UCONN
RESEARCH

100% COMPOSTABLE PACKAGING FILM

Need – Plastic films have become ubiquitous in modern consumer goods. However, despite modern advances in recycling technology, most thin plastic films cannot be recycled in the current recycling infrastructure and end up in landfills. This results in an accumulation of millions of tons of waste and leakage of chemicals that have a severe impact on ecotoxicity and human health.

Vision – Our research aims to create a packaging system that maintains all the functions of traditional plastic film, while being 100% compostable in the environment, removing them from both landfills and recycling facilities altogether. The technology developed in our project should be able to maintain all the functionalities of the existing technology, while demonstrating a compostable alternative.

Research – Our project seeks to develop a food packaging system based on polylactic acid films coated with natural/degradable materials which meet the following goals: 1) 100% compostable packaging film without toxic or hazardous chemicals, 2) similar or higher oxygen and water vapor barrier performance, 3) similar or lower cost to existing packing technology, 4) retrofittable into the existing infrastructure.

Impact – This project is expected to yield real samples that are strongly resistant to gas transport, formulated without toxic chemicals, and 100% compostable. By developing the necessary technologies to achieve this, we aim to fundamentally change plastic packaging and waste management conventions. The successful implementation of this packaging system should significantly reduce waste generation.

Who We Are: The Sun Group at the Institute of Materials Sciences focuses on the design and synthesis of nanostructured materials for various applications. For more information, please contact luyi.sun@uconn.edu