

Supporting Information

Upcycling Biodegradable PVA/Starch Film to a Bacterial Biopigment and Biopolymer

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Figure S1. Experimental setup of biodegradation under composting conditions: model compost in Petri dishes (left) and PVA/starch film in model compost (right).

Model compost characteristics: pH 7.08; CaCO_3 – 1.23%, Nitrogen- 0.65%, P_2O_5 – 219 mg/100 g; K_2O – 244 mg/100 g

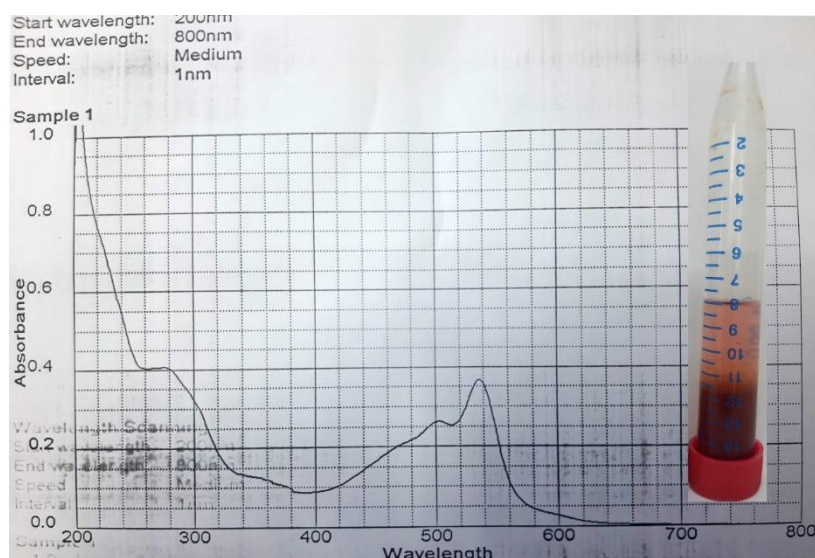


Figure S2. UV-Vis spectrum of the extracted undecylprodigiosin from *Streptomyces* sp. JS520 grown in MSM medium containing 10 g/L PVA/TPS substrate and the appearance of the EtOAc culture extract.

Table S1. Biomass yield (mg of dry mass/ mL of culture) and conversion rate from bacterial cultures grown in MSM medium with PVA as sole carbon source.

| Strain | MSM + PVA 5 g/L | | MSM + PVA 10 g/L | |
|-----------------------------------|-----------------|--------------|------------------|--------------|
| | Biomass, mg/ml | Conversion,% | Biomass, mg/ml | Conversion,% |
| <i>Ralstonia eutropha</i> H16 | 1.25 ± 0.06 | 25 | 2.75 ± 0.05 | 27 |
| <i>Streptomyces</i> sp. JS520 | 2.65 ± 0.06 | 53 | 7.20 ± 0.04 | 72 |
| <i>Bacillus subtilis</i> ATCC6633 | 3.80 ± 0.04 | 76 | 7.00 ± 0.08 | 70 |

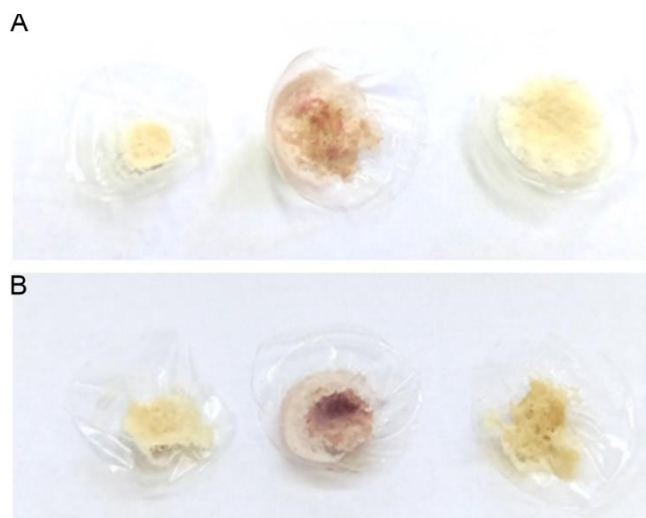


Figure S3. Pellets of centrifuged cultures grown in MSM medium with: A) 5 g/L of PVA and B) 10 g/L of PVA. From left to right: *Ralstonia eutropha* H16, *Streptomyces* sp. JS520 and *B. subtilis* ATCC 6633.