Tenebrio molitor

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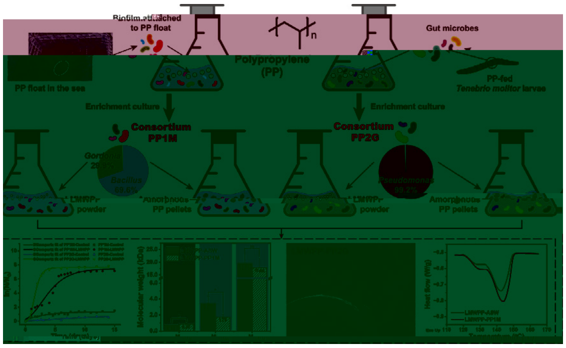

Keywords:

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1. I c

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Stenotrophomonas panacihumi fi

fi % fi

Pseudomonas *Bacillus* %

Bacillus flexus *Pseudomonas azotoformans* % %

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Enterobacter

Pseudomonas

Bacillus

Bacillus

Brevibacillus *Aneurinibacillus* fi

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Bacillus

Rhodococcus % %

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2. Ma a a

2.1. Materials and medium

(M_n) (M_w) (M_z) μ M_n M_w M_z

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2.2. Enrichment of cultivable PP degrading consortia

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2.3. Sequencing of the V3-V4 region of 16S rRNA gene amplicons

2.4. Determination of both consortia grown on PP plastics

2.5. Biotreatment of PP plastic by consortia PP1M and PP2G

2.6. Characterization of molecular weight changes of PP polymer by HT-GPC

2.7. Morphological observation by scanning electron microscopy (SEM)

2.8. Chemical characterization of PP surface by attenuated total reflection Fourier transform infrared (ATR-FTIR) spectroscopy

2.9. Characterization of the crystalline properties of PP plastics by differential scanning calorimetry (DSC)

3. Results and discussion

3.1. Enrichment and diversity of two cultivable PP degrading consortia

(Bacillus (%) Gordonia (%) Pseudomonas Caldicoprobacter Ignatzschineria Escherichia_Shigella Tepidimicrobium Keratinibaculum)

(Pseudomonas (%) Bacillus (%) Caldicoprobacter Ignatzschineria Pseudogracilibacillus Escherichia_Shigella Tepidimicrobium Keratinibaculum)

3.2. Growth of the consortia PP1M and PP2G on two types of additive-free PP plastics

Table 1

		fi (μ_{max})

