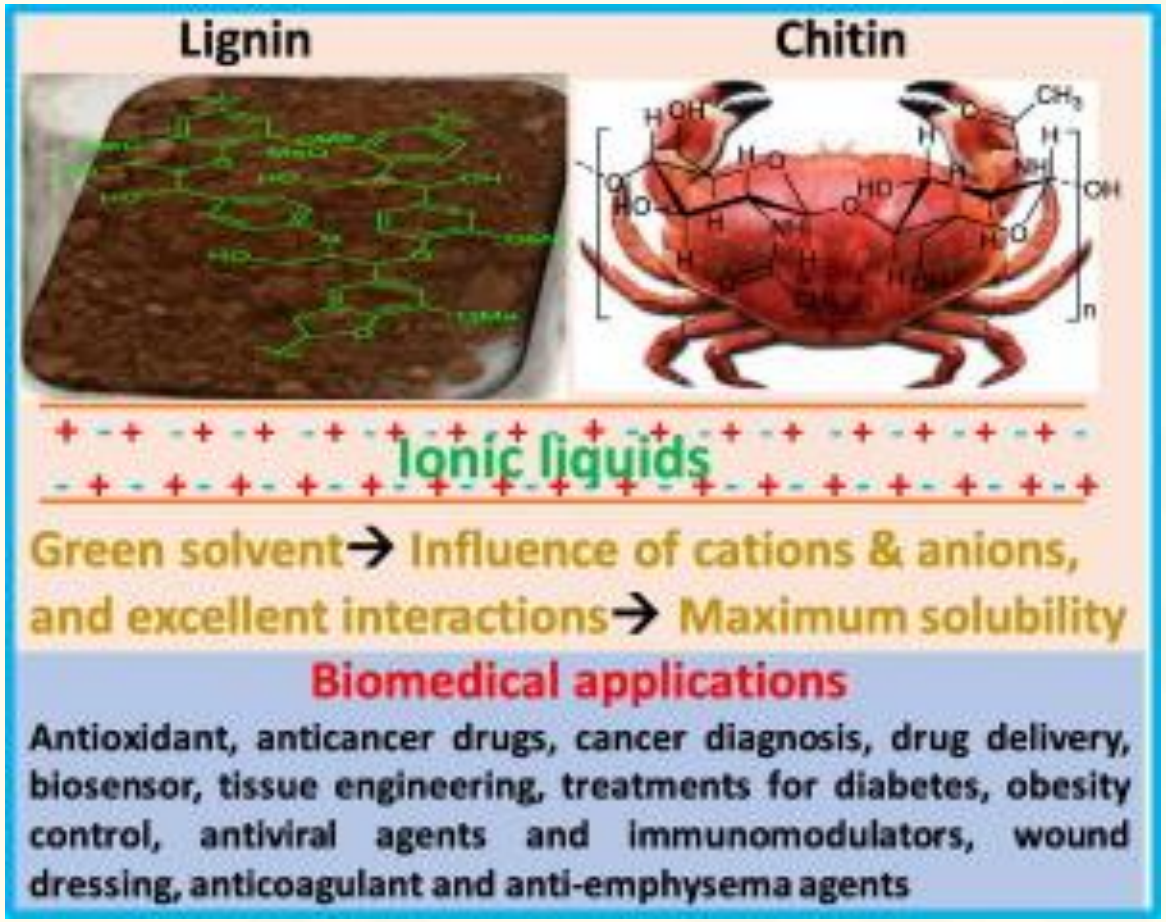
SOMA

A project of the White Lemur Company

Healthy People on a Healthy Planet

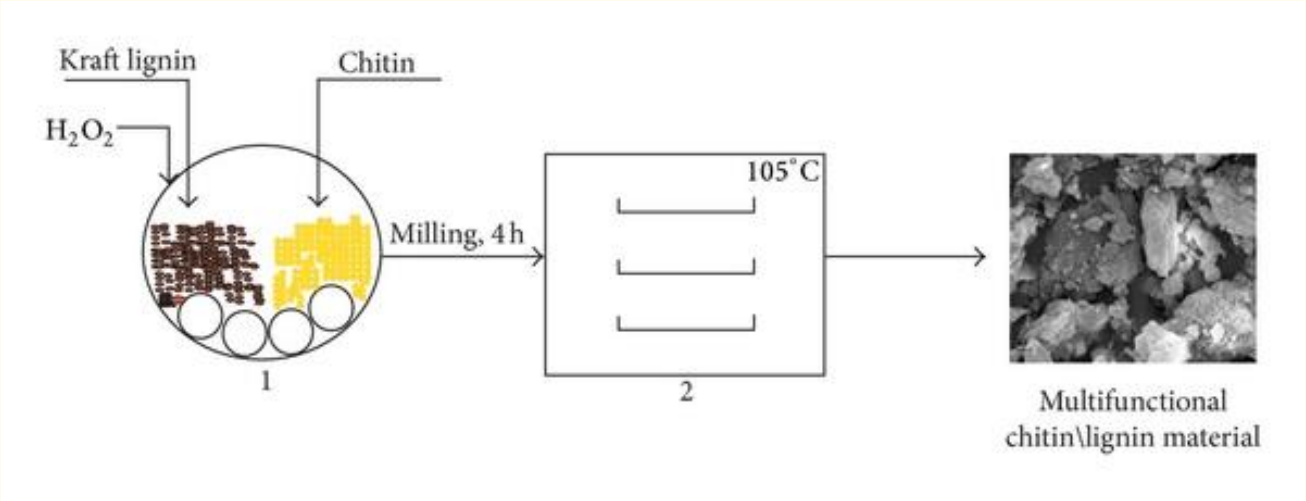
Chitin-Lignin polymers

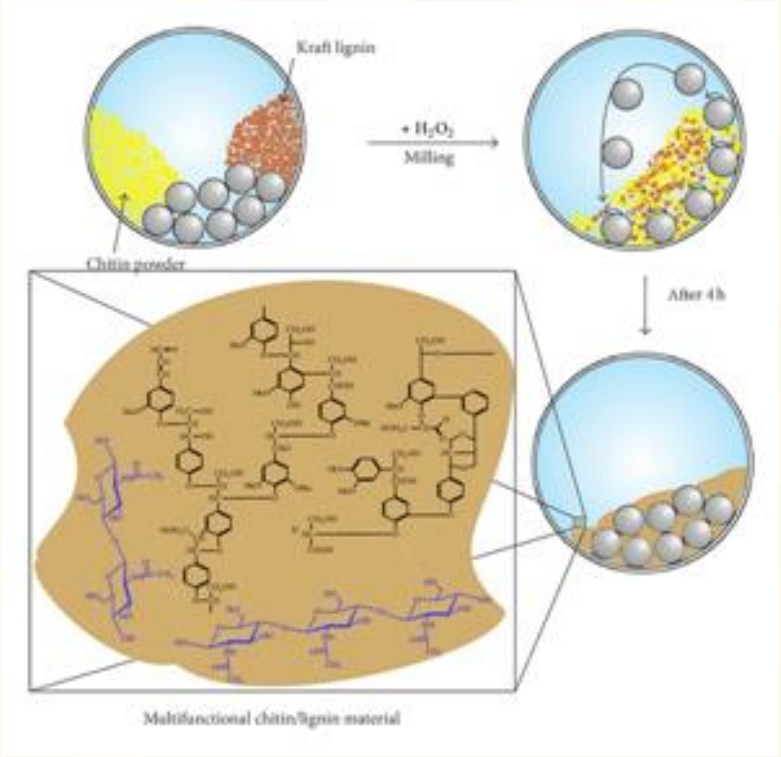
