

# Scientists evaluate different antimicrobial metals for use in water filters

May 24 2012

---

Porous ceramic water filters are often coated with colloidal silver, which prevents the growth of microbes trapped in the micro- and nano-scale pores of the filter. Other metals such as copper and zinc have also been shown to exhibit anti-microbial activity.

Researchers from Princeton University in New Jersey used [atomic force microscopy](#) (AFM) measurements to study the adhesion interaction between *Escherichia coli* (*E. coli*) bacteria and colloidal silver, silver nanoparticles, and copper nanoparticles, as well as the interactions of the bacteria and the three different types of metal to porous clay-based ceramic surfaces.

As reported in the American Institute of Physics' (AIP) [Journal of Applied Physics](#), of the three antimicrobial metals studied the silver nanoparticles had the highest affinity for *E. coli* bacteria. The colloidal silver had the highest affinity for a porous ceramic surface and is therefore the least likely to leach into the filtrate.

However, since the adhesion between colloidal silver and *E. coli* is in the same range as the adhesion between copper and the bacteria, copper may have potential as a less expensive disinfectant coating for ceramic water filters.

**More information:** Adhesion of *E. coli* to Silver- or Copper-Coated Porous Clay Ceramic Surfaces, I. Yakub (1) and W.O. Soboyejo, *Journal of Applied Physics*.

Provided by American Institute of Physics

Citation: Scientists evaluate different antimicrobial metals for use in water filters (2012, May 24)  
retrieved 24 April 2024 from

<https://phys.org/news/2012-05-scientists-antimicrobial-metals-filters.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.