3.3. Molecular weight changes of PP treated by bacterial consortia

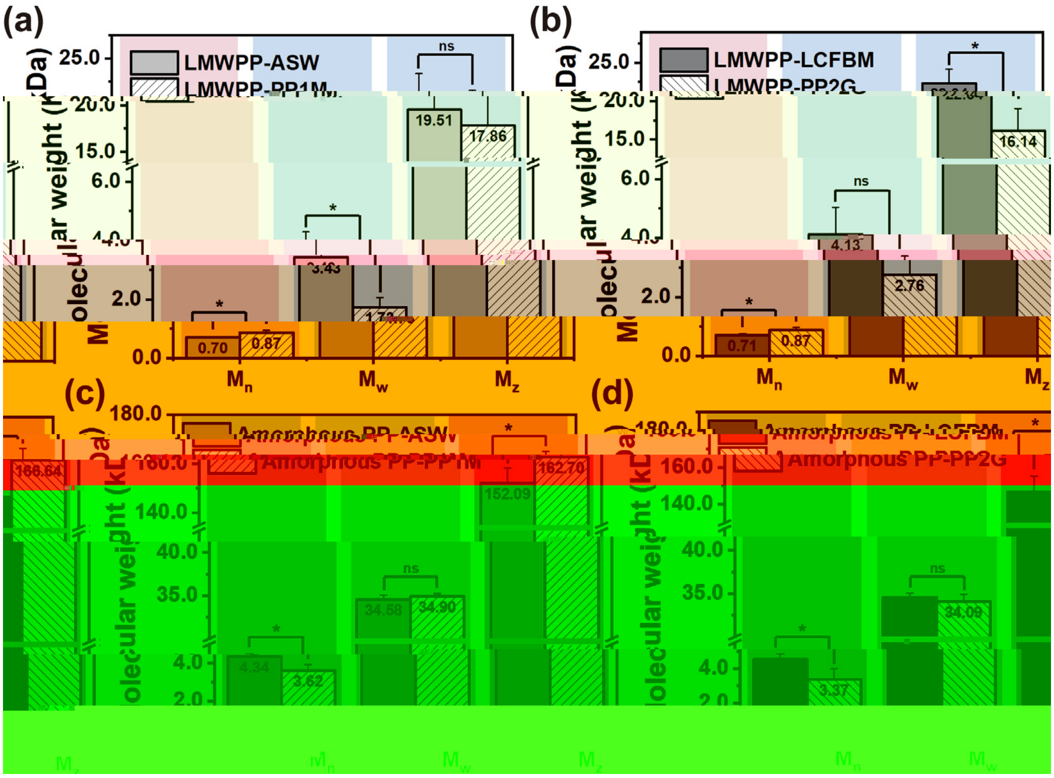

Fig. 3. M_n M_w M_z (fi (t $p <$ fi M_n M_w M_z M_n M_w M_z

M_n

M_z

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3.4. Changes in topographical properties of bio-treated PP surfaces

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fi fi

3.5. Changes in chemical properties of bio-treated PP surface

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MI

% CL HI % %

MI %

CI % HI

% MI % CI

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Fig. 4. fi fi

% MI %

Table 2

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3.6. Changes in the crystalline properties of bio-treated PP

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ΔH$_m$ (%

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ΔH$_m$

Table 3

		(ΔH$_m$	(%

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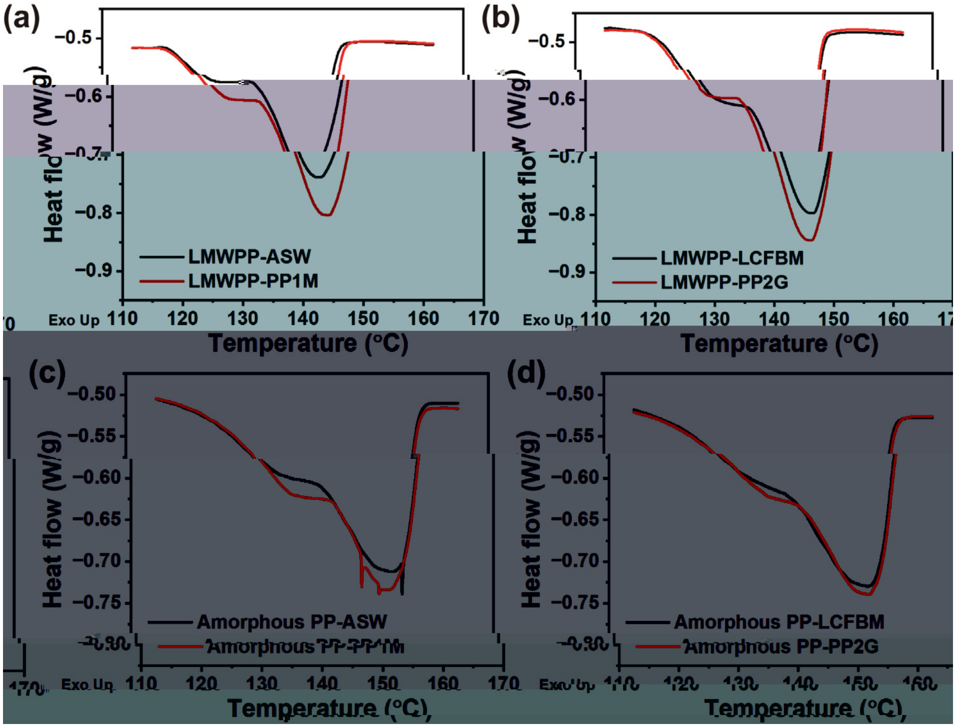

Fig. 5.

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4. C

Tenebrio molitor

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Bacillus Pseudomonas

Pseudomonas Bacillus fi