Oil Spill Cleanup Sponge

Isabelle Canty and Jacob Sardinha
The Rivers School, Weston

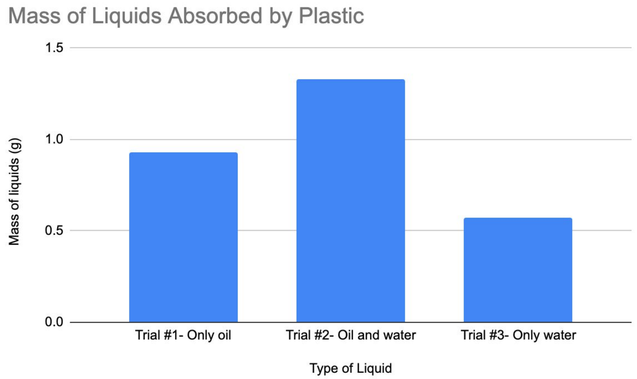
BioBuilder

Introduction & Project Details

- wanted to focus on environmental issues
- oil spills have negative effects on environment, marine life, cleanup personnel and global climate
- wanted to create an easy to use eco-friendly solution
- plastic sponge used to collect surface oil from spills
- bacteria used to degrade collected oil
- can be created from recycled materials
- eco friendly on both ends
- substitute for currently used chemical cleaners, which may end up damaging the environment more

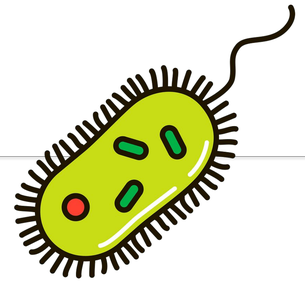
Experiments We Did &/or Planned

- we performed experiments testing the oil absorbency of plastic foams
  - used motor oil to mimic crude oil found in spills
  - used styrofoam to mimic plastics we would recycle
- we proved the foam absorbs a higher volume of oil than water
  - additionally, the plastic will float and have a higher exposure to oil than water



FUTURE EXPERIMENT

- incorporate bacterial lipase degradation using Firmicute bacteria
- make plastic foam from recycled materials



Oil Spill Cleanup Sponge

Isabelle Canty and Jacob Sardinha
The Rivers School, Weston

BioBuilder

Challenge for Next Year's Team

The next phase of our project would be to test the biological side of our product. This would evolve testing lipase enzymes and specific bacteria (unmodified or genetically modified) to see how much oil they could break down. Once we have chosen the bacteria or enzyme we plan to use we could then select the type of plastic to use. This would be based on research done with combining our biological component with the plastic and experimentation with to measure absorbance of different plastics. After we've chosen the plastic the last part of the process would be to decide how combine biological component and the plastic (either separately or together) and to perform a final test of our project.

About This Year's Team

This is the first year Rivers has had a BioBuilder team. The team consist of two members and multiple mentors and teachers. Although we were unfamiliar with the program it was a great experience for both of us and we plan to continue the program next year.

RIVERS

References & Acknowledgements

We would like to give a special thanks to Mr. Pierson and Dr. Bloch for helping us during our planning and experiment. We also want to thank our mentor, Ben, for advising us throughout the process.

NEW ENGLAND BioLabs Inc.

arbor biosciences