

# Colloidal Silver: Clinically Proven Destroyer of Multidrug-Resistant Bacteria

Guest article by natural health author Tony M. Isaacs

In recent years the medical community, including mainstream medicine and world health groups, have become increasingly alarmed by the proliferation of multidrug-resistant bacteria and the rising toll of death and illness that we're now facing — and with very good cause.

After all, literally *millions* of people are dying, worldwide, from bacterial infections. In the United States, by some estimates drug-resistant bacterial infections have become the fourth leading cause of death, behind only cancer, heart disease and stroke. Actually, the fifth leading cause of death when you include the hundreds of thousands of deaths caused by Big Pharma drugs and doctor's medical mistakes.

While mainstream medicine is searching, largely in vain, for even more powerful antibiotics (and lobbying for public funding of research to find new drugs), it's almost guaranteed that whatever drugs they may be able to develop, if any, will ultimately fail the same as all previous drugs and drug combinations have failed. This, due to the ability of bacteria to mutate and become resistant to any drug mankind produces.

Meanwhile, a natural answer is right under medical science's noses — one that mankind has used successfully to combat infections for hundreds of years. That answer is, you guessed it, *colloidal silver*.

And, contrary to common mainstream misinformation, colloidal silver has been scientifically proven in multiple studies to be effective against multidrug-resistant bacteria.

That's right — I said *scientifically* proven in *multiple* studies.

But you aren't likely to hear about such studies from mainstream medicine, which continues to misinform the public with statements to the effect that colloidal silver is “unproven,” has little or no value and could be dangerous.

The truth — the actual clinical and scientific proof — is quite the opposite, as we'll demonstrate by examining a recent clinical review in this article which clearly demonstrates colloidal silver's abilities to fight infectious microbes *including multidrug-resistant bacteria*.

## Mainstream Bias and Misinformation About Colloidal Silver

One might wonder why mainstream medicine would not only ignore colloidal silver, but outright misinform the public about it and even go to great lengths to suppress and persecute colloidal silver.

The answer is simple: greed.

Mainstream medicine is all about profit — and inexpensive, easily-made, *natural* colloidal silver represents a huge threat to the billions of dollars that Big Pharma makes on their patented, often less effective, less safe and far more expensive lab-created unnatural antibiotic drugs.

Sadly, with mainstream medicine, when it comes to profit versus healing, healing often comes in a distant second.

Over 95% of the FDA approved prescription and over-the-counter mainstream medications have side effects — side effects which often lead to additional health problems which results in more doctor visits, more exams and lab tests, and, most importantly, more prescription drugs.

As my friend and early mentor Jon Barron observed in his wonderful book *Lessons from the Miracle Doctors*, by the time someone reaches the age of 65 it's not uncommon for them to take up to 10, 12 and even 15 prescribed and over-the-counter medications daily. Yet their ever-increasing

health problems all began with maybe one or two issues that most likely could have been treated and even resolved, *naturally*.

Doctors are taught at medical schools, and the number one source of funds for medical schools is the Pharmaceutical Industry (aka Big Pharma). The curricula in medical schools is set by the American Medical Association, which is also firmly in the hands of Big Pharma, and is firmly against natural alternatives to mainstream medicine.

Thus, doctors are taught a very great deal about treating patients with pharmaceutical drugs and very little about safer, natural alternatives.

So ridiculously biased and deficient is their training that a doctor may have no more than a single hour to hour-and-a-half lecture on the role of diet and nutrition during their entire medical education.

What little, if anything, they're taught about natural alternatives such as medicinal herbs or colloidal silver is that they're perhaps mildly effective at best and could very well be dangerous.

In any given year, in America alone, an average of over 106,000 people die from properly prescribed and administered prescription medications compared to virtually no deaths from herbs, vitamins, minerals, and supplements like colloidal silver. According to some sources another 250,000 Americans die, per year, from medical mistakes.

