FUNKIFIBRE

Advanced technology to transform the current cereal waste into sustainable packaging materials

This project has received funding from the European Union's Seventh Framework Programme

USE OF KEY FIBRES FROM OAT WASTE AS REINFORCEMENT IN PLASTIC PACKAGING MATERIALS

AVOID THE BIOMASS LOOSE IN THE WASTE MANAGEMENT

The global cereal market production represents the major food production sector followed by the fruit and vegetable. In the case of Europe, approximately 35% of the overall production is lost or wasted. Oat cereal represents about 8 million tonnes annually.

REDUCING CEREAL & PACKAGING WASTE

Both streams impact negatively at economic, environmental and societal levels. This project proposes technological solutions acting in the oat cereal waste and acting in the development of new more sustainable plastic packaging.

INTRODUCING THE MICRO FIBRILLATED CELLULOSE (MFC) TO PACKAGING SECTOR

This is a novel type of cellulose with one nano-scale dimensions and very interesting properties for the development of composite materials due to its high strength and stiffness combined with its low weight, biodegradability and renewability.

REINFORCED BIOPLASTICS TO OBTAIN INNOVATIVE PACKAGING SYSTEMS

The use of MFC allows obtaining innovative solutions for more efficient and sustainable packaging systems. It will serve as reinforcement in packaging biocomposites to improve the mechanical, thermal and barrier properties.

OBJECTIVE

To obtain new materials for packaging applications achieving better mechanical and barrier properties. This will make possible the generation of lighter packages and the improvement of limited properties of some bio-based and biodegradable plastics.

THE CONCEPT

FUNKIFIBRE project seeks to obtain Micro Fibrillated Cellulose (MFC) from cereal residues coming out from the manufacturing of oat-based food products which contain important cellulose contents. New technology will be used to modify the MFC to make it suitable for the development of plastic composites.

PROJECT MOTIVATION

Agricultural wastes have become a real environmental and economic problem for the majority of food companies, producing economic losses and an extra cost for their management. In addition, packaging waste is forcing the packaging industry to move towards more sustainable packaging solutions demanded both by EU policy and consumer demands.

FUNKIFIBRE project proposes innovative solutions by combining both needs: the profitability of key bio-based components of the agricultural wastes as a way to increase productivity and to generate new opportunities to improve packaging material properties aiming to increase packaging sustainability by making them more bio-based and light-weighting.

SUSTAINABLE & ECONOMIC IMPACT

Cereal waste biomass is a potential source of valuable compounds such as bio-based fibres that can be used in new potential applications. The achievement of this result will impact in the cereal SMEs since agricultural wastes have become an environmental and economic problem producing economic losses due to extra costs for the management.

In addition, the development of improved renewable and biodegradable packages will impact on the plastic and packaging SMEs since bio-based materials are seen as a growing alternative by the European consumers to conventional packaging plastics which currently generate over 5 million tons of landfilled plastics.

FUNKIFIBRE PACKAGING MATERIAL PROPERTIES

The application of MFC fibres in packaging materials (both fossil-based and bio-based) as a way of obtaining advanced new packaging materials is able to satisfy the technical regulatory and environmental requirements demanded by the food industry, retailers, European policy and consumers.

As a prototype, it will be used to develop more sustainable 3D packages (bottles) for premium and organic/natural cosmetic products.

CONSORTIUM

FUNKIFIBRE involves a consortium of companies and research organizations with combines commercial and technical expertise, a broad coverage of European countries and markets and a holistic vision all along the value chain.

SMEs:

Elastopoli Oy

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