



Researchers at UMBI and MUSC identify microorganisms that can degrade commercial mixtures of PCBs

Polychlorinated biphenyls (PCBs) were widely used between 1929 and the late 1970s for industrial applications requiring chemical stability, low flammability, and high vaporization temperature. The stable properties of these compounds led to their widespread accumulation in the environment, first documented in the 1960s, and to growing concerns about the effects of these environmental contaminants on the health of humans and wildlife. Although the manufacture of PCBs stopped in most countries by the late 1970s, they remain ubiquitous contaminants transported globally in the air, water, and in suspended sediment. As a result of these concerns, PCBs are listed as priority organic pollutants by the EPA. One of the difficulties with microbiological degradation in the environment is that commercial mixtures of PCBs known as Aroclors can contain over 100 different chemical forms and it was widely assumed that many types of microorganisms would be required to break them down. Researchers at the University of Maryland Biotechnology Institute and the Medical University of South Carolina have discovered that as few as 2-3 microorganisms are required to breakdown one of these complex commercial mixtures, Aroclor 1260, and they have identified the microorganisms responsible for this process that occur naturally from Baltimore Harbor sediments. The ability to now culture these microorganisms in the laboratory will enable researchers to study how PCBs are degraded in the environment and develop approaches for treating PCB contaminated sites without currently used practices such as dredging.