Title: Polylactic acid blends: the future of green, light and tough

Authors: Kotiba Hamad, Mosab Kaseem, Muhammad Ayyoob, Jinho Joo, Fawaz Deri

PII: S0079-6700(18)30021-2
DOI: https://doi.org/10.1016/j.progpolymsci.2018.07.001
Reference: JPPS 1086

To appear in: *Progress in Polymer Science*

Received date: 26-1-2018
Revised date: 18-7-2018
Accepted date: 19-7-2018

Please cite this article as: Hamad K, Kaseem M, Ayyoob M, Joo J, Deri F, Polylactic acid blends: the future of green, light and tough, *Progress in Polymer Science* (2018), https://doi.org/10.1016/j.progpolymsci.2018.07.001

Polylactic acid blends: the future of green, light and tough

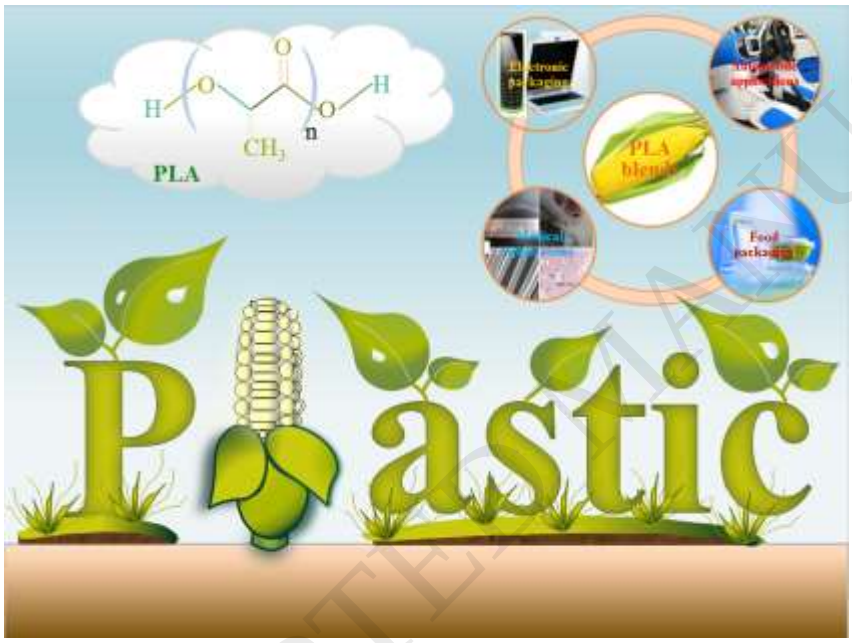
Kotiba Hamad[a,*], Mosab Kaseem[b], Muhammad Ayyoob[a], Jinho Joo[a], Fawaz Deri[c]

[a]*School of Advanced Materials Science & Engineering, Sungkyunkwan University, Jangan-gu, Suwon, Gyeonggi-do 16419, South Korea.*

[b]*Department of Nanotechnology and Advanced Materials Engineering, Sejong University, Seoul 05006, South Korea*

[c]*Department of Chemistry, University of Damascus, Damascus, Syria*

Graphical abstract



Abstract

Polylactic acid (PLA) is a biobased product and a compostable aliphatic polyester that has been studied for use in several applications over the last decade. Many properties of PLA, such as strength, stiffness, and gas permeability, have been found to be comparable to those of traditional petrochemical-based polymers. However, PLA-based materials exhibit a number of limitations for specific applications, such as slow biodegradation rate, high cost, and low toughness. The modification of PLA using the polymer blending technique to achieve suitable properties for different applications has been receiving significant attention