

Supplementary Materials for

Soil microbiomes mediate degradation of vinyl ester-based polymer composites

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Equal Contribution

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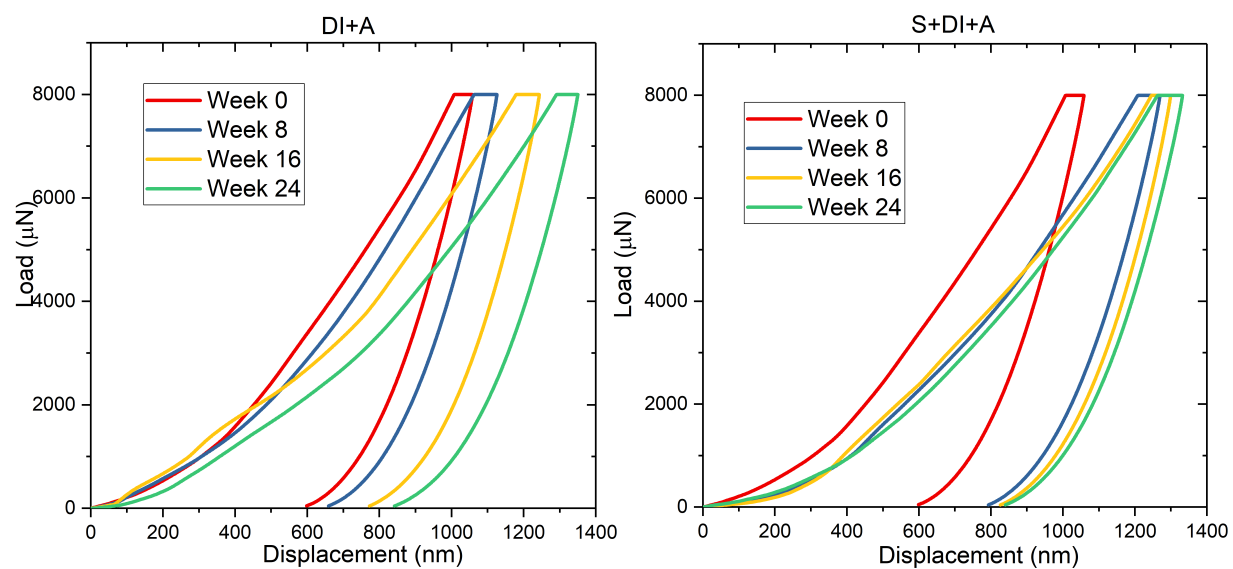
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This PDF file includes: Supplementary Figures S1 to S7