And yet it's the *natural substances*, [which kill virtually no one](#), and which mankind has used to nourish and heal itself for millennia, that we're constantly told are "dangerous" while synthetic pharmaceutical drugs which kill hundreds of thousands are deemed by medical science to be the "safe" alternative. Simply absurd!

Owing to their training, when doctors treat patients for any disease condition they automatically reach for their prescription pads to prescribe drugs made by guess who? And then in far too many instances patients are caught in a trap of ever increasing side effects, each of which require ever-increasing numbers of drugs to offset. As I have oft-stated, it's a great model for profit but a horrible one for healing and humanity.

### **Multidrug-resistant Bacteria**

Before we take a good look at the scientific proof of colloidal silver's effectiveness, first a bit of background about those increasingly deadly bacteria:

In 2014 I wrote a small article titled "The Rise of the Superbugs End of the Age of Antibiotics" that was published by *Natural News*.

The article detailed how mainstream medicine was increasingly losing the war against bacterial infections as the disease-causing bacteria were mutating and becoming resistant to every new antibiotic drug mainstream medicine could develop. What's more, mainstream medicine was becoming increasingly unable (or unwilling) to develop more potent antibiotics.

In my article, I noted that in 2014 federal health officials reported that at least 2 million Americans were being infected by antibiotic-resistant bacteria every year, and that at least 23,000 were dying from those infections. Among the infections which were causing the most alarm were:

- Methicillin-resistant *Staphylococcus aureus* (MRSA), which is one of the most common hospital-acquired infections.
- Carbapenemase-producing *Klebsiella pneumoniae*, or KPC – a particularly dangerous bug which had been found in hospitals in at least 44 states and no combination of antibiotics had been able to conquer KPC.
- Multi-drug-resistant *Salmonella Heidelberg*, which the CDC reported in 2013 had been found in 23 states and was linked to meat from Foster Farms.
- Multi-drug-resistant tuberculosis, or MDR-TB, and an even worse version of resistant

tuberculosis, XDR-TB (extensively drug-resistant tuberculosis). In 2011, the World Health Organization recorded 9 million cases of tuberculosis, 1.5 million of which were fatal.

- *Clostridium difficile* (*C. difficile*), an old bacterial nemesis and member of the *e. coli* family of bacteria found in the gut which was making an alarming comeback and proving to be increasingly deadly. Notably, the primary cause was bacteria that compete with *C. difficile* being wiped out by antibiotic drugs.

In the four years since I wrote that article, the situation has gone from bad to worse as more and more bacteria have mutated into drug-resistant forms while mainstream medicine has failed to come up with new, more powerful antibiotics or combinations of antibiotics that work.

### **The Scientific Proof of Colloidal Silver's Effectiveness**

Okay, let's move on to the scientific proof I promised about colloidal silver's effectiveness against multidrug-resistant bacteria.

I especially want to tell you about an outstanding review of clinical studies titled "Silver Nanoparticles: The Powerful Nanoweapon Against Multidrug-Resistant Bacteria" published in 2012 in the *Journal of Applied Microbiology*.

The review, which appears in PubMed and has been cited 288 times, examined scientific studies and literature about silver nanoparticles as of 2012.

Simply put, it's one of the best and most comprehensive clinical reviews I've seen on antimicrobial silver (and I might mention that I've been researching and writing about silver's use against infectious microbes for almost 20 years).

