論文 / 著書情報
Article / Book Information

題目(和文)	
Title(English)	Study on biosynthesis and characterization of polyhydroxyalkanoates with α–carbon side-chain
著者(和文)	マルグプ ミリザティ
Author(English)	Mierzati Maierwufu
出典(和文)	学位:博士(工学), 学位授与機関:東京工業大学, 報告番号:甲第12230号, 授与年月日:2022年9月22日, 学位の種別:課程博士, 審査員:柘植 丈治,北本 仁孝,曽根 正人,林 智広,福居 俊昭
Citation(English)	Degree:Doctor (Engineering), Conferring organization: Tokyo Institute of Technology, Report number:甲第12230号, Conferred date:2022/9/22, Degree Type:Course doctor, Examiner:,,,,
学位種別(和文)	博士論文
Category(English)	Doctoral Thesis
種別(和文)	要約
Type(English)	Outline

Study on biosynthesis and characterization of polyhydroxyalkanoates with α–carbon side-chain

(Thesis Outline)

Innovative biodegradable polyhydroxyalkanoates (PHAs) with novel material properties was biosynthesized and characterized. In order to extend the possible application range of PHAs, various side-chain units were incorporated onto α-carbon of existing structure of polymers. The result of PHAs composed with new monomer units showed modified material properties when comparing to their non-α-side-chain polymers. PHAs with 2-hydroxyalkanoate unit showed increased glass transition temperature (Tg) up to 24 ℃ for homopolymer, while PHAs with other α-carbon methylated units exhibit decreased Tg. All the samples showed enhanced mechanical performance where a very high elongation at break for PHA copolymer was observed. Notably, a unique biosynthesized homopolymer with high isotacticity was reported for the first time.