

Development of Biopolymers having different aromatic compositions for industrial applications

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Sustainable polymers have gained remarkable interest in the academic, industrial, and even social sectors. One of the most significant challenges in polymer science and industry is the production, preferably using renewable resources, and utilization of biodegradable polymers that have comparable thermal/physical properties and processibility.

BASF commercialized PBAT (Poly(1,4-butylene adipate-co-terephthalate)) under the trade name of Ecoflex in 1998. The PBAT has been proposed to be used as one of promising compostable polymers with desirable properties. Specifically, it was reported to be entirely compostable without environmental risk and overcome the disadvantages of many other aliphatic polyesters.

Another viable candidate drawn attention as a sustainable polymer is aliphatic polycarbonates. Lotte chemical recently developed a new type of carbonate-ester copolymers, PBCT (poly(1,4-butylene carbonate-co-terephthalate)). By incorporating aromatic terephthalate units into the aliphatic chains, we've developed various biodegradable carbonate-ester copolymers and, proved comparable thermal/physical properties and biodegradability to conventional plastics.