



Exploiting free-standing polysaccharides-based films as active food packaging materials

Carla Vilela, Carmen S.R. Freire

CICECO – Aveiro Institute of Materials, Portugal

COST FP1405

ACTIVE AND INTELLIGENT FIBRE-BASED PACKAGING – INNOVATION AND MARKET INTRODUCTION

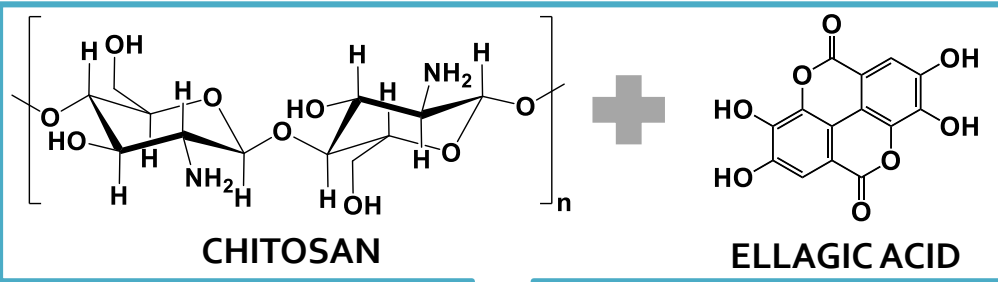
09-11-2017



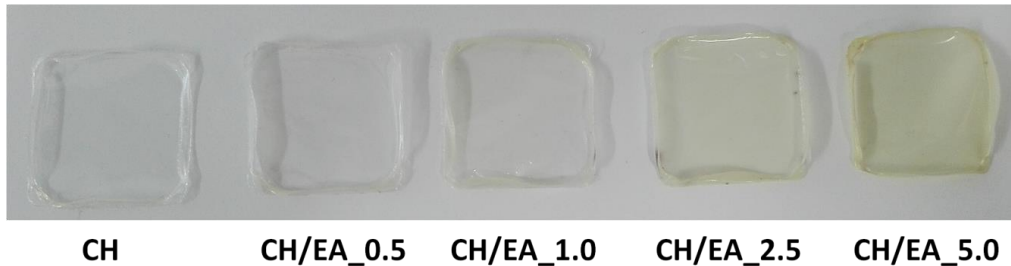
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Horizon 2020

Bioactive films of chitosan and ellagic acid with UV-light protection

Vilela *et al.*, Food Hydrocolloids 73, 120-128, 2017



Solvent casting



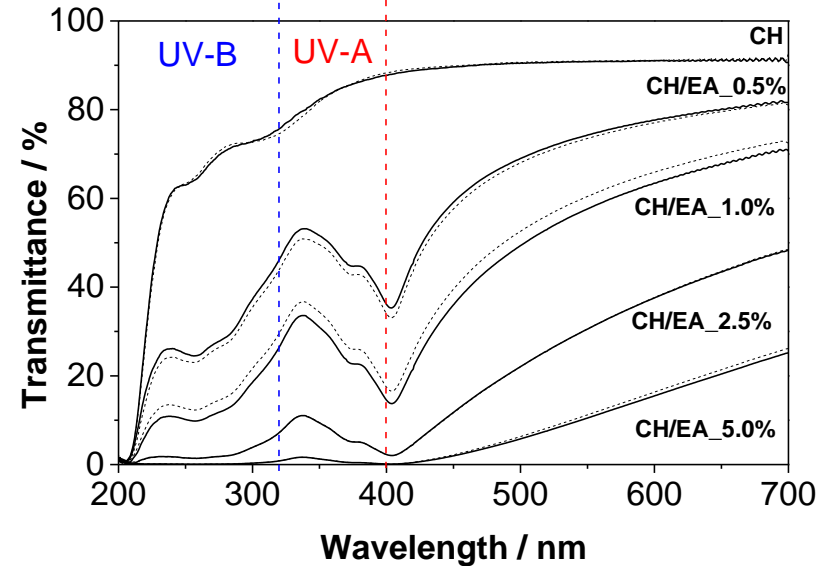
Homogeneous, translucent and flexible films

