

# Drugstore in the dirt

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French clay that kills several kinds of disease-causing bacteria is at the forefront of new research into age-old, nearly forgotten, but surprisingly potent cures. Among the malevolent bacteria that a French clay has been shown to fight is a "flesh-eating" bug (*M. ulcerans*) on the rise in Africa and the germ called MRSA, which was blamed for the recent deaths of two children in Virginia and Mississippi.

"There are very compelling reports of clay treating infections, but that's anecdotal evidence, not science," said Lynda Williams, an associate research professor in the School of Earth and Space Exploration at Arizona State University, Tempe. Williams is coordinating three teams of U.S. researchers (at ASU, USGS, and SUNY-Buffalo) studying healing clays under a two-year, \$440,000 grant from the National Institutes of Health-National Center for Complementary and Alternative Medicine. Her ASU colleague Shelley Haydel is lending her expertise in clinical medicine to perform the microbiological research.

For thousands of years, people have used clay to heal wounds, soothe indigestion, and kill intestinal worms. Though the practice has declined in modern times, the recent rise of drug-resistant germs has scientists looking more closely at these ancient remedies to learn exactly what they can do and how they do it.

"We're beginning to generate the first scientific evidence of why some minerals might kill bacterial organisms and others might not," said Williams.

In laboratory tests at ASU's Biodesign Institute, co-PI Haydel, an assistant professor in the School of Life Sciences, showed that one clay killed bacteria responsible for many human illnesses, including: *Staphylococcus aureus*, methicillin-resistant *S. aureus* (MRSA), penicillin-resistant *S. aureus* (PRSA), and pathogenic *Escherichia coli* (*E. coli*).

It also killed *Mycobacterium ulcerans*, a germ related to leprosy and tuberculosis that causes the flesh-eating disease Buruli ulcer. This effect was first described in 2002, by Line Brunet de Courssou, a French humanitarian working in the Ivory Coast, Africa, who cured Buruli ulcers with daily applications of French clay she knew from childhood. Currently, advanced cases of Buruli ulcer can only be cured by surgical excision or amputation.

The new medicinal clay research will be presented on Monday, 29 October 2007, at the Geological Society of America Annual Meeting in Denver.

In the same session there will be a related presentation describing the work 100 years ago of Julius Stumpf, a German physician and scientist who used white clay from Germany to treat a deadly form of Asian cholera; diphtheria; gangrene; ulcers of the tibia (a bone between the knee and foot); and the skin disease eczema.

Source: Geological Society of America

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