



Sustainable technologies for the production of biodegradable materials based on natural chitin-nanofibrils derived by waste of fish industry, to produce food grade packaging



BIODEGRADABLE FOOD PACKAGING FILMS BASED ON CHITIN NANOFIBRILS

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The project

N-CHITOPACK:

"Sustainable technologies for the production of biodegradable materials based on natural chitin-nanofibrils derived by waste of fish industry, to produce food grade packaging" is a **Research for SMEs** European Project in the 7th Framework Programme.

GOALS:

- Use of waste derived natural chitin nanocrystals (known as *chitin-nanofibrils-CN*)
- Identification of the best ways for industrial exploitation of sea food waste at the European scale.
- Development of improved technologies to produce alternative bio-based packaging products.
- Development of biodegradable polymer for application in the packaging sector.
- Production of new completely biodegradable films made of chitosan and CN.
- Environmental benefits.



Scope

Realize new biodegradable bio-based products

- Market analysis of raw materials
- Characterisation of chitin/waste of fish industry materials
- Realize of new bio-based packaging products
- Testing of new packaging materials
- Market analyze of the new packaging prototypes

Packaging Film Tests

- Developing new compositions of films for food packaging based on PLA, chitin nano-fibrils
- Tests of the packaging films for sealing properties, cutting, bending, stretching, resistance, leaking, burst
- Integrity tests of package

EQUIPMENTS FOR FOOD PACKAGING



N-CHITOPACK Participants

CONSORTIUM

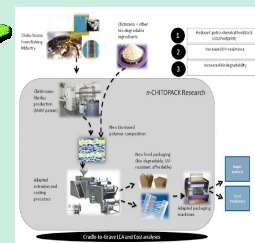
- MAVI SUD srl (Italy): coordinator, research nanotechnology
- AROMA SYSTEM sme (Italy): packaging materials
- RODAX IMPEXsme (Romania): packaging equipment
- MICROTECH sme (Italy): packaging
- BIOZOOM GmbH (Germany): market analysis
- USTAV MAKROMOLEKULARNI CHEMIE AV CR v.v.i. (Czech Republic): research/polymer processing
- CONSORZIO INTERUNIVERSITARIO NAZIONALE PER LA SCIENZA E TECNOLOGIA DEI MATERIALI (Italy): research/polymer processing
- NOFIMA A.S. (Norway): research



The N-CHITOPACK consortium is composed of 8 partners. All the research activity is carried on in strict cooperation among research centres, small-medium enterprises and industrial partners in order to develop valuable products.



N-CHITOPACK Applications



- Chitosan/CN composites
- Multi-layered material Chitosan/CN, CN-PLA
- New bio-based biopolymers for food packaging
- Food packaging film
- Rigid packaging - Coffee capsules



Conclusions and Perspectives

- Cooperation in the framework of the project between partners
- Extend the knowledge in bio-based materials
- Development of new biodegradable and environmental friendly products
- Substitution of petroleum products with renewable raw materials in the production of polymers, and composites
- Realization of new biodegradable packaging materials
- Utilization of knowledge in education

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