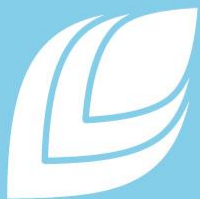


Shrimp Shells Valorization for Chitosan and Chitosan Nanomaterial Synthesis & Their Applications as Antimicrobial Agents in Agriculture

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Drapanauskaite Donata ¹, Barčauskaitė Karolina ¹



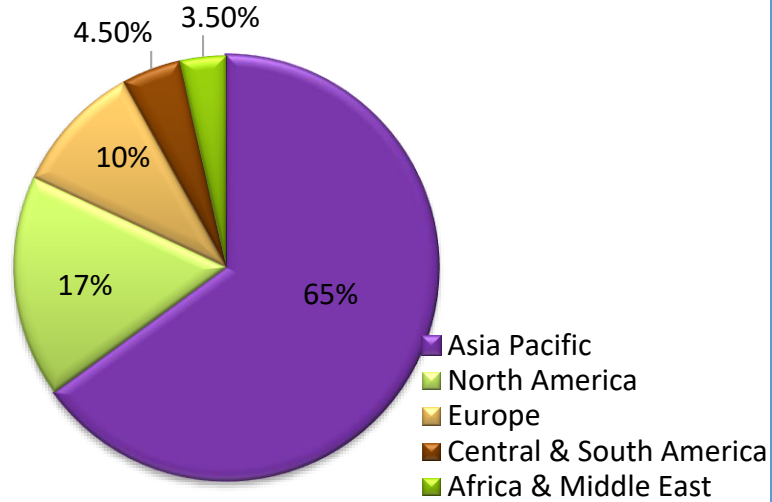
EJP SOIL
European Joint Programme

EJP SOIL has received
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research and innovation
programme: Grant
agreement No 862695

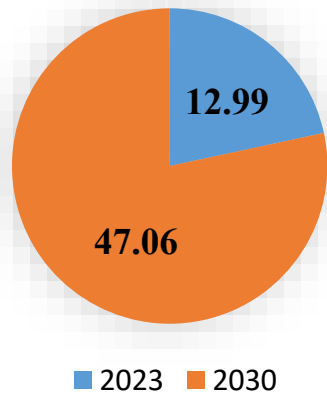


INTRODUCTION

Chitosan Market Share by Region



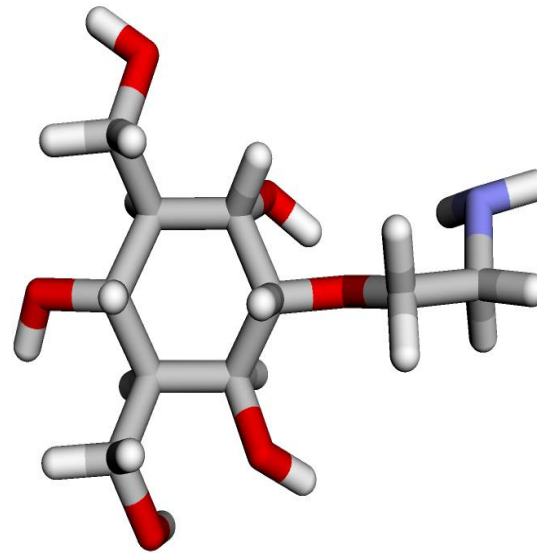
Chitosan Market (Billion USD)



