**FOOD SCIENCE LAB WORKSHOP**

**March 14th, 2022**

**Beyond the Horizon Europe and Green-Deal :**

**how the « FORTHEM Food Science Lab » could contribute to EU goals**

**Presentation of research topics related healthy food system for people and planet within within the Forthem Alliance**

Title : Title of the presentation

***Authors Name: NAME1 Surname1, NAME2 Surname2,...***

*Afiliation : Lab name and adress*

Forthem partner : University of XXXXXXX

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Abstract : summarize the position of the problem (related to sustainability), give the objective of the study, display the most important conclusions– 300 words

Keywords : keword1, keyword2, keyword2

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EXAMPLE

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**Presentation of research topics related to healthy food system for people and planet within within the Forthem Alliance**

Title : Improvement of biodegradable PLA film by coating made of fish by-products

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Abstract : Polylactide (PLA)is one of the most use biodegradable polymer for food application. Both films, trays, cups could be shape from PLA, but its use is limited by acid and water sensitivity and moderate barrier properties. Gelatine is a biopolymer having recognised film-forming properties exploited for capsule in pharmaceutics, but has also very low oxygen permeability. Fish industry from 25 to 65% of waste or by-products from skin, viscera, etc.. that could be valorize at low cost and low purity for packaging application. Application of thin coating layer of gelatin cast from water based solution on industrial PLA films could be a sustainable way to apply barrier layer without any limitation regarding the food contact ability.

Aqueous solutions containing 15% fish gelatin (200 bloom) 1.5% glycerol used as plasticizer, have been cast onto 20µm PLA film using a thin layer chromatography applicator, then dried at room conditions for 12 hours, prior been stored in controlled conditions or temperature and moisture (25°C, 50% RH) to obtain about 5-7 µm thick coatings. The functional properties of films (mechanical, optical, surface and barrier) have been carried out. Whetever the RH (from 10 to 85%), exhibit at least a 3 times reduction of the uncoated-PLA films. The increasing RH reduced by 30% the oxygen transfer rate (OTR) of the PLA due to its recrystallization and clustering of water. When the gelatin coating is exposed to dry side, the OTR could be reduced up to 650 times, reaching same barrier properties than that of some best multilayers films.

Keywords : Biodegradable PLA, fish gelatin, barrier to oxygen