

BIO NEW LIFE

CREATING WELLBEING

NANO SILVER AND NANO GOLD

Crystalline non-ionic
nanoparticles

ADVANCEMENT THROUGH NANOTECHNOLOGY

IMPORTANT INFORMATION

The description of the preparation properties contained in this study is for information only has been obtained from scientific studies of clinical trials and scientific experiments. The product is not a drug! For legal reasons, it cannot be used as a dietary supplement and as a food product. The use of the product for the above-mentioned reasons depends only on the creativity of the buyer.

NANO SILVER CRYSTALLINE NON-IONIC NANOPARTICLES

Pathogenic organisms cannot develop resistance to Nano Silver, and their mutations are just as susceptible to its rapid action. There was no development of silver-resistant microorganisms.

In addition, silver also contributes to faster healing of damaged tissues.



Nano silver crystalline non-ionic nanoparticles structure of atom and non clustering this mean that it retains the properties for many years and it is not harmful to the human body (does not cause argyria).



SILVER EFFECTIVE FOR CENTURIES

The anti-bacterial properties of silver were used in ancient times. Drinking from silver cups or throwing a silver coin into milk or water prolonged the durability and freshness of liquids.

In contrast, during the 14th century epidemic of plague in Europe, rich parents, as a way of preventive medicine, gave their children to suck silver spoons.

Silver has been used for various purposes already 4,000 BC. In Persia, water was kept in silver vessels, and the Greek and Babylonian civilizations fully knew the disinfecting properties of silver. Similarly, the Romans used silver for medical purposes.

The monarchs and members of the noble families ate on silver sets, in this way various plagues that decimated Europe "bypassed" the ruling elites, because silver was getting in negligible amounts at each meal to their organisms and thus effectively defended against

pathogenic organisms and they also strengthened their immune system.

In the USSR, after the end of World War II, biological weapons were developed, also containing anthrax rods, plagues and other microorganisms as a charge to create a defensive shield and offensive weapon. At that time, in Czechoslovakia, a preparation with an extremely powerful action against biological weapons called Movidyn was created. Movidin was a powdered form of silver, no smell, no taste, and showed a biocidal effect at a concentration of 1 per billion. Its effectiveness was studied in infected wells where it completely destroyed the germs of typhus, malaria, cholera and dysentery.

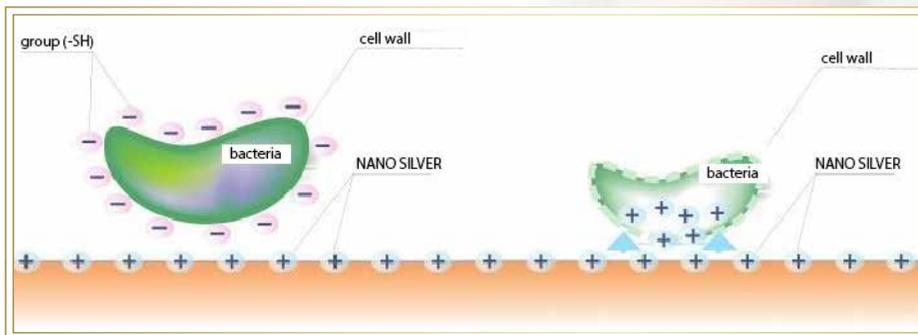


SILVER – WIDESPREAD USE

In March 1978, the journal Science Digest featured an article titled: Silver The Most Powerful Weapon Against Germs, which reported that more than half of the world's airlines (including British Airway, Lufthansa and Air France) use silver water filters as a method of protecting passengers against pathogenic germs found in water. After testing 23 different water purification systems, NASA installed a filtration system in their shuttles based on silver.

In Japan, silver is widely used in air purification devices.

In Ayurvedic India's medicine, silver is prescribed to build up the strength and vitality of the body.



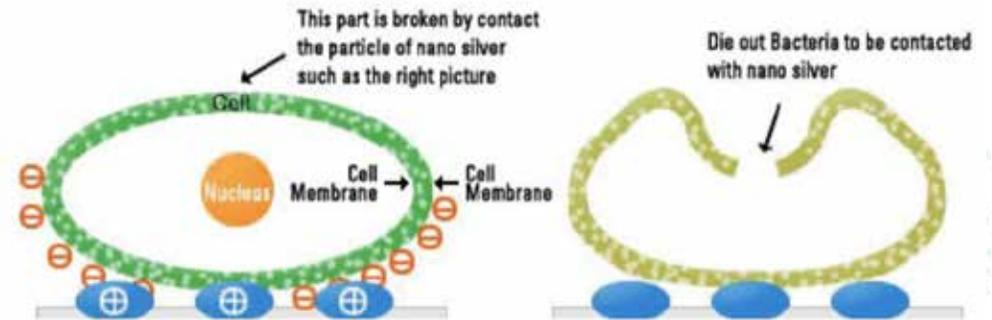
HOW SILVER IMPACTS OUR HEALTH?

