

SYNTHESIS OF THIN FILMS OF GRAPHENE NANOCOMPOSITE CHITOSAN COPPER PLATINUM FOR ENVIRONMENTAL APPLICATIONS

Edith Flora Joel ^{1*}, Galina Lujanienė ¹, Sandra Stanionytė ¹, Martynas Skapas ¹, Loreta Leviskaitė ²
¹ SRI Center for Physical Sciences and Technology, Lithuania
² SRI Nature Research Centre, Vilnius, Lithuania

edith.joel@ftmc.lt

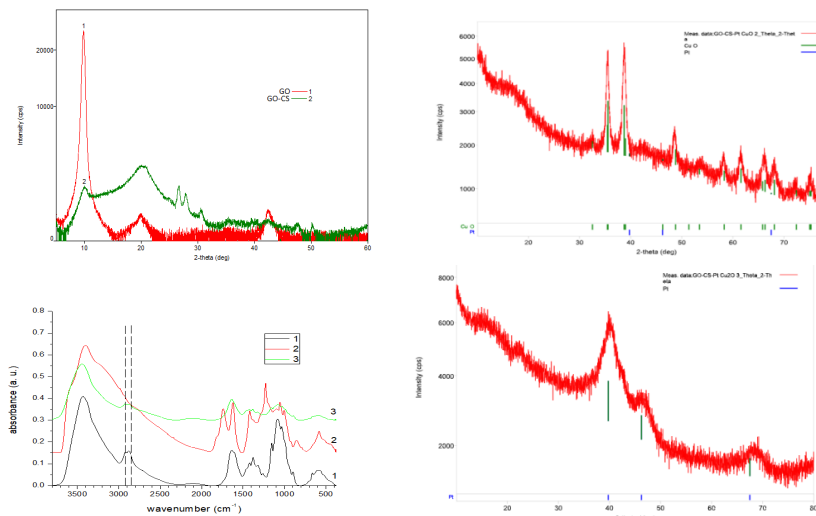
ABSTRACT

- Although graphene oxide has high potential for applications in the environment sector, due to some limitations associated with its characteristics, Graphene Oxide-Chitosan Nano composites have found wide application in solving environmental issues.
- Our studies form the basis for the prospective use of these nano composites as potential agents for antibacterial, cleaning, anticorrosion, and other environmental applications.

OBJECTIVE

- Graphene Oxide-Chitosan-Metal oxide Nanoparticles are immobilized on the chitosan thin films and potential environmental applications are studied.

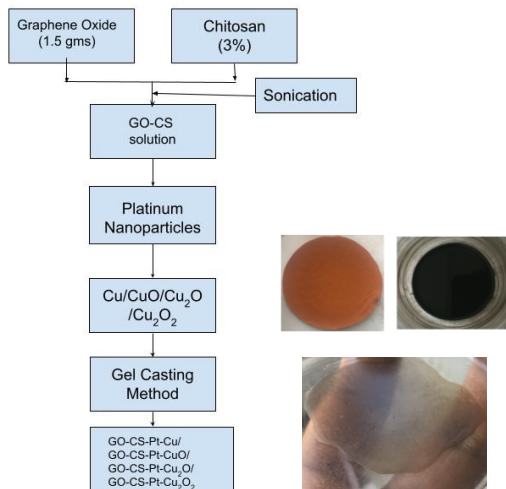
CHARACTERISATION:



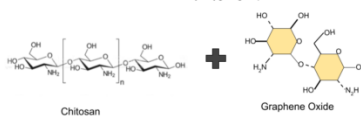
Porosity test:

- The Fabricated thin films with the 3% Chitosan of and 1.5 % of Graphene Oxide with metal oxide nano composites were tested by Liquid displacement technique.
- With the given formula, $P=(V1-V3)/(V2-V3)$, the porosity of thin films are calculated to be around 1%.

METHODS

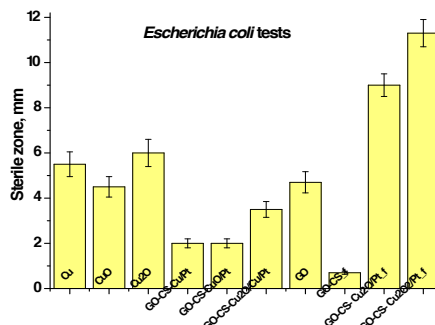


Electrostatic interaction of CH-GO by oxygen groups



RESULTS

Antibacterial studies of synthesised thin films against *E.coli*.



CONCLUSIONS:

Synthesis of GO-CS-Pt-Cu, GO-CS-Pt-CuO, GO-CS-Pt-Cu₂O, GO-CS-Pt-Cu₂O₂ thin films were successfully demonstrated with potential applications in food packaging, antibacterial and anticorrosion applications.