to examine the stability of the products and their safety for the consumer, to create *in vitro models*, to carry out *in vivo* experiments on the animals and to undertake exploratory studies about the food effects on human. This will be done taking into account the development and application of commercial, analytical and valorisation approaches.

### Expected results

In order to confirm and to improve the nutritional effects of those compounds known to decrease the metabolic syndrome and to support the good health of the intestine, the results of the project will be illustrated by an innovating scientific methodology. This will be done at the level of the products having new beneficial properties for health but also at the level of the analytical procedure permitting to discover these properties. The industrials will develop those new compounds/products by taking into account the technological, lawful and commercial aspects. The project will reinforce in this field the relation between the academic and industrial sectors. The contribution of the Walnut-20 project to the mobilisation in favour of an effective nutritional dynamics at the local and European level in the future, will be illustrated by different tools for valorisation such as the scientific patents, the publications, the procedures, the scientific workshops and the development of a website. A *spin-off* firm will also be created in order to propose to the industry the tools developed within the framework of this project.

### CRA-W contribution

The Quality of Agricultural Products department of the CRA-W is mainly involved in the development of the analytical and statistical support and the valorisation of products or ingredients answering to nutritional and/or health allegations. Work is carried out mainly on two categories of food components, polyphenols and fats, by using the last generation of the chromatographic systems for the development of an *in vitro model* allowing to evaluate the bioaccessibility and the bioavailability of polyphenols in the intestinal mucous membrane. Fast and non-destructive PIR, MIR and Raman spectroscopic tools are also used for the detection of polyphenols in the vegetable matrices and the follow-up of the ageing of flax oils.

### Main partners:

The WalNut-20 project is coordinated by SPA-Monopole. It is the result of a partnership between the industrial and scientific world, gathering 19 members of the pole of competitiveness agricultural industries ([www.wagralim.be](http://www.wagralim.be)). Indeed, it consists of 10 scientific partners (associations, universities, laboratories, research centers) and 9 medium-sized firms from the agrofood sector.

SPA	Spa Monopole
BIRON	Marcel Biron & Fils
CPI	Columbus Paradigme Institute
DETRY	Detry
KITO	KitoZyme
STIER	Stiernon
VAND	Huilerie et Savonnerie Vandeputte
WARC	Cosucra Groupe Warcoing
CART	Centre d'analyse des résidus en traces - ULg
CIRIHA	Haute Ecole Lucia de Brouckère – Centre d'information et de recherche sur les intolérances et l'hygiène alimentaire
IPL	Haute Ecole Léonard de Vinci – Institut Paul Lambin
ISV	Institut des sciences de la vie – UCL
LCE	Laboratoire de chirurgie expérimentale - ULB
LDNM	Laboratoire de Diabétologie, Nutrition et Maladies Métaboliques - ULg
PMNT	Unité de pharmacocinétique, métabolisme, Nutrition et toxicologie - UCL
URBC	Unité de recherche en biologie cellulaire – FUNDP
UGENT	Département de santé publique
ORA	Orafti
CRA-W	Centre Wallon de Recherches Agronomiques de Gembloux

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