- Multifunctional – varying properties on ratio
- Combines specific properties of chitin and structural properties of lignin



Production

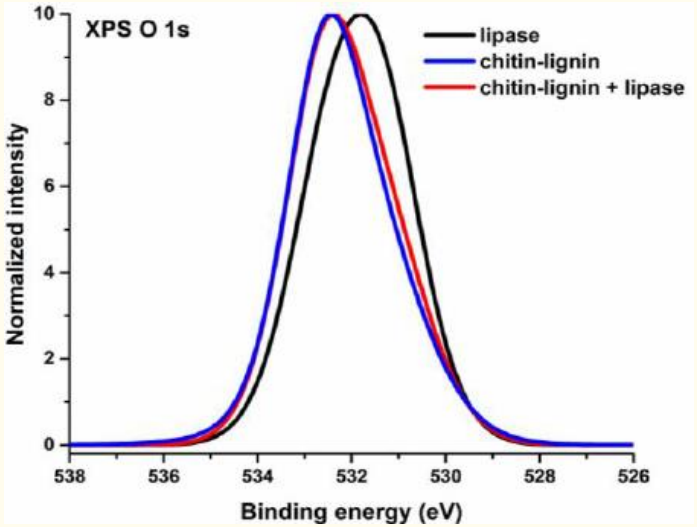
- milling and mixing by ball with centrifuge
- Using ionic liquids

