

Water Treatment Degradation of Pfas

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Abstract

PFAS are a type of microplastic known as forever chemicals. Exposure to PFAS can cause various adverse health effects and are found in a variety of industrial products and throughout the environment including our drinking water supply. Our project proposes constructing a transgenic bacterium to degrade PFAS in the water supply into harmless organic material. Our initial step is to test our promoter, which is known to be activated in the presence of PFAS using a reporter GFP gene. The next step is to test the ability of enzymes DeHa 1 and DeHa 2 to degrade the PFAS. After the PFAS is eliminated, our next step is to determine if the bacteria can be eliminated by activating the self-destruct gene rhaS under the arabinose promoter. If our system successfully removes the PFAS and bacteria, we will integrate it into the water processing system.