Researchers Examine the Environmental Effects of Silver Nanoparticles

Realize it or not, it's a nano world. Many everyday consumer items now utilize the emerging science of nanotechnology, and so, researchers at the University of Missouri-Columbia will examine whether the technology poses future problems for the environment.

"Silver nanoparticles are emerging as one of the fastest growing nanomaterials with wide applications," said Zhiqiang Hu, assistant professor of civil and environmental engineering in the College of Engineering. "Currently, little is known about the adverse effects of silver nanoparticles to human health and their fate in ecological systems."

Hu will be working with Baolin Deng, an associate professor of civil and environmental engineering in the college, to study silver nanoparticles - specifically, their potential affects on wastewater treatment systems. They have received an $84,000 grant from the National Science Foundation. The study will begin in June and take about a year to complete. Hu and Deng will determine how silver nanoparticles interact with bacteria that are used for wastewater treatment.

"Nitrifying bacteria is extremely sensitive to metal toxins and could serve as a potential environmental health indicator," Hu said. "Over time, a small volume of nanoparticles will accumulate in our sewage plants."

The engineers want to find out if silver nanoparticles, known for their bacteria-fighting ability, effectively defend against bacteria found in treatment plants. Hu said the particles enter sewage systems following the washing of hands after people have handled the "nanotechnology enhanced" products.

Some of those products include:

- bandages
- clothing
- cosmetics
- car wax
- toys

Hu said laundry detergents, soaps, water filters and washing machines also employ nanotechnology and can directly dispense silver nanoparticles into the sewage system.

Source: University of Missouri