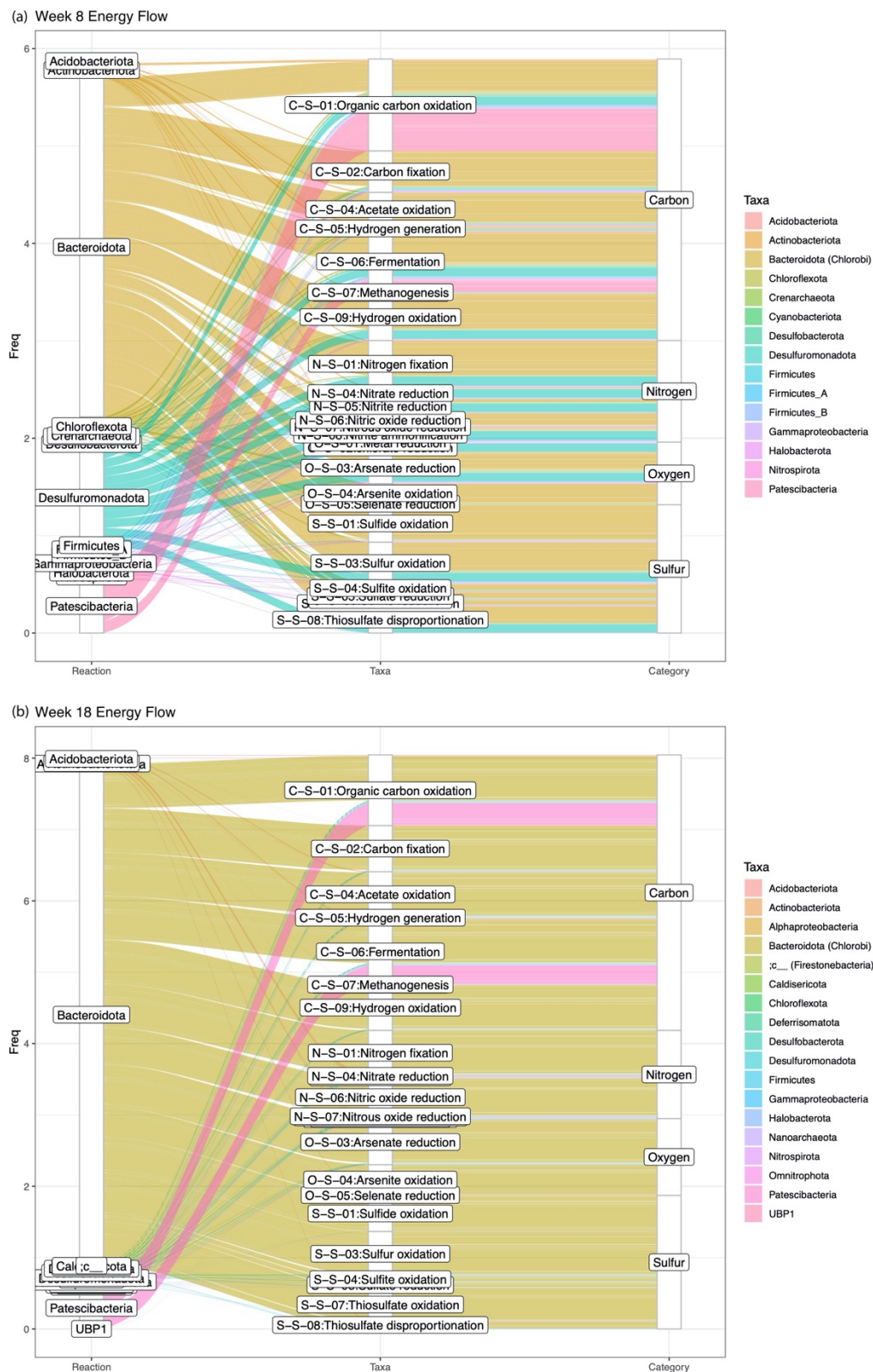
Other Supplementary Material for this manuscript includes the following:

Supplementary Data 1, 2

Supplementary Tables 1-20

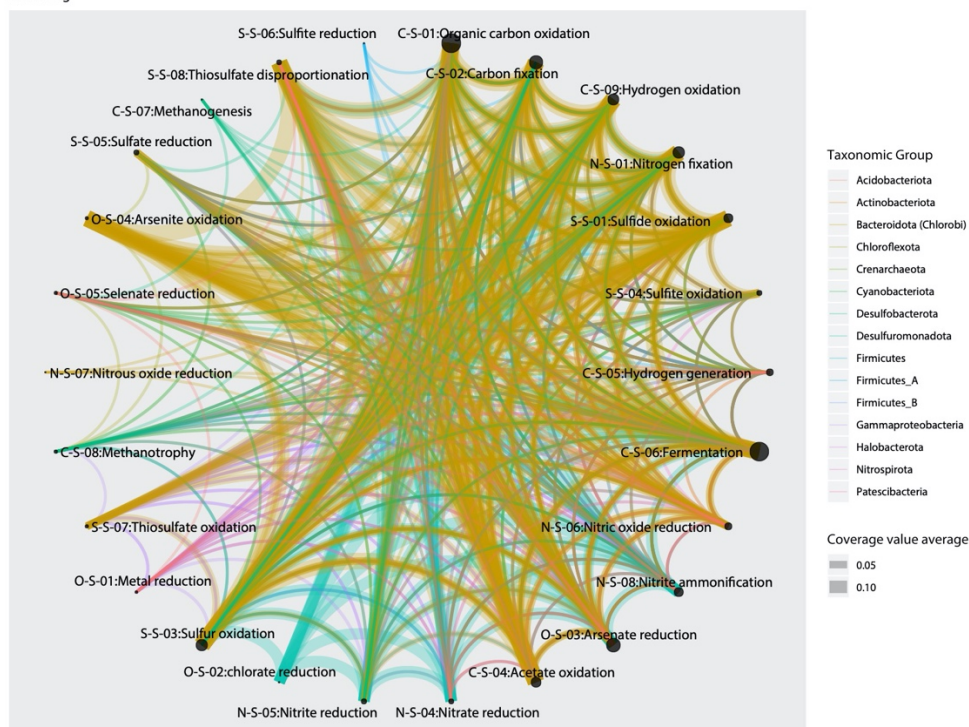


Supplementary Figure 1. Nanomechanical characterization (load-displacement responses) of carbon fiber reinforced vinyl ester composites after different exposure time periods in autoclaved deionized water (DI+A) and autoclaved soil solution with deionized (S+DI+A) water.

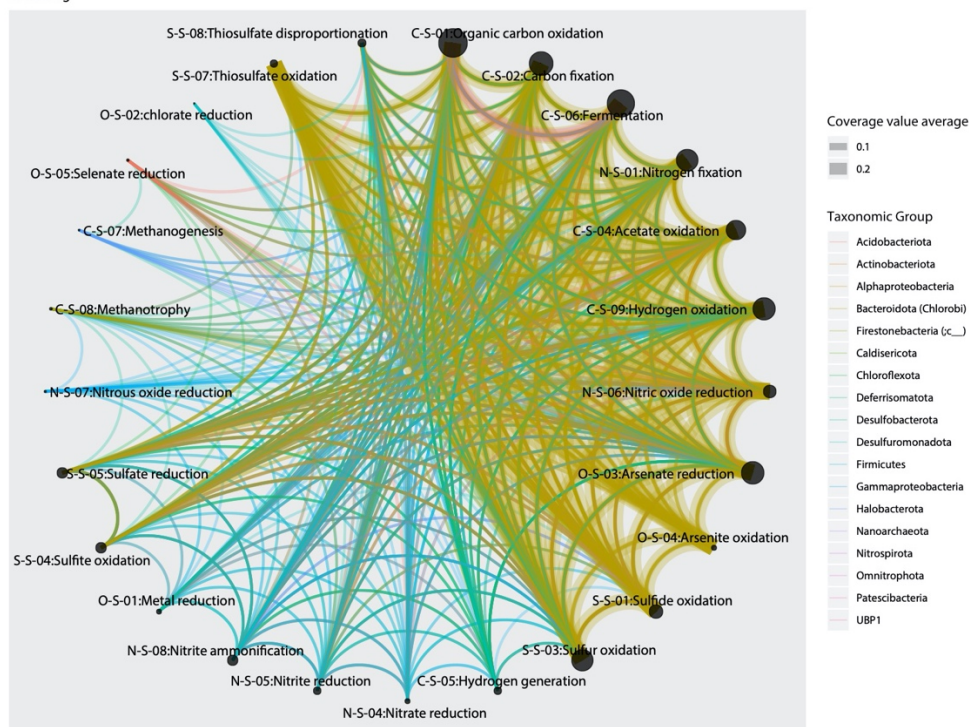


Supplementary Figure 2. Energy Flow Potential Diagram representing sources of energy at different resolutions for the microbial community in (a) week 8, and (b) week 18. Figure was generated with METABOLIC-C.

