

Chemistry Department

Design of edible coatings

Biochemical and process engineering group



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Objectives

- Development of biodegradable films and edible coatings based on the microbial extracellular polysaccharide (EPS) and blended with other biopolymers and complemented with plasticizers and food grade cross-linking agents.
- Rheological characterization of EPS single and mixed systems.
- Film characterization in terms of thermal and mechanical properties, internal and surface morphology, water resistance, barrier properties to water vapour and gases and dielectric properties.
- Design of films for specific application, mainly food packaging and coatings. Study of the performance of the designed films on the referred applications.



Methodology

- The coatings will be applied on the food products surface by two methods: spray and dip coating.
- The characterization will be performed using the coating in the form of a stand alone film and will involve:

- Permeability to water vapour, gases and aroma compounds.
- Mechanical and thermal properties
- Internal and surface morphology
- Antimicrobial activity
- Transparency and colour

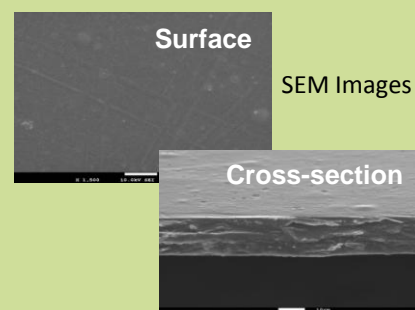


Expected Results

Dense and transparent coatings with properties suitable for specific food products. Improvement and design of the properties of films and coatings according to the intended final use.

- Films with low permeability to gases and water vapour, in order to slow down the respiration rate and dehydration of food products (e.g. fruits).
- Films with antimicrobial properties to use on products easily contaminated on the surface (e.g. cheese).

Obtain biodegradable food packaging with good mechanical and barrier properties, and good water resistance.



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