

MAXFUN Project

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Key Action 1:

Food, Nutrition and Health

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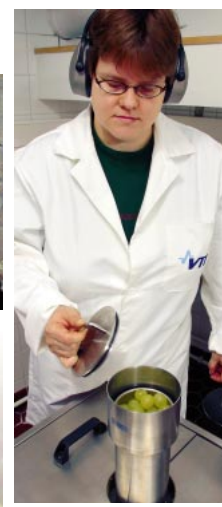
MAXFUN Project

Novel technologies for fruit and berry production

The MAXFUN project of the European Union targets at developing novel processing technologies for fruit and berry processing industry.

The aim is to maximise the quality and healthiness of the products and to improve the processability and minimise waste formation.

The studies will focus on grapes and berries (black currants and bilberries) as model systems.



Bioactive components

The MAXFUN project develops extraction technologies for the isolation of novel, potentially bioactive components from non-utilised by-product streams formed in current processes used in fruit and berry industry. These bioactive components can subsequently be used either as supplement to the final product or as health promoting food ingredients. The health-promoting potential of both the improved consumer products as well as isolated ingredients will be elucidated with various bioassays and in vitro models.

Enzyme-aided processing

The project develops enzyme-aided processing of grapes and berries and their process wastes combined to selected novel physical/ mechanical or physicochemical technologies.

Enzymatic treatments will be exploited in two different ways by selecting suitable enzyme activities. Enzymes, such as pectinases, cellulases and hemicellulases can degrade the cell wall and thus facilitate the extractability of the juice with concomitant enhancement in the release of bioactive components from

the cell walls. Alternatively, other types of enzymes such as rhamnosidases or glucosidases can be used for modification of the chemistry of the actual bioactive components with impact on their release, water/lipid solubility and bioactivity.

When enzymatic treatments are combined to the novel processing technologies, processability and product quality obtained is expected to improve further. These selected mechanical/physical or physicochemical methods, such as ultrasound, high pressure and flash release method, enhance the disruption of the cell walls and also ozone and UV-treatments to increase the biosynthesis of phenolic antioxidants.

The scientific objectives

The scientific objectives of the MAXFUN project are:

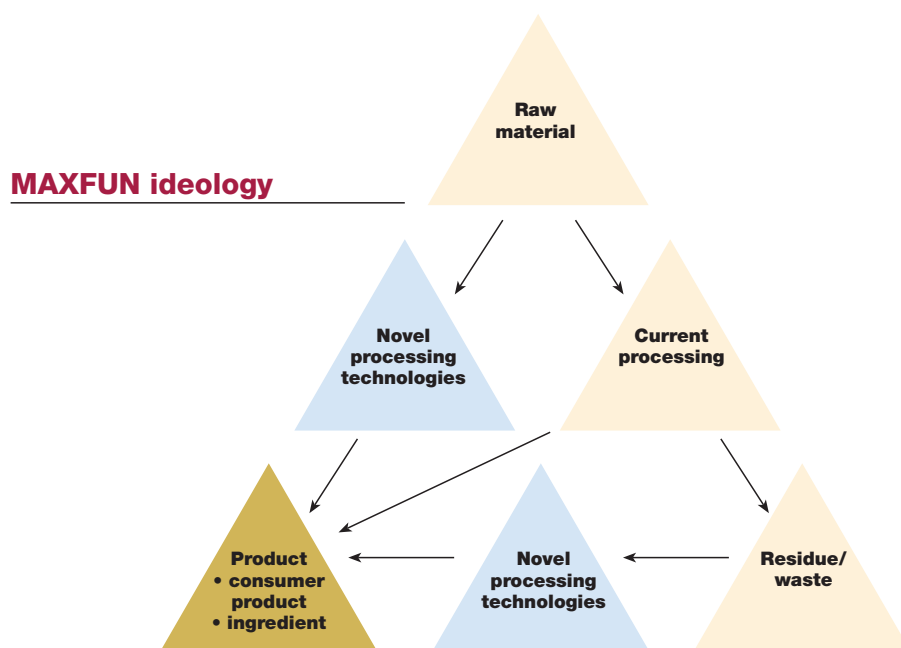
- to screen for and to produce novel enzymes for improved extraction and/or modification of bioactive components from fruits and berries and to elucidate the mode of action of both existing and novel enzymes acting on grape and berry cell wall components.

- to isolate new potentially bioactive components from berries and grapes by using novel technologies and to elucidate the chemistry and bioactivity of the isolated components (phenolic compounds, carbohydrates, lipids) alone or in combination

The technological objectives

The MAXFUN project has following technological objectives:

- to improvement of the quality and health promoting effects of fruit-based products, such as juices and wine
- to develop novel enzyme-aided processing technologies for the fruit and berry industry
- to develop novel enzyme products for fruit and berry processing and waste upgrading
- to elucidate the bioactivity of the isolated components
- to understand the consumer perception towards the novel technologies



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