

Plastic pollution in ocean may harbor novel antibiotics, study shows

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Plastic pollution in the ocean may serve as a source for novel antibiotics, according to a new student-led study conducted in collaboration with the Scripps Institution of Oceanography. The research will be presented at the American Society for Microbiology's conference in Washington, D.C. on June 9-13, 2022.

Scientists [estimate](#) between 5 and 13 million metric tons of [plastic pollution](#) enter the oceans each year, ranging from large floating debris to microplastics onto which microbes can form entire ecosystems. Plastic debris is rich in biomass, and therefore could be a good candidate for [antibiotic production](#), which tends to occur in highly competitive natural environments.

To explore the potential of the plastisphere to be a source of [novel antibiotics](#), the researchers modified the [Tiny Earth](#) citizen science approach (developed by Dr. Jo Handelsman) to marine conditions. The researchers incubated high and low density polyethylene plastic (the type commonly seen in grocery bags) in water near Scripps Pier in La Jolla, Calif. for 90 days.

The researchers isolated 5 antibiotic producing bacteria from [ocean](#) plastic, including strains of *Bacillus*, *Phaeobacter* and *Vibrio*. They tested the bacterial isolates against a variety of Gram positive and negative targets, finding the isolates to be effective against commonly used bacteria as well as 2 antibiotic resistant strains.

"Considering the current antibiotic crisis and the rise of superbugs, it is essential to look for alternative sources of novel antibiotics," said study lead author Andrea Price of National University. "We hope to expand

this project and further characterize the microbes and the antibiotics they produce."

More information: asm.org

Provided by American Society for Microbiology

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