With these ideas in mind, we searched for documented references of colloidal silver use that might give a broader baseline for understanding long term use of colloidal silver and its long term impact on the health of humans. In other words, was silver a part of the normal diet for any indigenous people, and could it be demonstrated that silver was safe in reasonable quantities through generations of silver consumption spanning at least 200 years?

Although we suspect there are other special locations in Asia, the best researched evidence of extremely long term use of silver in the diet is via studies conducted with the people of the Hunza valley, in the northern part of Pakistan. Studies conducted by Dr. Henri Coanda (an engineer, not an MD), among others, document a high level of silver, clay particles, and other trace minerals in Hunza water supply. The Hunza valley has attracted much attention due to the incredible state of health of the people and their above average life spans.

HOW DOES NANO SILVER WORK?

A cell wall of bacteria has a complex chemical composition. The main compound of the bacterial cell wall is a peptidoglycan (murein) which consists of long chains of sugar linked with short chains of amino acids. In the gram-positive bacteria the cell wall consists of several layers of peptidoglycan and is much thicker than the cell wall of gram-negative bacteria. One of the amino acids which is a compound of bacterial cell wall is a cysteine (its side group is illustrated below).



A thiol group (-SH) which is a part of cysteine is highly reactive. Two cysteine may be linked to each other with

disulfide bridges which are very strong chemical bondings. They play a very important part in creating a tertiary structure of proteins.

At the molecular level, silver has a capability to absorb oxygen and at the same time acting like a catalytic agent in the process of oxidation. The atomic oxygen is being absorbed on the surface of silver ions in the solution. It reacts effectively with thiol groups of bacteria which results in removal of hydrogen atoms and in creation of chemical bondings -S-S- by the sulfur atoms.

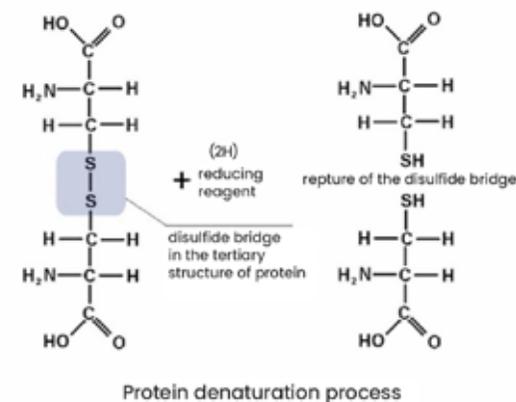
Thereby, bacteria is not able anymore to conduct the process of respiration because of the fact that its respiratory chain had been closed. This phenomenon leads to annihilation of bacteria.

Mammalian cells differ from bacterial cells in the chemical composition of the cell wall.

Therefore, silver does not affect mammalian cells in the way it affects bacterial cells. This type of interaction is associated with the cell structure. In summary, any cell that does not have a chemically resistant cell wall is susceptible to silver (like bacterial cells, viruses, and other microorganisms).

Another type of destructive effect of silver ions on bacteria is the process of protein denaturation. Silver ions have the ability to break disulfide bonds in proteins. This leads to irreversible destruction of the three-dimensional structure of proteins. In other words, this phenomenon inactivates the biological activity of proteins.

Remarkably important is also the fact that silver ions affect in a destructive way a DNA of bacteria. Sulfur and phosphorus, the main elements of deoxyribonucleic acid (DNA), determines the process of binding silver nanoparticles with the genetic material of bacteria. This results in precluding a synthesis of new DNA strands which in the end leads to irreversible damage.





NANO SILVER VS ANTIBIOTICS

These days, antibiotics eliminate just certain kinds of bacterias and fungus. Moreover, antibiotics cannot kill viruses like a flu virus. In comparison to antibiotics, nano silver is a safe, non-toxic substance which does not accumulate in the organism. It kills almost all pathogens and their mutations. On average, each antibiotic is capable to eliminate 6 different kinds of pathogenic organisms. Nano silver kills over 650 various pathogens.

