Bio-Accumulation of Oil by Aurelia aurita Mucus

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This project was designed in order to determine the ability of Aurelia aurita mucus to bioaccumulate different types of oils. The project stemmed from another study that determined Aurelia aurita mucus has the ability to bioaccumulate nanoparticles resulting in a clean supernatant. Aurelia aurita mucus was harvested utilizing a procedure for collecting mesoglea. Mucus was combined with phenolic microballoons and different concentrations of sesame and motor oil. The phenolic microballoons were used as a positive control to confirm A. aurita mucus had the ability to bioaccumulate. Sesame oil was tested at 100%, 50%, and 25% concentration. Motor oil was tested at 50% and 25% concentration. The supernatant of each treatment was analyzed using a scanning spectrophotometer test. The data collected exhibited a trend of decreased absorbance at 25% and 50% concentrations of sesame and motor oil when compared to the original absorbance of the oils alone at above concentrations. Sesame oil at 100% concentration combined with mucus had an increase in absorbance in comparison to the absorbance the sesame oil alone. Aurelia aurita mucus has the ability to capture motor and sesame oils at 25% and 50% concentrations. The decrease in absorbance of the supernatants of the oils indicates that the mucus results in a clean supernatant. The knowledge gained from this project could provide a more natural solution to oil spills if Aurelia aurita mucus is synthetically developed.

Awards Won:

Third Award of $1,000