

ADDRESSING THE PLASTIC WASTE PROBLEM THROUGH ENZYMATIC DEGRADATION: MARKET AND APPLICATION ANALYSIS

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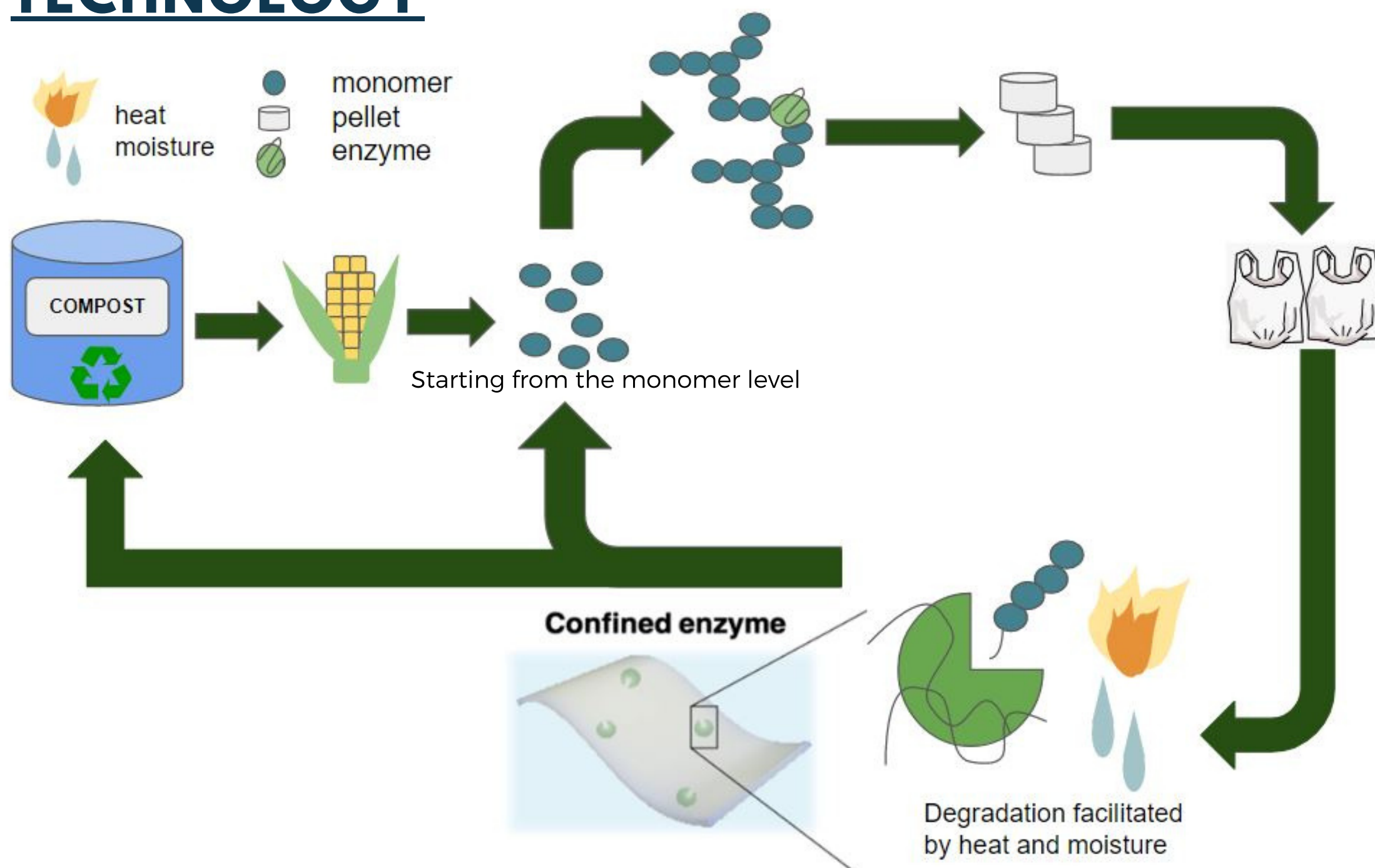
OVERVIEW

The world is facing a severe plastic waste problem--nearly 80% of our plastic products end up in landfills or the environment. More specifically, polylactic acid (PLA) based products face extensive difficulties degrading and composting in most facilities.

Our group addresses this by pinpointing economically and technologically viable solutions which harness the potential of enzymatic degradation to convert back into their simple monomers, producing minimal waste while maintaining material properties. To thoroughly address the market, key players in the bioplastics sector will also be organized in a database.

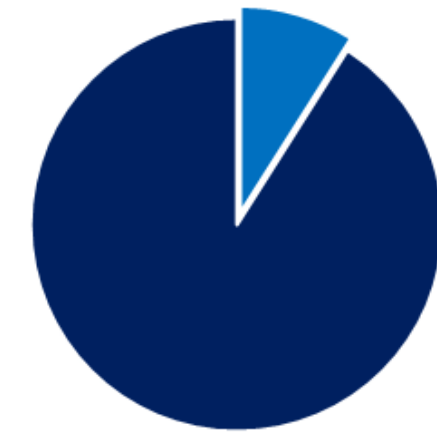
Embedding the degrading enzymes in PLA products enables quicker and more thorough breakdown with the aid of water and heat, which is also compatible with existing composting and waste infrastructure.

PRODUCT LIFE CYCLE WITH ENZYMATIC TECHNOLOGY



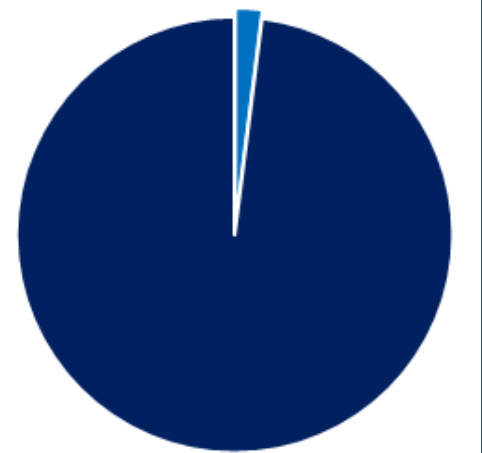
- Breakdown into monomer components eliminates possibility of microplastic wastes
- Enzymatic degradation allows:
 - Direct conversion of PLA into monomer feedstock
 - Expedited composting of PLA

WHY IT MATTERS?



< 10% plastic packages are recycled

2% of facilities have sufficient equipment to process compostable plastic



~80% of plastic products end up in landfill or our environment

(Geyer, et. al, 2017)

DATABASE

Major players in the biodegradable plastics market will be highlighted in our database

MARKET ANALYSIS

We will provide users with cost modelling, process diagrams, and visual representation of PLA resin market trends for select applications