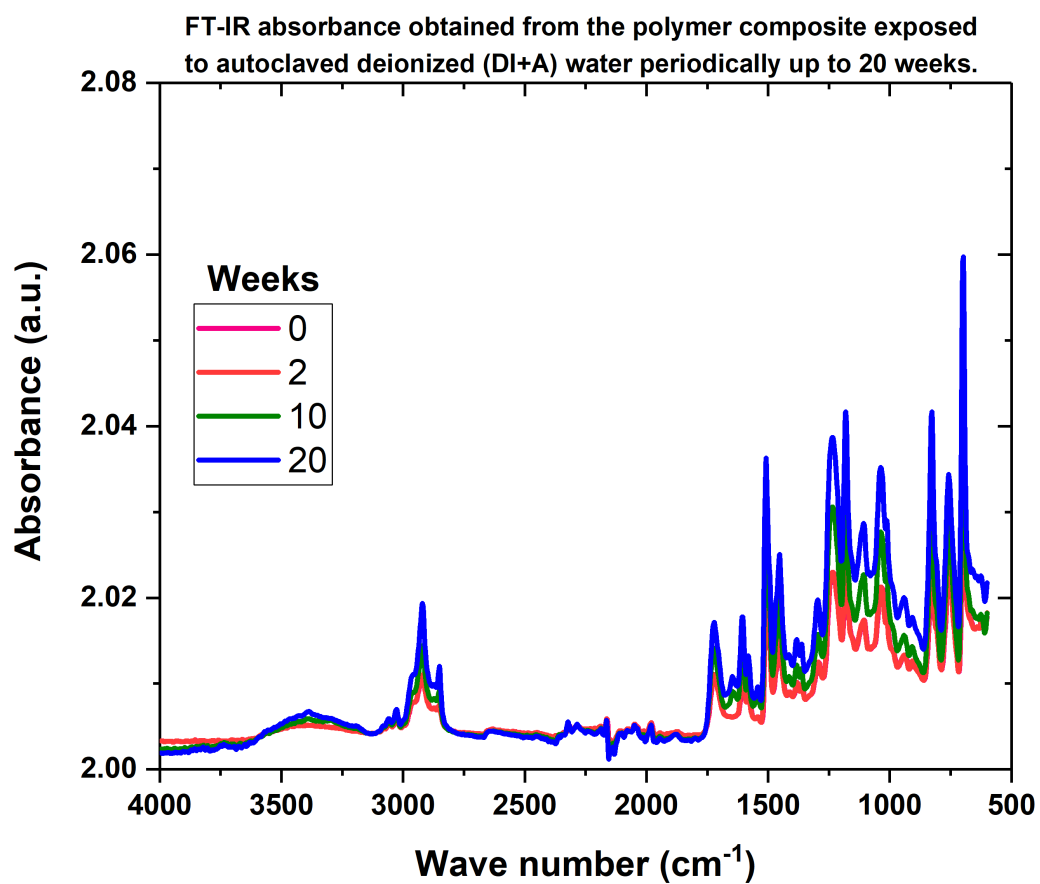
(a) Week 8 MAG Metabolic Connections
No scaling