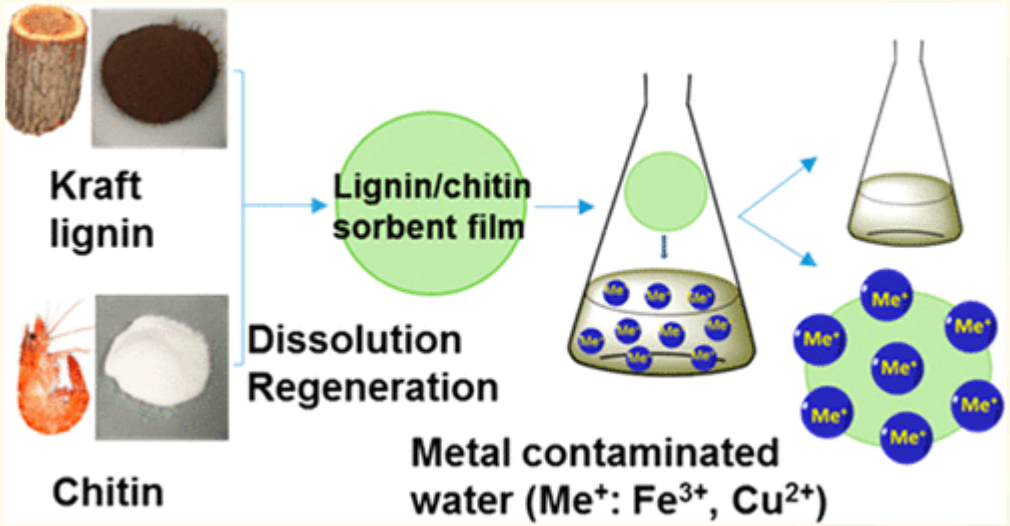


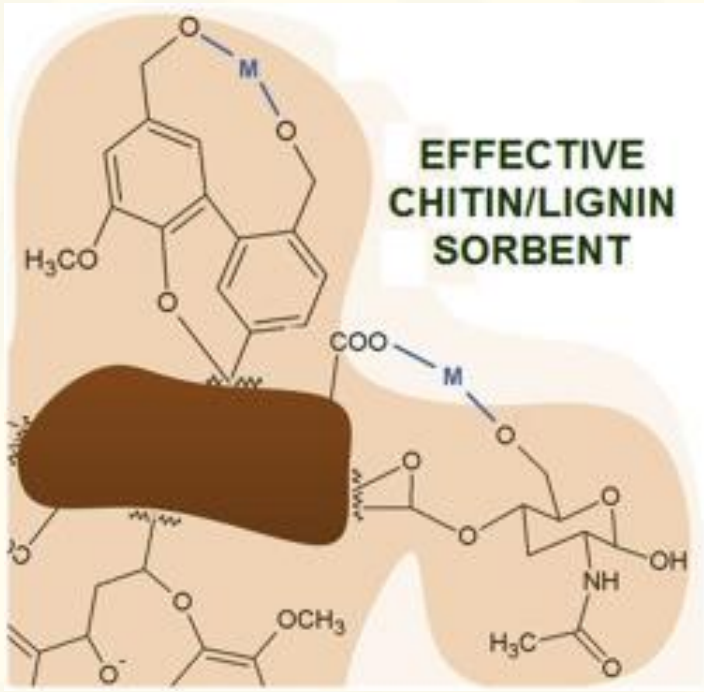


Use as adsorption filter and matrixes

- Lignin-Chitin polymer films – Great adsorption - Fe, Ni^{2+}, Cu^{2+}, Zn^{2+} and Pb^{2}
- Matrix for Enzyme immobilization





