



Horizon 2020
European Union Funding
for Research & Innovation



NEW BIO-BASED FOOD PACKAGING MATERIALS WITH ENHANCED BARRIER PROPERTIES

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Co-ordinator



This project (2017-2021) has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 745586

Origin of idea

The key challenges coming from the food industries:

- Sustainable materials (circular economy, carbon neutral, footprint)
- Comparable properties to existing materials (barrier, sealing, retro-fitting)
- Availability at industry scale
- Feasible cost



The consortium



Project Acronym: BioBarr

Project title: New bio-based food packaging materials with enhanced barrier properties

Duration: 48+6 months from 1.6.2017 to 30.11.2021

Budget: €3,78 M

Type of Action: RIA



3 RTOs



3 SMEs*
at project's start



1 Large
Companies
(In-kind contribution)

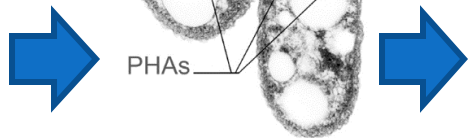


Project general approach

...FROM SUGAR BEET MOLASSES AND JUICES, SUGAR CANE BY-PRODUCTS, POTATO WASTE, CRUDE GLYCEROL FROM BIODIESEL, ETC...
THROUGH FERMENTATION...



Production



PHAs
polyhydroxyalkanoates



Compounding



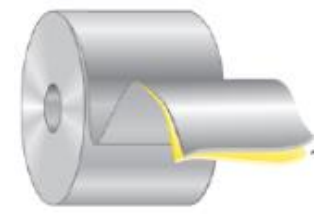
Film making



Tampere University



Lamination and Coating for improving barrier



icimen due S.R.L.



Inking/printing

Kao Chimigraf

Validation



Results



- 3 PHA granules by different producers tested, 1 up-scaled
- Prototype of PHA reel at industrial scale
- Prototype of 3 functionalized PHA reels (improving barrier at O₂ and water vapour)
- 2 prototypes of novel green compostable inks
- Finished product prototypes (packed croissants)



Lessons learnt



- High demand by the food industry worldwide
- Still some technical difficulties for retro-fitting to current packaging plants (e.g. narrow interval of sealing temperature)
- More fine-tuned research needed (e.g. feedstock, formula, filmability, barrier, migrations)
- Trade-offs between properties need to be addressed to interested industries



Thanks

All Partners for the valuable research environment, despite pandemic

Ana Ruiz, Project Office

Coordination Team and Research Team of TCA:

Marianna Faraldi

Mariantonella Palermo

Marco De Vito

Paola Bissolotti (adm.)

