

WORKSHOP

BIOBASED MATERIALS RESEARCH: ADVANCES FROM ECOFUNCO AND BIONTOP EUROPEAN PROJECTS









This project has received funding from the Bio Based Industries Joint Undertaking (JU) under grant agreement No 837863. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio Based Industries Consortium.

SOME ADVANCES IN CHITOSAN BASED PRODUCTS

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What challenges does Agriculture face today?





Properties

Biocompatible and biodegradable
Antibacterial
Fungicide and fungistatic
Low immunogenicity
Stimulates cell proliferation
Allows the transport of active ingredients

Photography
Cosmetics
Water treatment
Food industry
(preservative, packaging ...)

Drug-delivery systems (fibers, hydrogels, scaffolds, micro and nanoparticles ...)
Tissue engineering

Chitosan

Pesticides



aride

Synthesis of Chitosan

Exoskeleton from Pleoticus muelleri from fish industry waste in Argentinean Patagonia









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Preparation of MP-SEM







Characterization of MP – AP – average size



2.05±0.97

3.30±1.10

9

1.56±0.45

Thermal characterization of MPQS



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Citotoxicity in lettuce: a sensitive marker plant to evaluate the citotoxicity action



Particles do not exert citotoxicity in lettuce

MP-CS positively modulates root growth in lettuce seedlings

MP-CS as a bioestimulant



Positive action on root growth parameter

Aerial Biomass

Leaf growth Leaf area Chlorophyll content

Performance and nutritional characteristics in fruit

Root System

Length of the primary root Number and growth of lateral roots Fresh and dry weights

Study of the mechanistic action as a bioactive growth promoter



PROMISORY ACTIONS OF CHITOSAN-MICROPARTICLES



Development of gels, films and polymeric coatings for the production of protection materials and COVID-19 inactivation of different surfaces

Aim: To develop materials with antiviral-disinfectant properties for the preparation of personal protection supplies that could be re-usable, and other products applicable to different types of surfaces





Biodegradability

Solubility

Reactivity

Ability adsorption



Biocompatibility

Filmogenic Ability

Mucoadhesion

Heavy Metal Chelator

Bioactivity



Properties: Antibacterial Antimicrobial Antifungal

INORGANIC SALTS





Sprayable solution To protect surfaces







24 – 48 h of protection



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