As you'll see, the review leaves no doubt about the proven effectiveness of colloidal silver against multidrug-resistant bacteria. Here's the summary from the study authors:

*"In the present scenario, pharmaceutical and biomedical sectors are facing the challenges of continuous increase in the multidrug-resistant (MDR) human pathogenic microbes.*

*Re-emergence of multidrug-resistant (MDR) microbes is facilitated by drug and/or antibiotic resistance, which is [an] acquired way of microbes for their survival and multiplication in uncomfortable environments.*

*MDR bacterial infections lead to significant increase in mortality, morbidity and cost of prolonged treatments. Therefore, development, modification or searching the antimicrobial compounds having bactericidal potential against MDR bacteria is a priority area of research.*

*Silver in the form of various compounds and bhasmas [i.e., Ayurvedic medicinal preparations — ED] have been used in Ayurveda to treat several bacterial infections since time immemorial.*

*As several pathogenic bacteria are developing antibiotic resistance, silver nanoparticles are the new hope to treat them. This review discusses the bactericidal potential of silver nanoparticles against the MDR bacteria. This multiactional nanoweapon can be used for the treatment and prevention of drug-resistant microbes."*

Following the summary is the review introduction, wherein the authors noted that silver had been used since ancient times due to its strong antimicrobial potential, but the use of silver had declined after the advent of mainstream medicine's synthetic antibiotic drugs.

The authors also wrote that the antimicrobial effects of silver could be increased by manipulating the size of silver nanoparticles, with particles ranging in size between 10 to 100 nanometers (nm) demonstrating the strongest bacterial potential against both Gram-positive bacteria such as *Streptococcus*, *Staphylococcus* and Gram-negative bacteria such as *E. coli*. (Gram-positive bacteria do not have an outer cell membrane whereas Gram-negative bacteria do have such a membrane).

The authors further stated in their introduction that the bactericidal activity of silver nanoparticles against multidrug-resistant as well as multidrug-susceptible strains of bacteria had been studied by

many scientists and that science had proven that silver nanoparticles were indeed “powerful weapons” against several kinds of multidrug-resistant bacteria.

Under the heading “Silver-based antimicrobials: prehistorical, historical and current status” it was noted by the clinical reviewers that:

“...silver ions are highly reactive, and they bind to proteins followed by structural changes in the bacterial cell wall and nuclear membrane, which leads to cell distortion and death.”

Citing three clinical studies, the authors noted that silver ions have the capacity to inhibit bacterial replication by binding and denaturing bacterial DNA, and that silver ions reacted with a group of proteins known as thiol proteins, resulting in DNA condensation and the death of the bacteria cells.

Moving on, we come to the section of the review titled “Nanoparticles”, where the review explains that:

“The metallic nanoparticles such as copper, titanium, magnesium, zinc, gold and alginate have a strong bactericidal potential owing to their large surface-area-to-volume ratio (Gu et al. 2003; Ahmad et al. 2005).

Among all, silver nanoparticles have proved to be the most effective antimicrobial agent against bacteria, viruses and other eukaryotic micro-organisms”.

Keep firmly in mind that these statements are based on the findings of multiple clinical studies the reviewers examined. In other words, they distilled this information from *existing* clinical studies.

According to the review, silver nanoparticles:

- Are effective bactericidal agents against broad spectrum of bacteria, including antibiotic-resistant strains
- Are fast-acting fungicide against common fungi including *Aspergillus*, *Candida* and *Saccharomyces*
- Inhibit HIV-1 virus replication
- Enhance inflammatory and repair processes
- Suppress tumour necrosis factor (TNF), interleukin (IL)-12 and IL-1b (think “cancer”)
- Induce apoptosis (cellular death) of inflammatory cells
- Modulate cytokines in wound healing
- Inhibit biofilm formation (the process by which microbial organisms such as bacteria irreversibly attach to and grow on a surface)

And yet the medical authorities continue to tell us that colloidal silver, consisting of silver ions and nanoparticles, have no proven benefits!

In the section of the review titled “Silver nanoparticles: the broad spectrum of antimicrobials,” the authors tell us their review found that:

“...the bactericidal efficacy of silver nanoparticles was investigated by many researchers and their effective potential against [a] broad range of microbes was proved, including antibiotic-resistant bacteria.”

In this same section, the review included a table of the bacterial organisms in which silver ions and silver nanoparticles had proven to be effective, with references to studies in each instance.

