From Hair to Habitat

Carter, Emily (School: Bristol-Plymouth Regional Technical School)

Polyethylene glycol (PEG) is a synthetic polymer commonly found in cosmetic products such as shampoos and conditioners. Its widespread use raises environmental concerns due to its accumulation in natural ecosystems. The purpose of this experiment was to determine whether Pseudomonas putida can aid in the degradation of PEG. A liquid culture of the bacteria was prepared and exposed to three different concentrations of PEG across 90 conical tubes, which were set at room temperature for one month. After that period, pH levels were measured to assess changes associated with polymer breakdown. The results indicate that P. putida is capable of degrading PEG, as shown by variations in pH among the samples. These findings suggest that this bacteria could have practical applications in water filtration systems, particularly in reducing polymer pollutants and microplastics.

Awards Won: