

# Scientists evaluate different antimicrobial metals for use in water filters

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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

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