

“Research and development of marine degradable multi-lock biopolymers from inedible biomass”

MS Ito PJ

【Objective】 We are developing a bioplastic that incorporates a multi-locking mechanism into aliphatic polyesters produced from inedible resources, and that biodegrades rapidly in seawater after unlocking by multiple external stimuli. In addition, we aim to strengthen the biodegradable plastic while maintaining good biodegradability through dynamic cross-linking, introduction of supramolecules, and optimization of the higher-order structure.

A trade-off between tear strength and marine biodegradability

To break this trade-off relationship, a biodegradable multi-locking mechanism is introduced.

Objectives

- (i) Incorporate marine biodegradable resin and multi-lock mechanism.
- (ii) To improve the toughness of the system, focusing on the improvement of tear strength.
- (iii) To achieve these goals without compromising marine biodegradability.

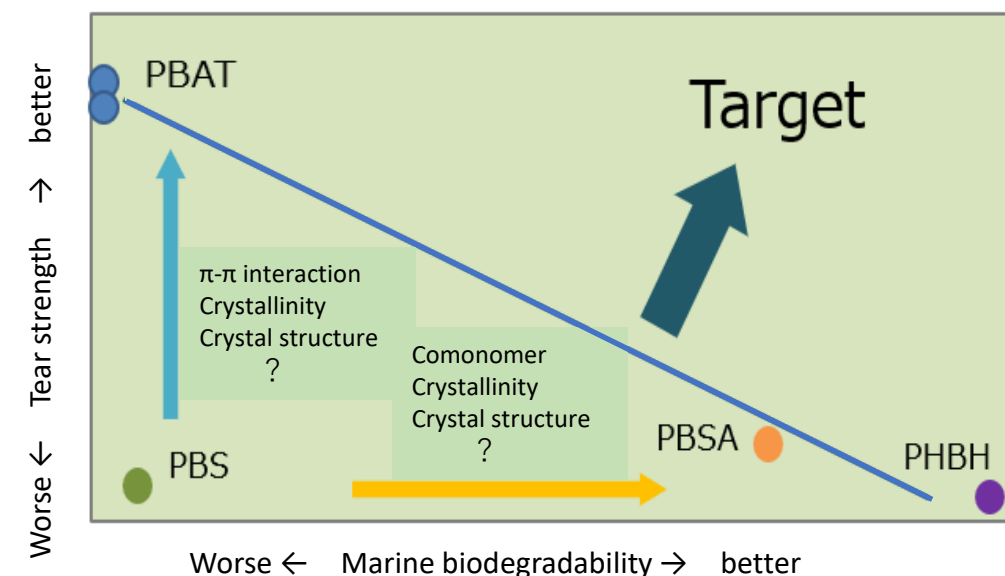


Fig 1: Physical properties and marine degradability