Nano silver is characterised by a strong positive charge while the majority of antibiotics does not possess it. This feature makes silver literally search for and immediately eliminate almost any kind of pathogen.

Dr Robert O. Becker said: "Silver is a catalyst. It kills pathogens immediately by oxidizing it. Antibiotics do not affect viruses. They only have an influence on bacterias – they kill them at the moment when the bacteria starts to divide (antibiotics like penicillin) or they just stop the division process of bacteria. In the first case, it may take a few days until antibiotic starts working. In the second case, the bacteria is not annihilated – only the process of its

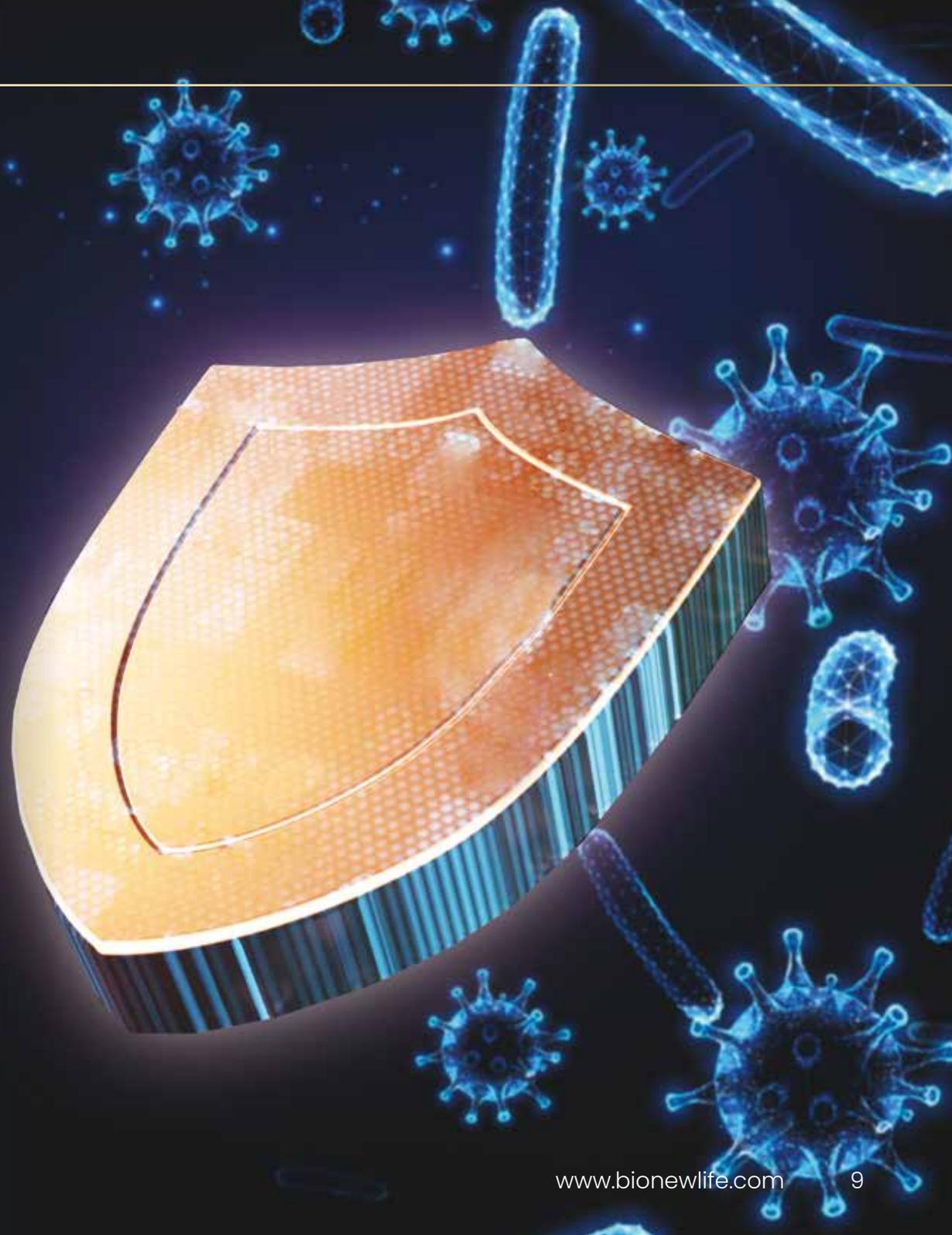
replication is being stopped. Consequently, in both cases the immune system must get rid of majority of pathogens by itself."

