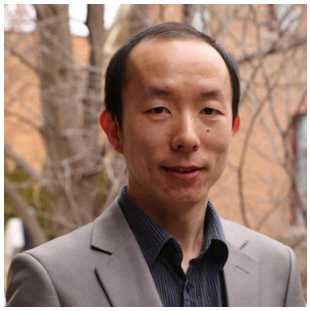
Functional materials derived from cellulose and plant proteins for value added applications



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Résumé/Abstract

Natural polymers, such as cellulose, proteins, starch, chitin and chitosan, have been attracting increasing attention, primarily for two major reasons: environmental concerns generated from petroleum products and additional value to agricultural by-products. Nowadays, the non-degraded plastic materials have created the significant disposal and pollution issues threatening human health, development, and even survival. Recently, natural polymers have been applied as bio-renewable resources in the fabrication of biodegradable material. These natural polymers widely exist as by-products or waste, which have low value, and the disposal via landfill or incineration causes environmental problem and also represents a waste of useful resources. However, the processibility and mechanical properties of resultant materials derived from natural polymers are usually not comparable to those of synthetic polymers. Therefore, based on the understanding of various structures, conformations and interactions of different natural polymers, a series of biodegradable functional materials with desirable properties have been developed from low-value biomass for food, medicine, and energy storage applications.

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Bio

Dr. Yixiang Wang is an Assistant Professor in the Department of Food Science and Agricultural Chemistry at McGill University. Dr. Wang received his BSc in Chemistry and Doctoral degree in Polymer Chemistry and Physics from Wuhan University, China. Following a post-doctoral fellowship at University of Alberta, Dr. Wang worked there as a Research Associate from 2012 to 2017. Dr. Wang conducts research related to the fabrication of natural polymer based nano/micro particles, nano/micro fibers, composite films, and hydrogels, and the understanding of relationship between molecular structure and functional properties. The overall aim is to explore a systematic approach to develop value-added applications of natural polymers in functional food and biodegradable materials.

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