

BIOCHEM show case

Produce commercially viable plastics from renewable resources

Problem

The vast majority of plastics in use today are produced from petrochemical feedstocks. With oil expected to be harder to obtain in the future and concerns about the continued use of fossil carbon to drive the world economy, there is growing interest in using renewable feedstocks to produce the materials we need to construct our world.

Technical solution

Metabolic is commercializing a range of natural polymers called polyhydroxyalkanoates (PHAs). These are linear polyesters produced in nature by bacterial fermentation of sugar or lipids. Metabolic have engineered the required pathways into commercial fermentation organisms, and can produce a range of polymers and co-polymers from several different monomers. Yields of 100g/l of bioplastic can be achieved. Applications include films, moulding resins, coatings, fibres and adhesives.

Currently produced by industrial fermentation, Metabolix is currently working on introducing the required pathways into plants such as switchgrass. The bioplastics could then be grown as a commercial crop.

Benefits

- Lower energy requirements for production
- Switch to renewable feedstocks from non-renewable fossil carbon

Partnerships for better
innovation support



**Eco-Innovation
BIOCHEM**

- **Products are biodegradable reducing pressure on waste treatment and disposal systems**

Additional information

Metabolix

Website

<http://www.metabolix.com/>

EPA 2005 Small Business Award

Website

<http://www.epa.gov/greenchemistry/pubs/pgcc/winners/sba05.html>