When the silver is oxidizing the pathogen, it loses its negative charge. Afterwards, silver is ready to attack another microbe. Antibiotics work in a different way: usually one molecule of antibiotic affects one of the microbes by eliminating it but this molecule is being worn up after this process.

Considering its strong bactericidal properties, silver turn out to be highly effective in prevention and help healing process of infections and diseases, including AIDS, staphylococcus and streptococcus. This substance can be applied locally in skin disorders and used also to sterilize the drinking water. Silver has an ability to deactivate bacterias because of being a strong catalyst in the process of oxidation. Moreover, science researches do not show any side effects of oral and intravenous usage of nano silver.

CURATIVE PROPERTIES OF NANO SILVER

According to the medical literature, nano silver is being considered as a natural antibiotic which kills all of the pathogens in direct contact within 6 minutes. Silver ions have a great ability to oxidize substances which surround them. The microbes cannot manage to become immune to the nano silver which is another tremendous advantage of this product. Furthermore, silver stimulates the growth of bones and accelerates the healing process of damaged tissues.





IS NANO SILVER CAPABLE OF ASSISTING IN THE PROCESS OF CANCER TREATMENT?

It is scientifically proved that some cancers can arise from longterm activity of strictly determined viruses. Some researches point out a direct connection between cancer and candida albicans.

Based on the results of conducted research, it was proved that positively charged silver electrode stops the mitosis of cancer cells.

Nano silver and Nano gold In Cancer Treatment

One of the new, non-invasive methods applied in cancer treatment is the utilisation of nanoparticles covered with gold (nanoshells). These particles would penetrate cancer cells and afterwards they are being exposed to infrared radiation (IR). The exposure to IR would heat up the nanoshells and consequently destroy the cancer cells. Professors Naomi Halas and Jennifer West from Rice University developed a completely new method of synthesis nanoshells covered with gold with 100 nm diameter.

These particles were small enough to circulate in blood and penetrate cancer cells (where they accumulate). Then these nanoshells can absorb luminous energy which results in overheating them and at the same time destroying cancer cells.

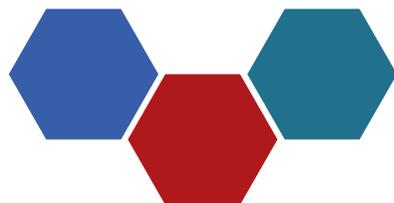
Some researches were conducted with nanoparticles covered with antibodies in order to apply them in breast cancer treatment.

Nanoparticles also have an ability to scatter the light. In this way, they could be used for tumour imaging.

APPLICATION OF NANO SILVER IN FOOD INDUSTRY

Owing to nano silver properties, the plastic bottles for milk, juice and water can be used for a longer period of time and retain their edibility. Silver particles are in this case a compound of plastic and they kill all of the microorganisms. This application introduces many new opportunities if it comes to maintain a bacteriostatic safety in the process of preservation of food.

It enables to elongate the edibility of breadstuff, confectionery, meat products, disposable containers and minimises the risk of food contamination as well.





APPLICATION OF NANO SILVER IN INDUSTRY

Nano silver can be used as impregnant. Surfaces treated with nano silver gain bactericidal, fungicidal properties. The efficiency of silver nanoparticles in killing bacteria and fungus is 99,9 %.

The advantages of nano silver :

- ◆ it works permanently,
- ◆ the production of nano silver is possible owing to constant progress of nanotechnology,
- ◆ it is odourless (based on water),
- ◆ non-allergic,
- ◆ it protects environment by elimination of compounds of chlorine.

Nano silver in order to sterilize, preserve and confer bactericidal properties can be applied as a component of:

- ◆ paints,
- ◆ glues and cements,
- ◆ sponges,

- ◆ textiles,
- ◆ leather shoes, paddings etc.,
- ◆ medical articles like mattress, sheets, smocks, bandages, jam rags, tissues etc.,
- ◆ walls, ceilings of breeding rooms, coops,
- ◆ everyday objects like curtains, carpets, furniture,
- ◆ toys,
- ◆ foams, polishes, gels,
- ◆ heating and cooling systems (used for water preservation),
- ◆ water in swimming pools, tanks and in other containers,
- ◆ biocidal products.



