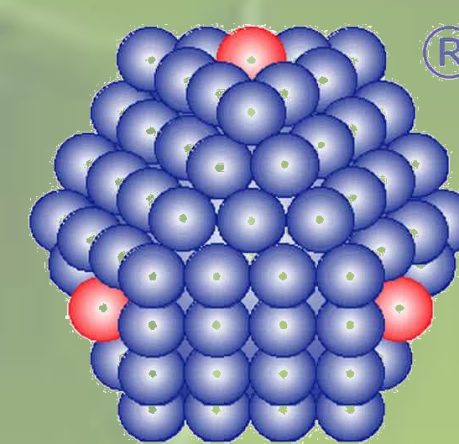




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Sustainable multifunctional biobased coatings from waste sources for paper and bioplastics

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Introduction

Biobased polymers are materials of growing interest to prevent the environmental concern caused by the fossil plastics, contributing at Greenhouse Gases Emissions and destined to exhaust¹. In most cases, the substitution of biobased polymers to fossil ones is favoured by selecting proper biobased additives or functional coatings that allow biobased versions to reach similar or improved performances than fossil versions².



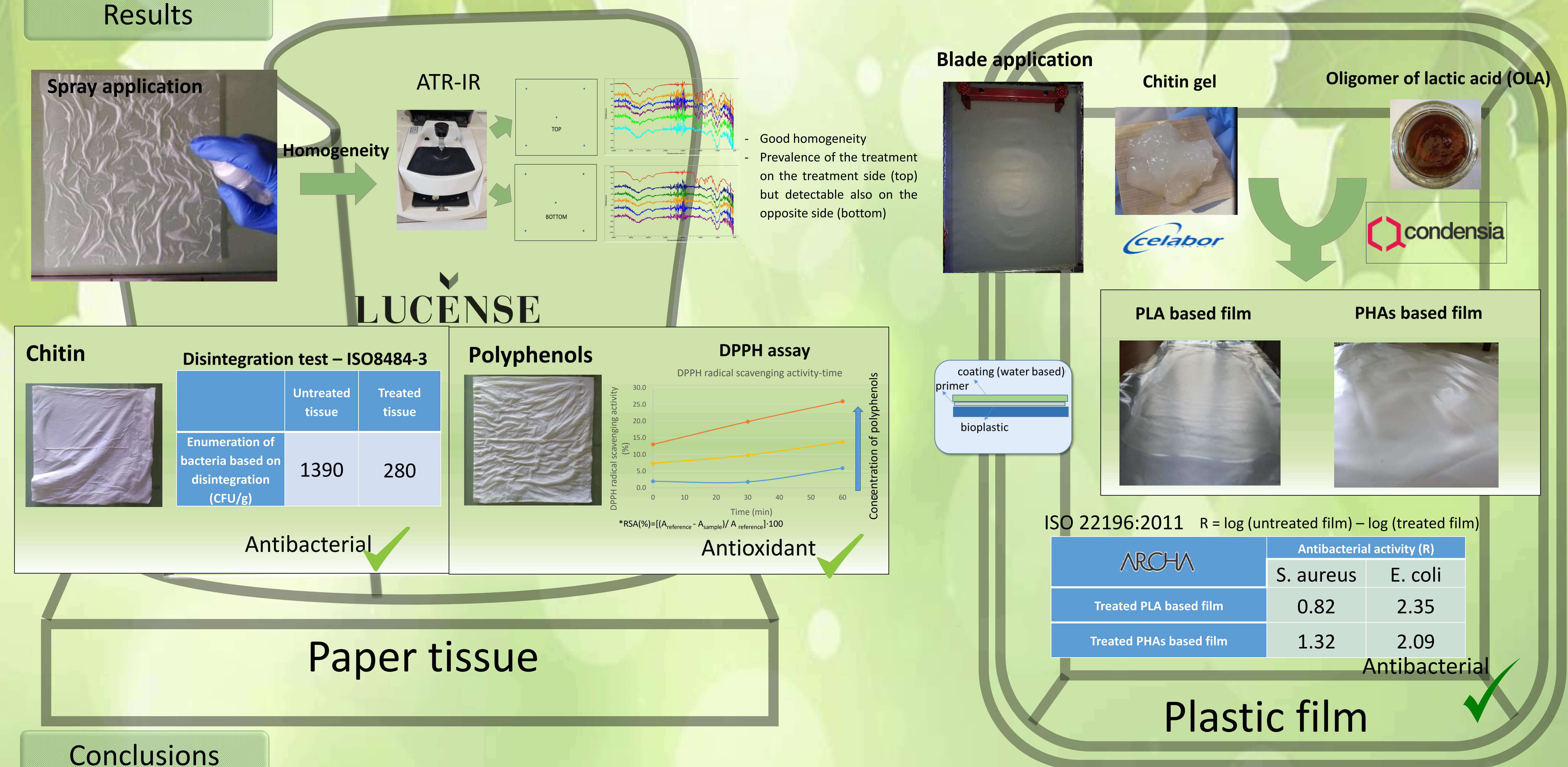
In the framework of **ECOFUNCO** project, the preparation and characterization of coatings based on active molecules extracted from waste biomass of agro-food were studied. In particular, molecules as **polyphenols**, extracted from tomato waste, and **chitin nanofibrils**, obtained from shrimp and fungi waste, were used on both cellulosic and bioplastic substrates. Active molecules were dissolved or suspended to obtain **water based coating (WBC)** used to enhance the properties of products in the field of personal care, disposable products or food packaging, in order to offer better performance than currently-available products, as well as allowing more sustainable end of life options.



Materials



Results



Conclusions

Water based coatings obtained from agro-food waste were formulated and applied on paper and plastic substrates using different techniques. Antibacterial and antioxidant properties were conferred to selected paper tissues and antibacterial properties were conferred to bioplastic films thank to the use of a primer coating. Moreover, the use of water based coatings from waste sources guarantee a final biobased product that respects the principles of circular economy.

References

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