Moderate WVP

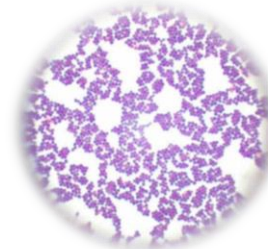
$2.82-3.70 \text{ g mm m}^{-2} \text{ day}^{-1} \text{ kPa}^{-1}$

Antioxidant activity

27% (DPPH scavenging activity)



UVA- and UVB-barrier properties



Staphylococcus aureus

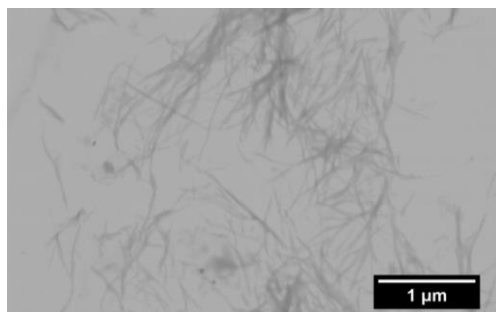
Pseudomonas aeruginosa



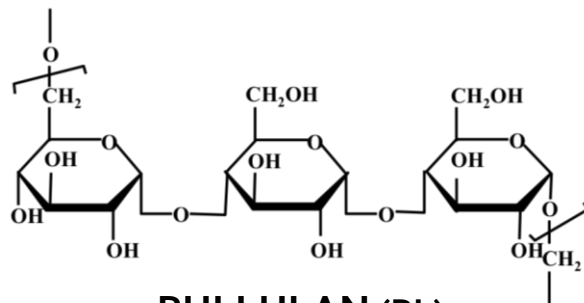
Antimicrobial activity against food-borne pathogens

Bioactive pullulan-based films containing lysozyme nanofibers as reinforcing additives

Silva *et al.*, Food Hydrocolloids, 2017, submitted



LYSOZYME NANOFIBERS (LNFs)



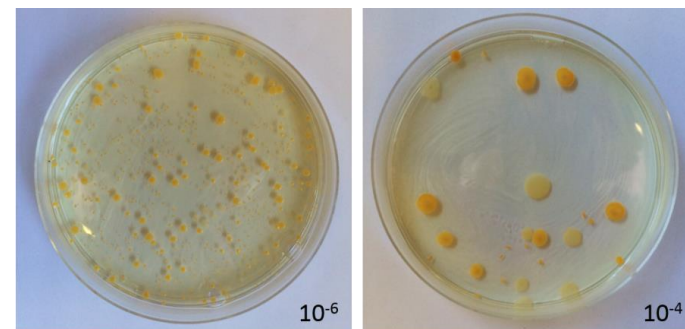
PULLULAN (PL)



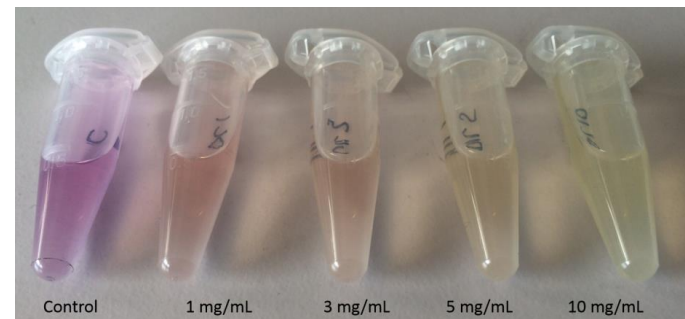
Homogeneous, glossy and transparent PL/LNFs nanocomposite films

Young's modulus = 1.91–2.50 GPa

Thermal stability up to 225 °C



Antimicrobial activity against *Staphylococcus aureus*



Antioxidant activity
77% (DPPH scavenging activity)



ACKNOWLEDGEMENT

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