Following is an adaption of that table:

#### **Activity of silver ions and nanoparticles against broad spectrum of bacteria**

| <b>Form of silver</b> | <b>Target organisms</b>                                  | <b>References</b>                                    |
|-----------------------|--|--|
| Silver ions           | <i>Staphylococcus aureus</i> and <i>Escherichia coli</i> | Feng <i>et al.</i> (2000)                            |
| Silver nanoparticles  | <i>E. coli</i>   | Sondi and Salopek (2007)<br>Pal <i>et al.</i> (2007) |

|  |  |                                  |
|--|--|----------------------------------|
| Silver ions  | RNA viruses  | Butkus <i>et al.</i> (2004)      |
| Silver nanoparticles                                   | <i>E. coli</i> , <i>Vibrio cholerae</i> , <i>Pseudomonas aeruginosa</i> and <i>Salmonella typhus</i>   | Morones <i>et al.</i> (2005)     |
| Silver nanoparticles                                   | <i>E. coli</i> in liquid and solid medium  | Baker <i>et al.</i> (2005)       |
| Silver ions  | <i>E. coli</i>   | Yamanaka <i>et al.</i> (2005)    |
| Silver nanoparticles                                   | <i>Staph. aureus</i> and <i>E. coli</i>  | Shahverdi <i>et al.</i> (2007)   |
| Silver nanoparticles                                   | <i>E. coli</i> , <i>Salmonella typhi</i> , <i>Staphylococcus epidermidis</i> <i>Staph. aureus</i>  | Ingle <i>et al.</i> (2008)       |
| Silver nanoparticles                                   | <i>Phoma glomerata</i> , <i>Phoma herbarum</i> , <i>Fusarium semitectum</i> , <i>Trichoderma</i> sp. and <i>Candida albicans</i>                 | Gajbhiye <i>et al.</i> (2009)    |
| Silver nanoparticles                                   | <i>E. coli</i> , <i>Staph. aureus</i> and <i>Ps. aeruginosa</i>  | Birla <i>et al.</i> (2009)       |
| Silver nanoparticles                                   | <i>E. coli</i> and <i>Staph. aureus</i>  | Gade <i>et al.</i> (2010)        |
| Silver nanoparticles                                   | <i>E. coli</i> and <i>Ps. aeruginosa</i>   | Geethalakshmi and Sarada (2010)  |
| Silver nanoparticles                                   | <i>E. coli</i> , <i>Staph. aureus</i> and <i>Ps. aeruginosa</i>  | Bonde <i>et al.</i> (2011)       |
| Silver nanoparticles                                   | <i>Ps. aeruginosa</i> , <i>Staph. aureus</i> , pathogenic fungi <i>Aspergillus flavus</i> and <i>Aspergillus niger</i>                           | Govindaraju <i>et al.</i> (2010) |
| Silver nanoparticles                                   | <i>Staph. aureus</i> , <i>E. coli</i> , <i>Klebsiella pneumoniae</i> , <i>B. subtilis</i> , <i>Enterococcus faecalis</i> , <i>Ps. aeruginosa</i> | Namasivayam <i>et al.</i> (2011) |
| Silver nanoparticles impregnated on the wound dressing | <i>E. coli</i> and <i>Staph. aureus</i>  | Maneerung <i>et al.</i> (2008)   |

Note that the above table differs from the original review only in that it excludes three non-nano forms of silver which are not germane to this article, silver sulfadiazine (AgSD), silver zeolite and the solid compound silver nitrate (AgNO<sub>3</sub>), all of which are also antimicrobial thanks to the silver in them.

