*Identification and Characterization of Three Novel Strains of Bacteria that Can be Used for Bioremediation of Cyclic Alkane, Cyclic Aromatic Hydrocarbons and Polyhydroxyalkanoates*

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Three different bacterial strains were isolated from the contaminated TAP (Tris Acetate Phosphate) media plates of the green micro-alga Chlamydomonas reinhardtii in our research lab. These bacterial strains were named based on the Chlamydomonas strains they contaminated: CC4533, Clip 185, and LMJ.SG0182. These bacterial were able to grow on the algal media plates as these strains could utilize acetate as an alternative carbon source like Chlamydomonas. Several microbiological tests were conducted to characterize the bacteria biochemically. We amplified and sequenced partially the 16S rRNA gene sequences of these three bacterial strains. The sequencing data showed that these three bacteria are novel strains of bacterial species: Sphingobium yanoikuyae strain PR86, Microbacterium binotii strain PK1-12M, and an uncultured bacterium clone LIB091_C05_1243 that is closely related to the genus Acidovorax sp. We tested the abilities of these three bacterial strains to utilize cyclic alkanes, mono and polycyclic-aromatic hydrocarbons, poly-hydroxyalkanoates, and car and lawn mower fresh and combusted engine oil as the sole carbon source on Tris Phosphate + 0.1% ammonium chloride media plates. Results show that both CC4533 and LMJ.SG0182 strains have the potential for bioremediation, with CC4533 being the most promising candidate. We will be presenting our molecular, biochemical and physiological results.