

Commentary



October 1998 Volume 16 Number 10 p888

October 1998
Table of
Contents

Silver as a biocide: Will resistance become a problem?

Amit Gupta and Simon Silver

Amit Gupta and Simon Silver are in the Department of Microbiology and Immunology, University of Illinois, Chicago IL 60612 (agupta@uic.edu and simon@uic.edu).

Human encounters with silver-containing products are surprisingly numerous worldwide¹³, primarily as a biocide or antimicrobial agent. In water usage, silver- and copper-based disinfectants are used in hospital and hotel distribution systems to control infectious agents (for example, *Legionella*). Silver, together with copper, is commonly used to inhibit bacterial and fungal growth in chicken farms and in postharvest cleaning of oysters. Silver is used to sterilize recycled water aboard the MIR space station and on the NASA space shuttle⁴. Popular home water purification units in the United States contain silverized activated carbon filters along with ion-exchange resins. In Mexico, Microdyn (colloidal silver in gelatin) is sold in supermarkets to disinfect salad vegetables and drinking water. A quick surf on the Internet shows that silver is offered by several companies in different forms, and marketed as a health food additive--"Nature's alternative to antibiotics"--although the US Food and Drug Administration (FDA; Rockville, MD) has proposed that over-the-counter drug products containing colloidal silver or silver salts are not generally recognized as safe or effective for internal or external use and are frequently misbranded.⁵