The reviewers went on to state the following drug-resistant and multidrug-resistant pathogens have been found to be susceptible to colloidal silver nanoparticles in the clinical studies they reviewed:

- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- *Streptococcus mutans*
- Methicillin-resistant *Staphylococcus aureus*
- Methicillin-resistant *Staphylococcus epidermidis* (MRSE)
- *Streptococcus pyogenes*
- Ampicillin-resistant *Escherichia coli*
- Erythromycin-resistant *Streptococcus pyogenes*
- Multidrug-resistant *Pseudomonas aeruginosa*
- *Candida albicans*
- *Bacillus subtilis*
- *Salmonella typhimurium*
- *Klebsiella pneumonia*
- *Salmonella typhi*

- *Staphylococcus epidermidis*
- *Proteus vulgaris*
- *Klebsiella pneumoniae*

The authors of the clinical review went on to say their review of clinical studies demonstrated that...

*“Colloidal silver nanoparticles were found to possess significant bactericidal potential against MRSA and Gram-positive and Gram-negative bacteria.*

*...Gram-negative bacteria include members of the genera Acinetobacter, Escherichia Pseudomonas, Salmonella and Vibrio.*

*Gram-positive bacteria include Bacillus, Clostridium, Enterococcus, Listeria, Staphylococcus and Streptococcus.*

*Antibiotic-resistant bacteria include methicillin-resistant and vancomycin-resistant Staphylococcus aureus (MRSA and VRSA) and Enterococcus faecium, by preventing biofilm formation, which act as efficient barriers against antimicrobial agents and the host immune system to protect the bacterial colony.”*

The remainder of the review goes into considerable depth in detailing the various studies reviewed, and the mechanisms of antimicrobial action and resistance.

It also takes detailed looks at the way in which silver nanoparticles work effectively against bacteria, including multidrug-resistant bacteria.

Finally, the review discusses the roles of the size, shape, concentration and doses of silver nanoparticles. It concludes:

*“Silver nanoparticles are used as effective antimicrobial agents. They have bactericidal potential against multidrug-resistant organisms.”*

Rather than attempt to restate or copy the many thousands of words contained in the rest of the review, I will instead refer readers who want to know more to the complete review which can be found here:

- [Silver Nanoparticles: The Powerful Nanoweapon Against Multidrug-Resistant Bacteria](#)

However, I do want to briefly address one statement in the review that I found particularly important:

*“Selective toxicity is an important feature of an ideal antimicrobial drug in which the drug is harmful only to the parasite without being harmful to the host.*

*Targets of ideal antimicrobial agents are anatomic structures and/or biosynthetic functions present uniquely in micro-organisms rather than the host cell.”*

The reason I emphasize that statement is that colloidal silver, although not a drug, perfectly fits the description of such an ideal antimicrobial, despite the shameless mainstream medical misinformation to the contrary.

As you can clearly see from this review, clinical researchers have proven *beyond any shadow of a doubt* that silver kills multidrug-resistant microbes, and is ultimately the key to controlling today's scourge of drug-resistant infections.

## Why We've Seen No Solution from Big Pharma for Multidrug-Resistant Bacteria

In this author's opinion, there are four primary reasons why we've yet to see a solution for multidrug-resistant bacteria from medical science:

**Reason #1:** One reason is that mainstream medicine has been lobbying incessantly for taxpayer funding to pay for the development of a new super antibiotic, which will then be sold at hugely inflated prices to further inflate the coffer of Big Pharma by billions of dollars. In other words, they want *taxpayers* to foot the costs of the research, but then they want to sell the drug to the very taxpayers who already paid for its development!

**Reason #2:** Another reason is that regardless of how new, powerful antibiotics may be funded and developed, such drugs are ultimately doomed to failure, and quite possibly sooner than later. Already we've seen bacteria multiply and mutate faster than mankind can create new answers.

**Reason #3:** The third reason, as alluded to earlier, is that treating long-term chronic illness with pharmaceutical drugs is where it's at when it comes to profits for mainstream medicine. Just look at all the chronic conditions that tens upon tens of millions of people are being treated for: high blood pressure, heart disease, diabetes, chronic obstructive pulmonary disease (COPD), arthritis...the list goes on and on.