APPLICATION OF SILVER NANOPARTICLES CAN HELP FOR MANY VARIOUS DISEASES

- ◆ burns,
- ◆ acne,
- ◆ rash,
- ◆ herpes,
- ◆ verrucas,
- ◆ inflammation of ears/eyes,
- ◆ fungal infections,
- ◆ chicken pox,
- ◆ open wounds,
- ◆ insect bites and stings,
- ◆ psoriasis,
- ◆ warts,
- ◆ flu,
- ◆ tonsillitis,
- ◆ gonorrhoea,
- ◆ dysentery,
- ◆ haemorrhoids,
- ◆ cystitis,
- ◆ diphtheria,
- ◆ floret,
- ◆ arthritis,
- ◆ pleuritis,
- ◆ septicaemia,
- ◆ rheumatism,
- ◆ shingles,
- ◆ eczema,
- ◆ gastritis,
- ◆ syphilis,
- ◆ tuberculosis,
- ◆ lymphangitis,malaria,
- ◆ AIDS,
- ◆ cancers,
- ◆ meningitis,
- ◆ cold,
- ◆ diarrhoea,
- ◆ pneumonia,
- ◆ whooping cough,
- ◆ typhoid.



ABOUT OUR PRODUCTS

Nano silver and nano gold solutions of noble metals constitute of small clusters (100 atoms each) suspended in perfectly clean and demineralised water. The percentage of metal particles is definitely higher than the percentage of silver ions. Owing to this fact we gain the highest surface area to volume ratio (the biggest active surface). Furthermore, our metal nanocolloids show strong bactericidal and fungicidal properties. These colloids are non- ionized which means that strongly dispersed metallic phase does not have any negatively charged ions as well as metal itself does not appear as cation.

Moreover, our colloids do not contain any superficial pollutions which are very common for chemically synthesized colloids. The reason of this is that our colloids are synthesized as a result of the physical process. The purity of these colloids amounts to 99,99 %.

NANO SILVER

The real Nano silver is the rarest type of colloidal silver which is available on the market. The reason of this is a very complex process of synthesis and high production costs.

Characterisation of nano silver:

- ♦ elimination of bacterias,
- ♦ protection from mould, fungus,
- ♦ non-toxic and non-allergic,
- ♦ does not react with organic acids and with hydrochloric acid (which are the typical components of human digestive system) which proves that our nano silver can be applied in food industry, water purification, pharmacy and cosmetic industry,
- ♦ high chemical resistance (exposure to light does not induce the process of oxidation).

NANO GOLD

Gold is a precious metal that is resistant to almost all types of acids. It dissolves in a mixture of sulfuric acid and nitric acid, in selenium acid as well as in cyanide and mercury.





APPLICATION OF NANO SILVER

IN COSMETIC INDUSTRY

Nano silver, as a component of cosmetics improves their bactericidal and fungicidal functions. Silver nanoparticles are used as a component of :

- ◆ creams (nano silver ensures antibacterial properties and elongates the persistence of products),
- ◆ mouthwash liquids, antibacterial gels, tonics, bath foams, shampoos,
- ◆ antibacterial tissues,
- ◆ disinfectants.



IN MEDICINE

Silver nanoparticles are being used as:

- ◆ a component of surgical dressings, bandages,
- ◆ an agent applied in the process of drug manufacturing,
- ◆ to help cure stomach ulcers,
- ◆ to sterilize hospital rooms, health clinics, medical equipment,
- ◆ a component of physiological saline,
- ◆ to help cure burns,
- ◆ an agent for rinsing clothes, especially in hospital laundries,
- ◆ to sanitise wounds.



CHARACTERISATION OF NANO SILVER

There does not exist any health hazard when applying our nano silver.
It does not induce argyria. Our product is:

- ◆ non-invasive (except of those who are allergic to silver),
- ◆ chemically pure (does not induce irritation),
- ◆ does not induce burning sensation of the skin,
- ◆ does not irritate eyes, throat, skin, nose and other parts of the body,
- ◆ ensures longterm disinfection.





NANO GOLD

Gold is a noble metal commonly being used nowadays in nanotechnology. Gold nanoparticles can be applied in highly precise and effective drug delivery systems. In this system nanoparticles containing drugs melt after exposure to infrared radiation.

This phenomenon allows to deliver drugs in a very precise way.

Furthermore, transported substances can be release in a strictly determinated order (by sequentially applying various wavelengths of infrared radiation).

NANO GOLD IN COSMETIC INDUSTRY

Nano gold acts as an ion pump: it stimulates the migration of active components, ion exchange and also stimulates the process of cleansing the body through the skin. Gold nanoparticles stimulate a synthesis of collagen contributing to the process of reconstruction of the skin tissue. Nano gold has antibacterial properties as well.