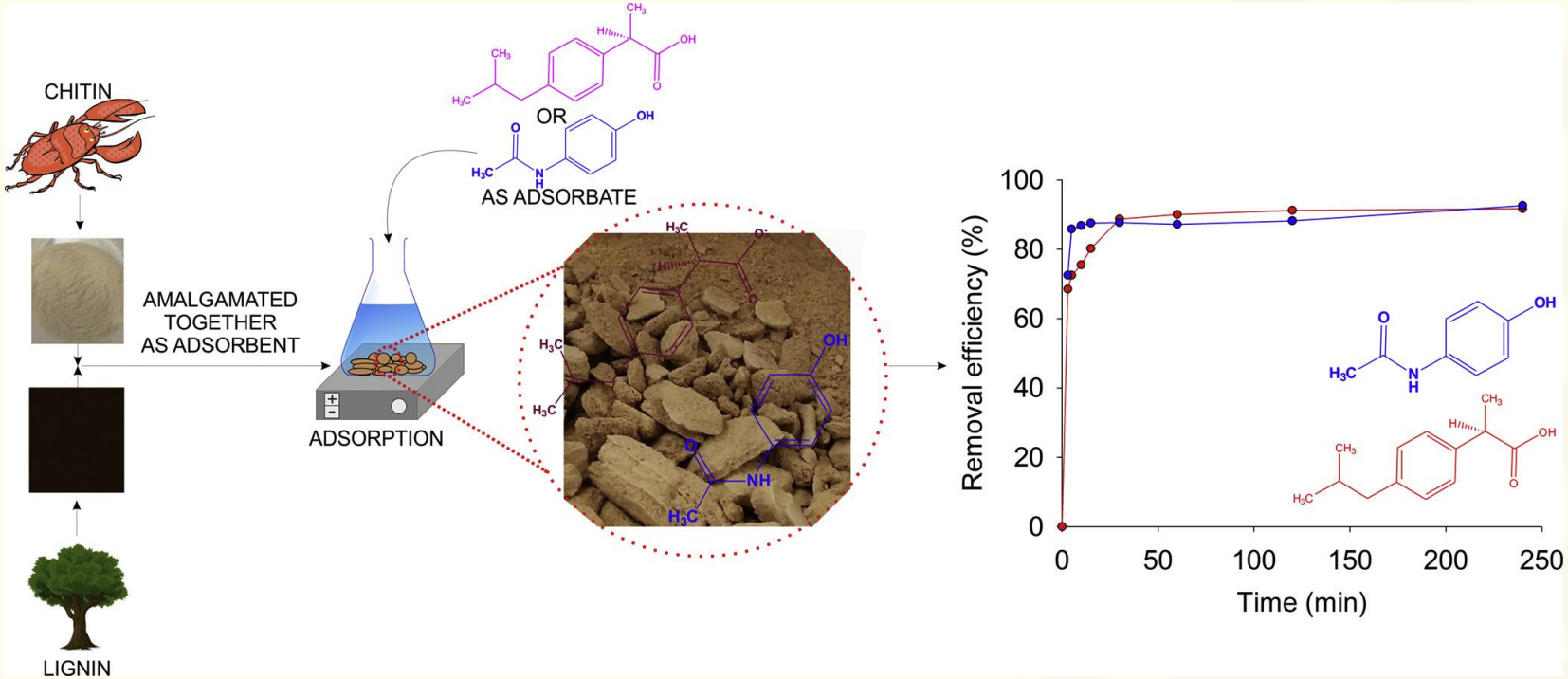


Zdarta, J.; Klapiszewski, Ł.; Wysokowski, M.; Norman, M.; Kołodziejczak-Radzimska, A.; Moszyński, D.; Ehrlich, H.; Maciejewski, H.; Stelling, A.L.; Jesionowski, T. Chitin-Lignin Material as a Novel Matrix for Enzyme Immobilization. *Mar. Drugs* **2015**, *13*, 2424-2446.

Treatment of model solutions and wastewater containing selected hazardous metal ions using a chitin/lignin hybrid material as an effective sorbent, PrzemysławBartczak [a]Łukasz Klapiszewski[a] Marcin Wysokowski Izabela Majchrzak[a] Weronika Czernicka[a] Adam Piasecki[b] Hermann Ehrlich [c]Teofil Jesionowski[a]