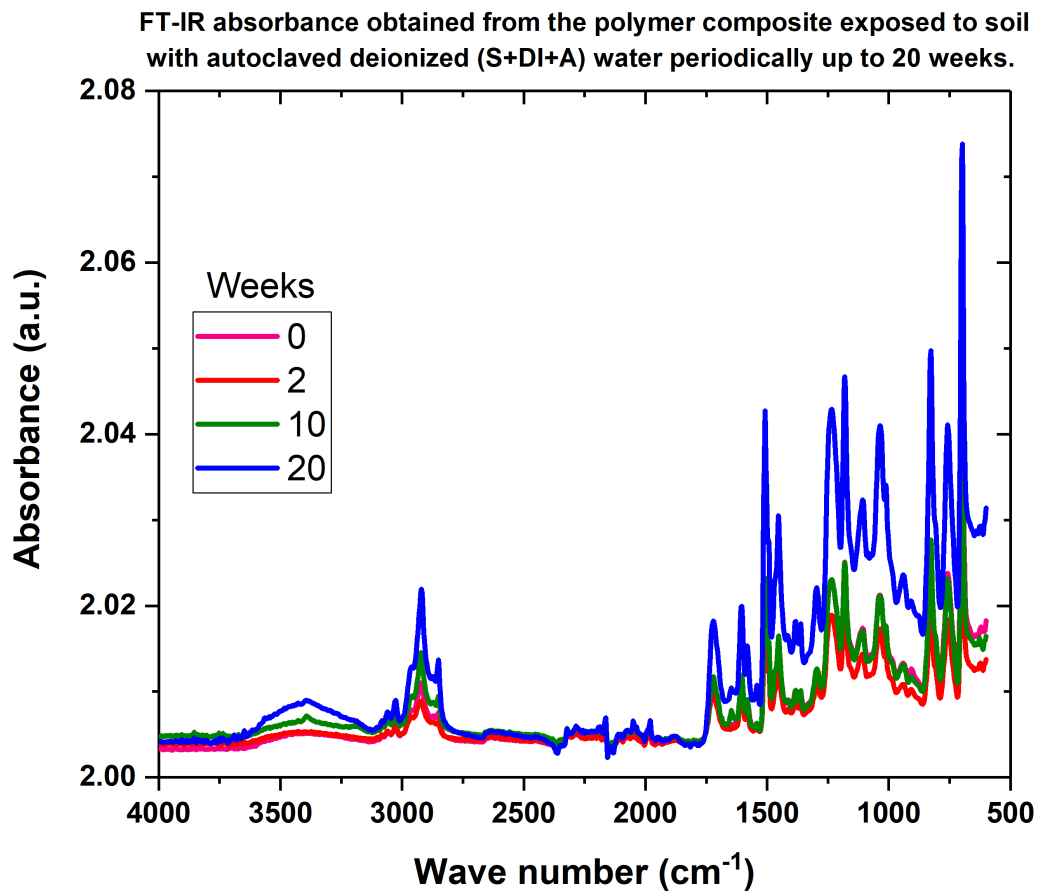
(b) Week 18 MAG Metabolic Connections
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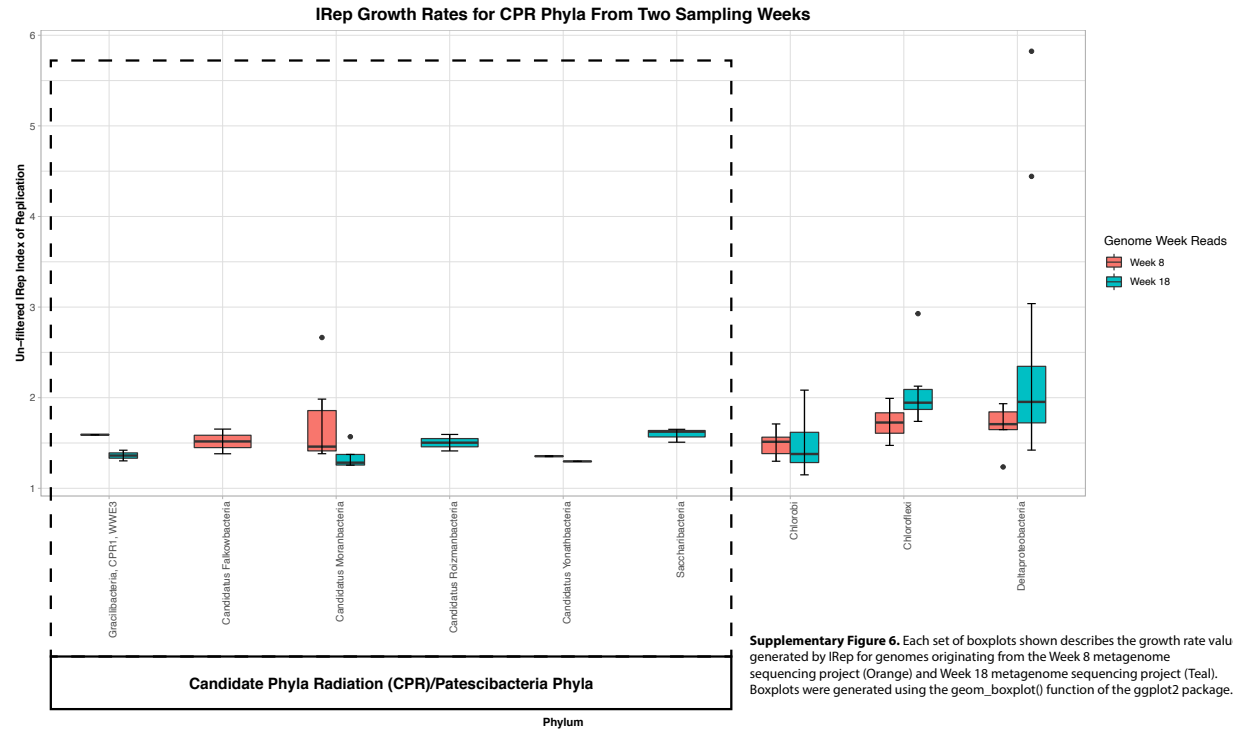
Supplementary Figure 3. Metabolic Connections Diagram representing connectivity in the polymer composite biofilm associated with shared microbial metabolisms in (a) week 8, and (b) week 18. Figure was generated with METABOLIC-C.



