

Bugs struck down by 'super-oxidised' water

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WATER washes away many things, but could it be used to kill harmful viruses, fungi and bacteria in wounds? The developers of a form of "super-oxidised" water certainly think so - and they claim it may do so more effectively than bleach, without harming human tissue.

Information on the product, called Microcyn, was presented last week at Global Healthcare, a biomedical business conference in Monte Carlo, Monaco. It revealed that wounds of patients with diabetes treated with the product and an antibiotic healed within 43 days on average, compared with 55 days for patients given the standard treatment of iodine plus an antibiotic.

Oxychlorine ions are the key ingredient, rapidly piercing the walls of free-living microbes and killing them. Human cells are spared because they are tightly bound together in a matrix, says Hoji Alimi, founder of Oculus, the company in Petaluma, California, that developed Microcyn. "Microcyn only kills cells it can completely surround," he says.

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Ordinarily, water consists of hydroxyl and hydrogen ions as well as H₂O molecules. However, by exposing purified water to sodium chloride through a semi-permeable membrane and then using electrolysis, various oxychlorine ions are formed too. These kill microbes and viruses, but are present in much lower amounts than in bleach, which also contains a slightly different combination of ions, including large amounts of the highly reactive hypochlorite ion.

Despite containing 300 times less hypochlorite than bleach, Microcyn killed 10 strains of bleach-resistant bacteria, according to a study by Eileen Thatcher of Sonoma State University in Rohnert Park, California. "It may be that other, unusual ions [that are] in Microcyn but not bleach are instantly lethal to bugs," says Thatcher. Alimi has also found a way to stabilise the ions by making them react with and regenerate each other during storage, so that the fluid remains active for up to two years.

While Microcyn was officially approved in the US for cleaning wounds around two years ago, some physicians have also been using it "off label" to accelerate healing by repeatedly applying it to the wound. "When you spray it on, you see the treated tissue 'pink up' and go beefy, which is good because it means the oxygen supply has resumed," says Cheryl Bongiovanni, director of wound care at the Lake District Hospital in Lakeview, Oregon, who has used Microcyn on around 1000 diabetic patients with leg and foot wounds over the past 18 months. Official phase II trials to test the product's wound-healing potential are currently taking place in the US and Europe.

"It does seem promising," says Andrew Boulton of the Manchester Royal Infirmary in the UK, who is conducting one such trial. "Hopefully it will confirm our initial good experience."

Tracy Kelly of Diabetes UK says that 15 per cent of people with diabetes who develop foot ulcers eventually suffer amputations. "We would welcome any safe, effective treatment which could help hasten recovery," she says.