Biosorption in aqueous solutions

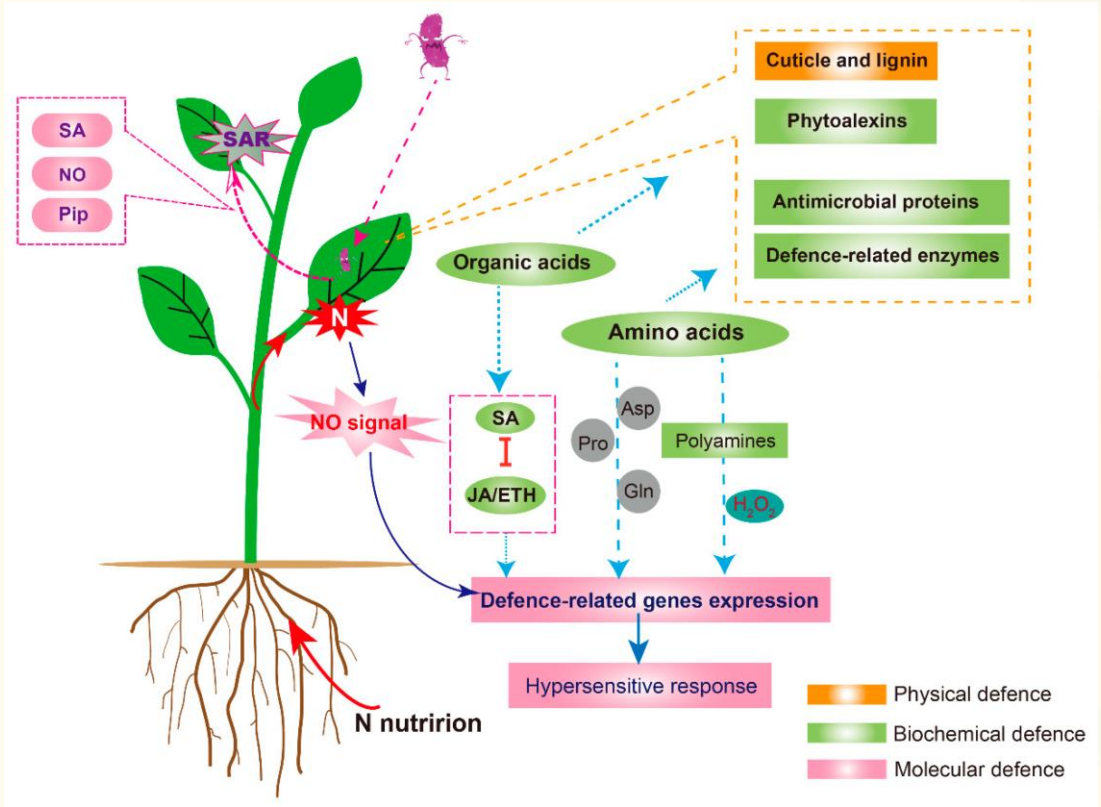
- Biosorption - Removal of hazardous NSAID’s from aqueous solutions
- Biosorption – Removal of waste dye from textile



Enhanced removal of hazardous dye form aqueous solutions and real textile wastewater using bifunctional chitin/lignin biosorbent Monika Wawrzkiewicz[a] Przemysław Bartczak[b1] Teofil Jesionowski[b1]
Removal of hazardous non-steroidal anti-inflammatory drugs from aqueous solutions by biosorbent based on chitin and lignin Sonia Żółtowska-Aksamitowska[a] Przemysław Bartczak[a] Joanna Zembrzuska[b] Teofil Jesionowski[a]

