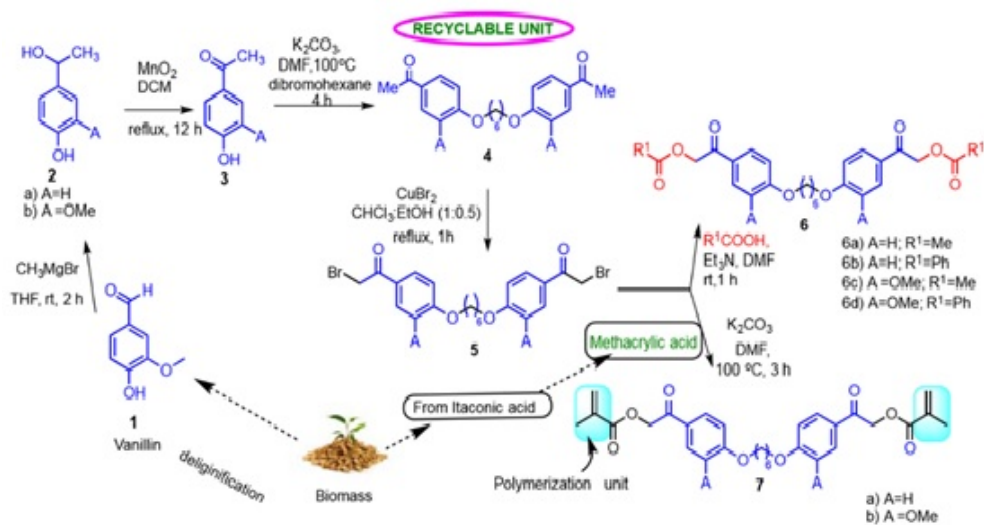


Renewable and Sustainable Biomass Derived Photodegradable Polymers (RFT-529)

Invention Summary

Worldwide efforts have been devoted to converting biomass into chemicals due to the high abundance, low cost, and renewability. Carbohydrates are of particular interest as one of its derivatives, FDCA, is one of the top 14 bio-based chemicals that can be used as a replacement in the synthesis of polyethylene terephthalate (PET). Though made from renewable resources, recyclability of the polymers has remained an issue. Sivaguru et al addressed this through the use of a nitrobenzyl phototrigger unit backbone which allows for controlled photodegradation, via UV irradiation, of biomass-derived polymers.



Scheme 1. Synthesis of biobased polymers.

Benefits

- Decreased cost of materials
- Biomass is renewable and highly abundant
- Vanillin, derived from lignin, is a desirable biomass source as it is currently considered a waste product in the paper and pulp industries
- Implications in all applications of PET resins

Technology

The technology includes the novel photodegradable polymers derived from biomass in addition to the methods of making and using the polymers for the synthesis of PET.

Intellectual Property

This technology is patent pending with worldwide PCT patent rights and is available for licensing/partnering opportunities.

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