VALORISATION OF PINEAPPLE AGRO-FOOD BY-PRODUCTS TO OBTAIN BIOACTIVE COMPOUNDS AND THEIR INCORPORATION INTO POLYMERS FOR FOOD PACKAGING

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ABSTRACT

The research team of the VALPIPACK project, from the Department of Analytical Chemistry, Nutrition and Food Sciences, has developed an analytical methodology that makes it possible to add value to the waste and by-products derived from pineapple processing.

More specifically, the procedure developed consists of the extraction on a semi-industrial scale of different active compounds (antioxidant compounds, colouring agents, etc.) of interest, present in pineapple waste, a by-product that has not been used for these purposes to date. This procedure is characterised by being sustainable, simple and fast, as well as being easily scalable to an industrial environment. Finally, natural additives with different functionalities are obtained, which can be presented in solution or in fine powder form, for different applications, including incorporation into packaging materials for food applications.

Companies interested in acquiring this technology for its commercial exploitation are being sought.

TECHNOLOGY ADVANTAGES AND INNOVATIVE ASPECTS

TECHNOLOGY ADVANTAGES

- It is an economical, sustainable, fast and simple methodology.
- It allows natural compounds with known functional properties to be obtained.
- It allows the transformation of waste from the pineapple processing industry into products with high added value for different industrial applications.
- The extraction process can be applied to mixtures of different agri-food by-products.
- It is easily scalable to an industrial environment.
- In food packaging applications, the active component (extract from pineapple waste) can be incorporated into the same packaging structure so that separate devices are not necessary.
- In food packaging applications, the concentration of active substance to be incorporated into the packaging material can be adjusted and optimised and its release into the food can be controlled to avoid toxicity problems.
- In food packaging applications, the protection provided through the packaging will be maintained even after the first opening of the packaging.

TECHNOLOGY INNOVATIVE ASPECTS

- Use of by-products from the pineapple processing industry to obtain natural compounds of interest for different industrial applications.
- Extending the shelf life of perishable foods by incorporating active compounds from pineapple by-products into food packaging materials.

- Simplification of multilayer structures in food packaging by incorporating functional additives from pineapple by-products.
- Adjustment of processing parameters and techniques, as well as a correct selection of the materials in which the active extract is incorporated to avoid losses in the incorporation processes and thus optimise the functionality of the final packaging material.
- Development of an active packaging designed to meet the specific requirements of the selected foodstuffs.

MARKET APPLICATIONS

The active compounds of interest obtained by means of the methodology described are suitable for certain industrial applications, such as the **food packaging** sector, among others, as they have certain properties that can help to extend the shelf life of perishable packaged foodstuffs.

COLLABORATION SOUGHT

Companies interested in acquiring this technology for **commercial exploitation** are sought:

- Patent licensing agreements.
- Search for funding opportunities to develop new applications, adapt it to the company's specific needs, etc.
- Technology and knowledge transfer agreements.