

THE APOCALYPSE BUG - WHAT IF CRUDE OIL IS ALREADY GONE?

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The TV Show on Peacock Channel called: "Last Light" predicts a world where all of the world's crude oil has been tainted. That possibility may have already occurred.

Over a decade ago, scientists built some bugs that eat crude oil and farted hydrogen. Their initial intent was to create an automatic oil spill cleaning germ.

Some of those bugs may have gone rogue.

Some of those scientists may have gone rogue.

The How-To-Build-Oil-Killing-Bugs instruction manual is freely available on the internet.

The leftist billionaires bought up all of lithium battery mines and companies in order to put oil companies out of business but now they have discovered that there is not enough rare Earth minerals on the whole planet to make the lithium ion batteries they had hoped for. Those same billionaires sabotaged hydrogen energy because it competes with their lithium batteries.

So if the bugs are in the ground eating all of the crude oil, and there is not enough material to make lithium batteries then all the world has left are nuclear and hydrogen to power cars.

Of all industrial accidents, few are messier than oil spills. Floating booms can contain surface oil and keep it from spreading while it is picked up and recovered by giant vacuum cleaners. Straw filters can be used to pick up oil that makes its way into shallow waters. But scientists have been trying for years to develop more effective methods of dealing with spills. Now one team seems to have succeeded. General Electric announced last week that scientists at its Schenectady, N.Y., laboratories have created a microbe that can eat petroleum in quantity.

The bug that eats oil is the result of nearly six years of work by Ananda Chakrabarty, 41, an Indian-born microbiologist. Like most of his colleagues, Chakrabarty knew that at least four strains of the common pseudomonas bacteria contained enzymes that enabled them to break down different hydrocarbons—the major ingredients of oil. He combined these strains into what he describes as a "superbug" that can eat oil faster than any one of the four can individually.

Healthy Appetite. Chakrabarty first determined that the genes for oil-degrading enzymes were carried not on the microbes' chromosomes, where most genetic material is found, but elsewhere in the cell. He discovered that although the "plasmids," as these genes are called, were isolated and transferred from one bacterium to another easily enough, the two batteries of genes he tested would not stay together in the same cell; nor could cells of different strains be paired. When they were, the bacteria competed with and inhibited each other.

Finally—after several experiments —Chakrabarty discovered that irradiating the host organisms with ultraviolet light after plasmid transfer induced a genetic cross-linking that fixed the new genes in place and produced stable bacteria with a healthy appetite for oil. The new microbe, to which Chakrabarty gives the jawbreaking description "multi-plasmid hydrocarbon-degrading pseudomonas," can digest about two-thirds of the hydrocarbons involved in an oil spill. The new microbes have been tested only in the laboratory, where a pinch of microbes will eat an eyedropper of oil in a matter of days. This may seem slow, but it is between ten and 100 times faster than the four other strains of oil-eating microbes can work.

From pipelines to tankers, oil spills and their impact on the environment are a source of concern. These disasters occur on a regular basis, leading to messy decontamination challenges that require massive investments of time and resources. But however widespread and serious the damage may be, the solution could be microscopic -- *Alcanivorax borkumensis* -- a bacterium that feeds on hydrocarbons. Professor Satinder Kaur Brar and her team at INRS have conducted laboratory tests that show the effectiveness of enzymes produced by the bacterium in degrading petroleum products in soil and water. Their results offer hope for a simple, effective, and eco-friendly method of decontaminating water and soil at oil sites.

In recent years, researchers have sequenced the genomes of thousands of bacteria from various sources. Research associate Dr. Tarek Rouissi poured over "technical data sheets" for many bacterial strains with the aim of finding the perfect candidate for a dirty job: cleaning up oil spills. He focused on the enzymes they produce and the conditions in which they evolve.

A. borkumensis, a non-pathogenic marine bacterium piqued his curiosity. The microorganism's genome contains the codes of a number of interesting enzymes and it is classified as "hydrocarbonoclastic" -- i.e., as a bacterium that uses hydrocarbons as a source of energy. *A. borkumensis* is present in all oceans and drifts with the current, multiplying rapidly in areas where the concentration of oil compounds is high, which partly explains the natural degradation observed after some spills. But its remedial potential had not been assessed.

"I had a hunch," Rouissi said, "and the characterization of the enzymes produced by the bacterium seems to have proven me right!" *A. borkumensis* boasts an impressive set of tools: during its evolution, it has accumulated a range of very specific enzymes that degrade almost everything found in oil. Among these enzymes, the bacteria's hydroxylases stand out from the ones found in other species: they are far more effective, in addition to being more versatile and resistant to chemical conditions, as tested in coordination by a Ph.D. student, Ms. Tayssir Kadri.

To test the microscopic cleaner, the research team purified a few of the enzymes and used them to treat samples of contaminated soil. "The degradation of hydrocarbons using the crude enzyme extract is really encouraging and reached over 80% for various compounds," said Brar. The process is effective in removing benzene, toluene, and xylene, and has been tested under a number of different conditions to show that it is a powerful way to clean up polluted land and marine environments."

The next steps for Brar's team are to find out more about how these bacteria metabolize hydrocarbons and explore their potential for decontaminating sites. One of the advantages of the approach developed at INRS is its application in difficult-to-access environments, which present a major challenge during oil spill cleanup efforts.

You could wake up tomorrow to find out that all of the oil is gone, batteries cost millions of dollars each and you have no power. The Department of Energy knew all this was coming decades ago but they did nothing but protect their own internal insider trading staff.