

CROSSENZ Project

QLK1-CT-2002-02208

Key Action 1:

Food, Nutrition and Health

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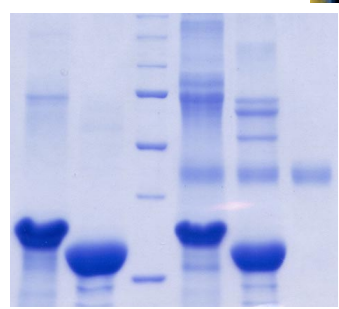
<http://crossenz.vtt.fi>



CROSSENZ Project

Novel cross-linking enzymes for food structure engineering

The food industry and consumers are looking for novel food products that have improved structural properties. The CROSSENZ project of the European Union targets the development of novel enzymatic technologies for the structure engineering of food materials. The enzymatic tools that will be developed can be exploited in dairy, meat and baking applications.



The CROSSENZ Project

The CROSSENZ project “Novel cross-linking enzymes and their consumer acceptance for structure engineering of foods” is a three-year EU project that commenced in December 2002. Project participants – companies, research institutes and universities – represent a profound expertise on enzymology, food science, biochemistry, enzyme production and consumer studies. The project combines modern food technology research with high-level biotechnological processing to create novel products and processes, thus strengthening the European food industry.

Enzymatic tailoring of food structures

Sensory properties such as texture play an important role in food products. Food structure is especially important in baking, dairy and meat processing. The significance of textural properties has further increased with the trend towards low fat products and products with low additive contents. Food structure has traditionally been improved by using such food ingredients as emulsifier or thickeners, e.g.

monoglycerides, gelatine or carbohydrate-based polymers. Gelatine, in particular, has negative associations attached to it nowadays and novel technologies to replace it are currently being sought.

Enzymes provide specific means for tailoring food structure. The enzymatic cross-linking in the food matrix can occur via proteins or certain carbohydrates. Various oxidative or non-oxidative enzymes can be exploited for cross-linking reactions. The enzyme type used affects the chemistry of the cross-link formed and thus, the macromolecular properties of the food product.

Objective of the CROSSENZ project

The generic objective of the CROSSENZ project is to develop novel enzymatic technologies for the structure engineering of foods. The developed enzymatic tools can be used in dairy, meat and baking applications to produce novel products. The project's other objective is to assess consumer acceptance of the use of these differently produced enzymatic structure engineering tools in food processing.

Scientific objectives

The CROSSENZ project has the following scientific objectives:

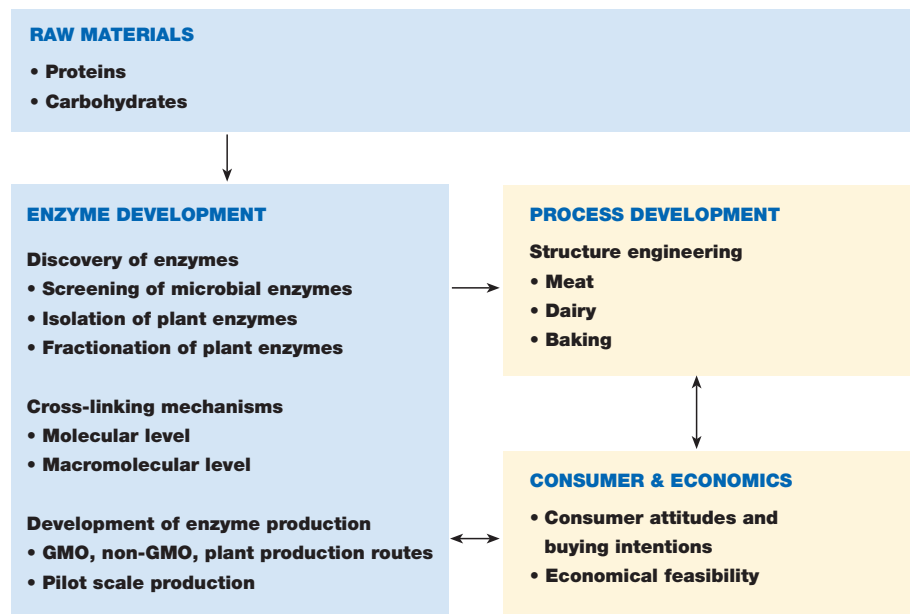
- To discover novel cross-linking enzymes from microbial and plant sources
- To develop different routes (GMO, non-GMO and plant) for producing cross-linking enzymes
- To generate knowledge on molecular-level enzymatic reaction mechanisms
- To correlate these molecular changes with their macromolecular rheological and functional properties

Technological objectives

The CROSSENZ project has the following technological objectives:

- To assess the practical applicability of the novel cross-linking enzymes in dairy, bakery and meat processing
- To develop improved sensory properties in food by combining novel enzyme technologies with high-level food processing science
- To evaluate consumers' attitudes to novel enzymatic technologies

CROSSENZ project structure



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