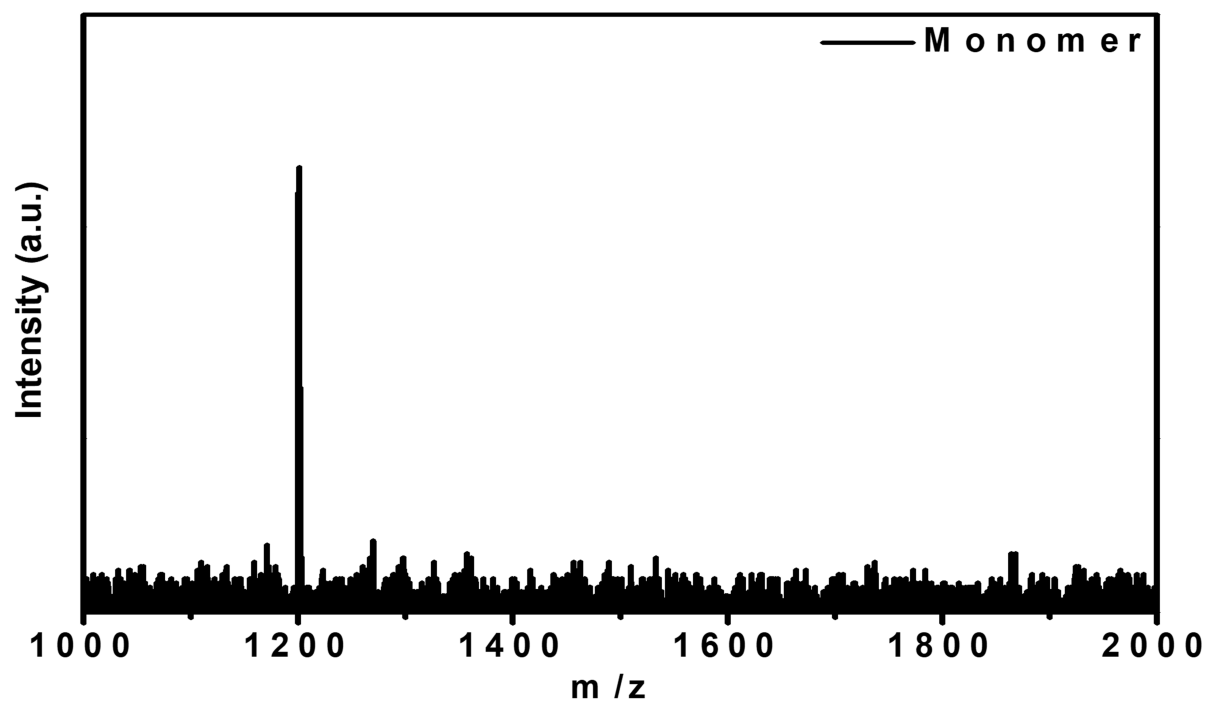
Supplementary Figure 4. Attenuated total reflection Fourier-transform infrared spectroscopy (ATR-FTIR) graphs of carbon fiber reinforced vinyl ester composites in autoclaved deionized (DI+A) water periodically obtained up to 20 weeks.



Supplementary Figure 5. Attenuated total reflection Fourier-transform infrared spectroscopy (ATR-FTIR) graphs of carbon fiber reinforced vinyl ester composites in autoclaved soil solution with deionized (S+DI+A) water periodically obtained up to 20 weeks.



Supplementary Figure 6. Estimated growth rates of important microbial groups in the polymer composite biofilm. Each set of boxplots shown describes the growth rate values generated by iRep for genomes originating from the Week 8 metagenome sequencing project (Orange) and Week 18 metagenome sequencing project (Teal). Boxplots were generated using the `geom_boxplot()` function of the `ggplot2` package.



Supplementary Figure 7. Matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) analysis of vinyl ester monomer (procured from FIBREGLAST®) indicating an average molecular weight of 1200 g/mol.