Chronic conditions are where the money is, so that's what the big drug companies focus their attention on when it comes to the development of new drugs. They're *barely* interested in developing new antibiotic drugs, because they can't hook the user on them for the long-term, which is what vastly magnifies their profits.

Now consider this: Exactly what has mainstream medicine actually "cured" in the past half century?

Even cancer, which still has no cure despite the annual rosy claims we've all heard for the past 50 years, has largely been turned into a chronic condition which is treated until cancer either wins the battle, the patient dies due to their chemo or radiation treatments, or the insurance and life savings run out.

Cynical, perhaps. But true nevertheless.

As the saying goes "A patient cured is a patient lost". So, instead of *curing* illness, mainstream medicine instead merely *treats* it by managing symptoms with the long-term use of man-made drugs whose side-effects lead to other conditions (and more drugs) in a never-ending cycle.

**Reason #4:** And that brings us to the *fourth* reason that we're losing the battle against multidrug-resistant bacteria: ignoring and suppressing information about colloidal silver's proven effectiveness, and even downright persecuting it, as well as ignoring other powerful natural pathogen-destroyers such as oil of wild oregano, olive leaf extract, and goldenseal.

As the 2012 clinical review noted, silver has been used by mankind for many centuries. Unlike mainstream antibiotics, there's no evidence that bacteria have been able to develop significant resistance to silver in all of this time.

Today, an estimated 10 million people in the U.S. alone use colloidal silver. Those people have witnessed firsthand what silver can do, including destroying drug-resistant pathogens.

Most colloidal silver solutions are inexpensive compared to virtually all mainstream antibiotics, especially the most powerful ones.

Indeed, I always make sure to keep plenty of colloidal silver on hand in my home. I've personally used colloidal silver for over 20 years and it has virtually never let me down when used separately and in some instances in combination with other natural items for everything from stomach distress, red-eye and eye infections, cuts and wounds, mild to severe coughs and chest infections and a nasty MRSA infection.

I've even used colloidal silver in combination with some key herbals to save one of my rescued

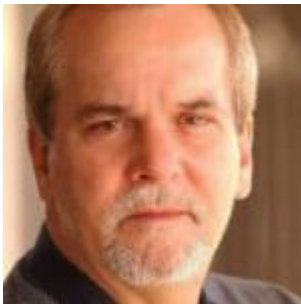
“found dogs” after it was bitten by a rabid skunk.

But, we’re told by the medical monopoly, colloidal silver is not effective. Stay away, they say, from that natural silver, which bacteria have *not* developed resistance to, and instead buy our increasingly less effective, dangerous, and far more expensive patented medicines.

To the tens of millions of us who know better, that’s pretty much like saying: “Who are you going to believe, mainstream medical misinformation or your lying eyes?”

I choose my lying eyes and I also choose the incontrovertible scientific proof of colloidal silver’s effectiveness.

### **About the author**



Tony Isaacs is a member of the National Health Federation and the American Botanical Council. He is a natural health advocate and researcher and the author of books and articles about natural health including “[Cancer’s Natural Enemy](#).” Mr. Isaacs articles are featured at The Truth About Cancer, the Health Science Institute’s Healthiertalk website, CureZone, the Crusador, Health Secrets, the Cancer Tutor, the Silver Bulletin, the New Zealand Journal of Natural Health, and several other venues. In addition, he hosts the Yahoo Oleandersoup Health group of over 3500 members and the CureZone “Ask Tony Isaacs – Featuring Luella May” forum. He is also the local moderator of the CureZone Cancer Alternatives forum and he is a regular contributor to Curezone’s Colloidal Silver forum, having researched and written about colloidal silver for almost 20 years. Tony and his partner Luella May host [The Best Years in Life](#) natural health website where their motto is “It’s never too late or too early to begin living longer, healthier and happier lives.”