Fertility and biodiversity increase

- Addition to wet tropical forests
- Plant fertility increase



Biomedical applications

- Immune system modulator
- Potential for biocompatible tissues
- Many more…

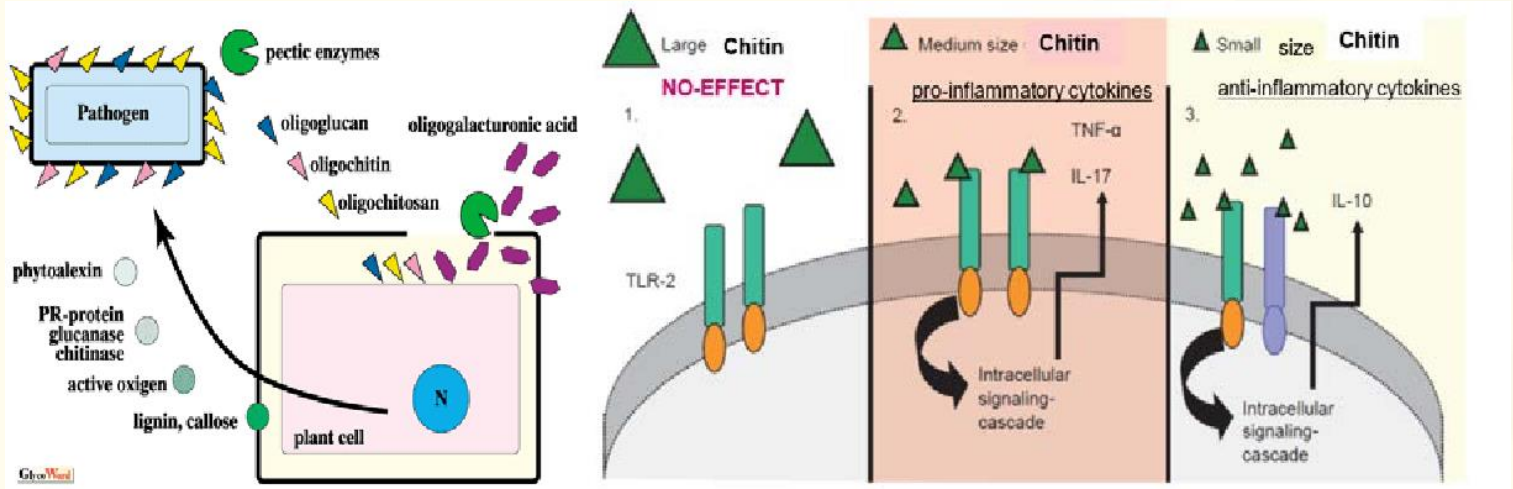
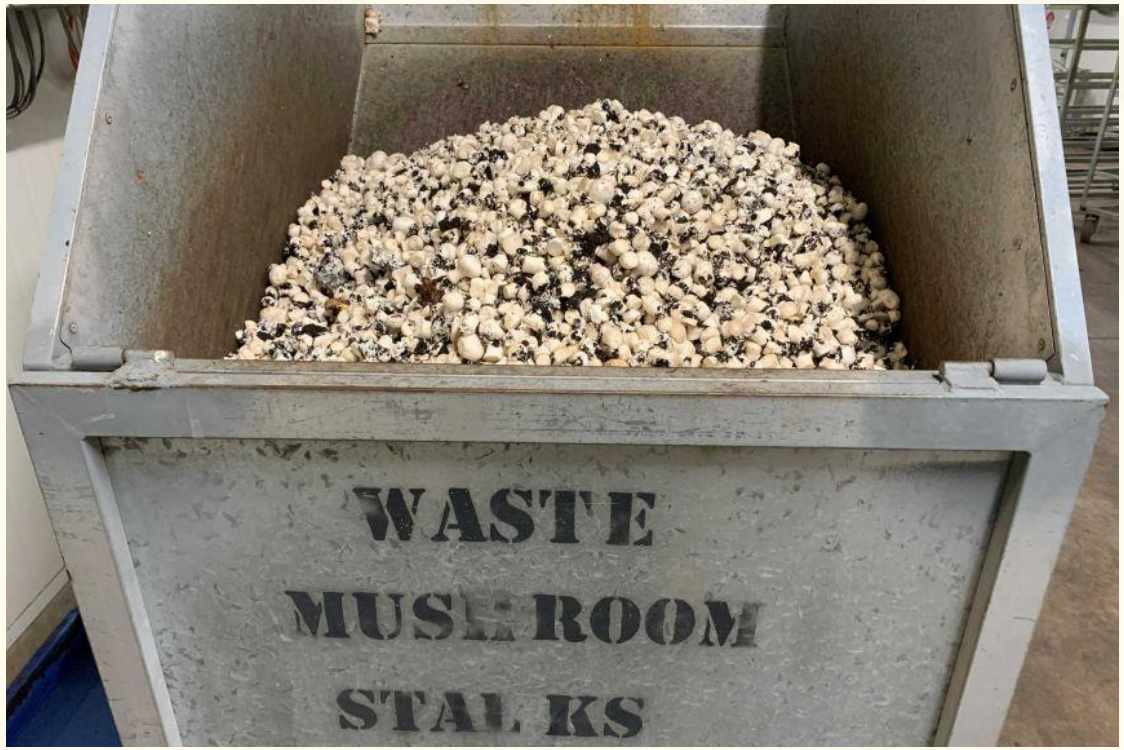


Figure 1: Some chitin mechanisms (left: pathogen response; right: anti-inflammatory properties as a function of dimensions)

- Renewable, wasted resource with may wonderful potential applications!



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Contact:

info@soma.eco

nikola@soma.eco
danilo@soma.eco

soma.eco
Imunin.com

+381649213930