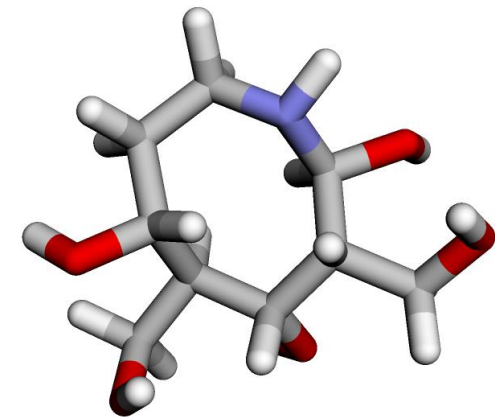
Shrimp



Shrimp Shells



Chitosan



Chitin

Research Methodology

Shrimp Tank

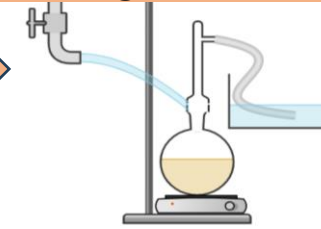
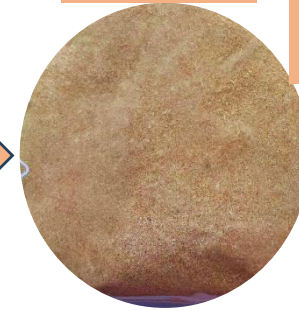
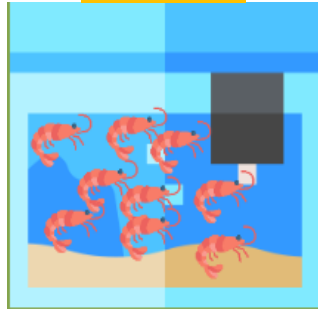
Shrimp Shells

Dried Shells

Pulverized Shells

1. DM of shrimp shells using 1%, 2%, 3%, 4%, 5 and 10% mineral and organic acids and stirring for 2hrs.

2. Filtration, neutralization to pH ~7 & drying



6. Filtration, neutralization to pH ~7 & drying

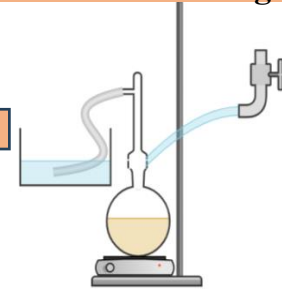
5. DA of shrimp shells using 50% NaOH and stirring for 2hrs., then soaking for 24 hrs. without stirring

4. Filtration, neutralization to pH ~7 & drying

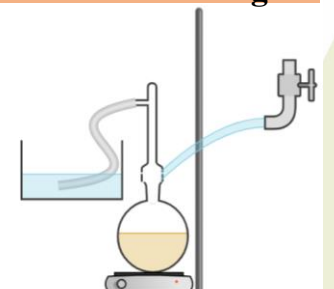
3. DP of shrimp shells using 4% NaOH and stirring for 2hrs., then soaking for 24 hrs. without stirring



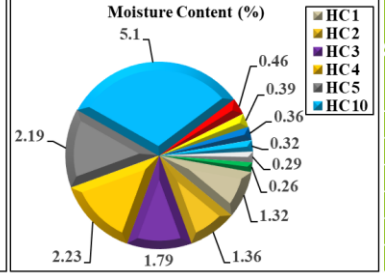
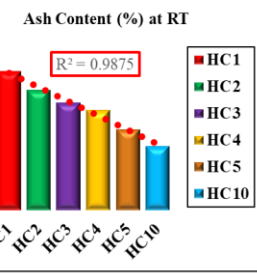
Chitosan



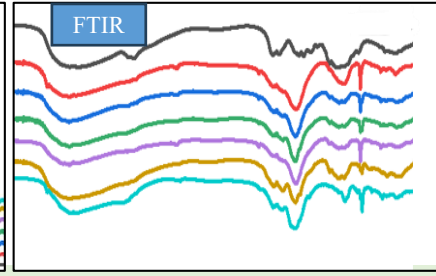
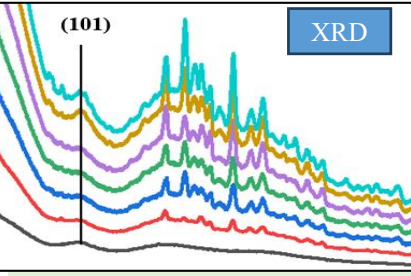
Chitin



Chitosan Characterization



Sample	Hydrochloric Acid Conc.	Temperature (°C)	Chitosan Yield (%)
HC1	1%	RT	51.30±0.02*
HC2	2%	RT	41.90±0.13*
HC3	3%	RT	23.20±0.14*
HC4	4%	RT	18.90±0.19*
HC5	5%	RT	17.50±0.16*
HC10	10%	RT	16.40±0.35*



SEM-EDS