NANO GOLD IN MEDICINE

Characterisation of nano gold:

- ◆ it rejuvenates slowly working organs,
- ◆ it improves memory and concentration ability,
- ◆ it is highly recommended to use nanogold in rheumatic disorders like arthritis, rheumatoid arthritis,
- ◆ nanogold can be also used in help curing many various diseases like diabetes, infectious disease, festers, allergic reactions, epilepsy, venereal disease, inflammation of sex organs, dermatosis, cancer, hepatitis,
- ◆ it is able to help stop the process of phagocytosis, symptoms of autoimmune diseases,
- ◆ it acts as an anti-inflammatory agent,
- ◆ it can eliminate the symptoms of allergies,
- ◆ it is anti-acne,
- ◆ the surplus of gold is being excreted from body with bile, urine and sweat,
- ◆ it regenerates, rebuilds and balances life forces in organism,
- ◆ it can applied with other medicaments (nanogold stimulates immune system),
- ◆ it is highly effective in helping curing extensive burns,
- ◆ it is synthesized in a physical process (chemically pure).

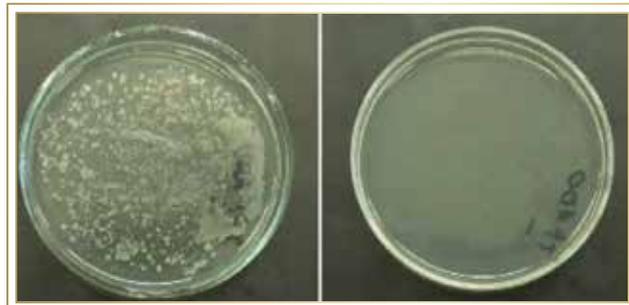




CONDUCTED RESEARCHES

Polymers with and without nano silver

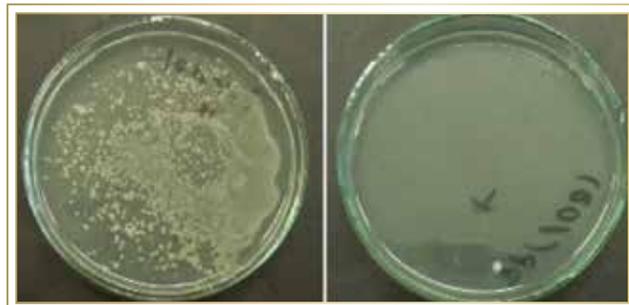
1. Results of microbiological experiments – polypropylene (PP) after 18 hours of incubation with salmonella typhimurium:



PP foil without silver

PP foil with silver (86ppm Ag)

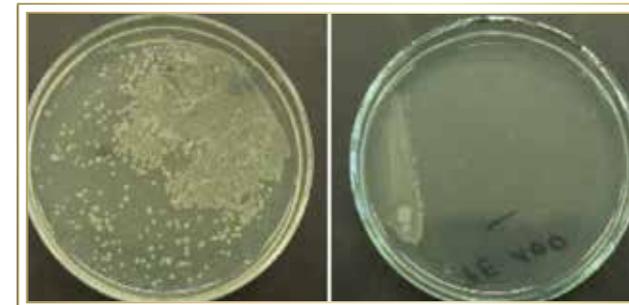
2. Results of microbiological experiments – polypropylene (PP) after 18 hours of incubation with staphylococcus aureus:



PP foil without silver

PP foil with silver (86ppm Ag)

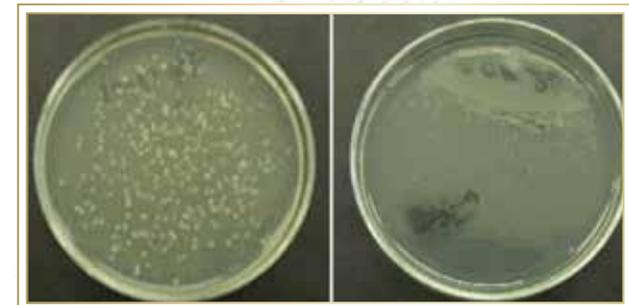
3. Results of microbiological experiments – polythene (PE) after 18 hours of incubation with salmonella typhimurium:



PE foil without silver

PE foil with silver (86ppm Ag)

4. Results of microbiological experiments – polythene (PE) after 18 hours of incubation with staphylococcus aureus:

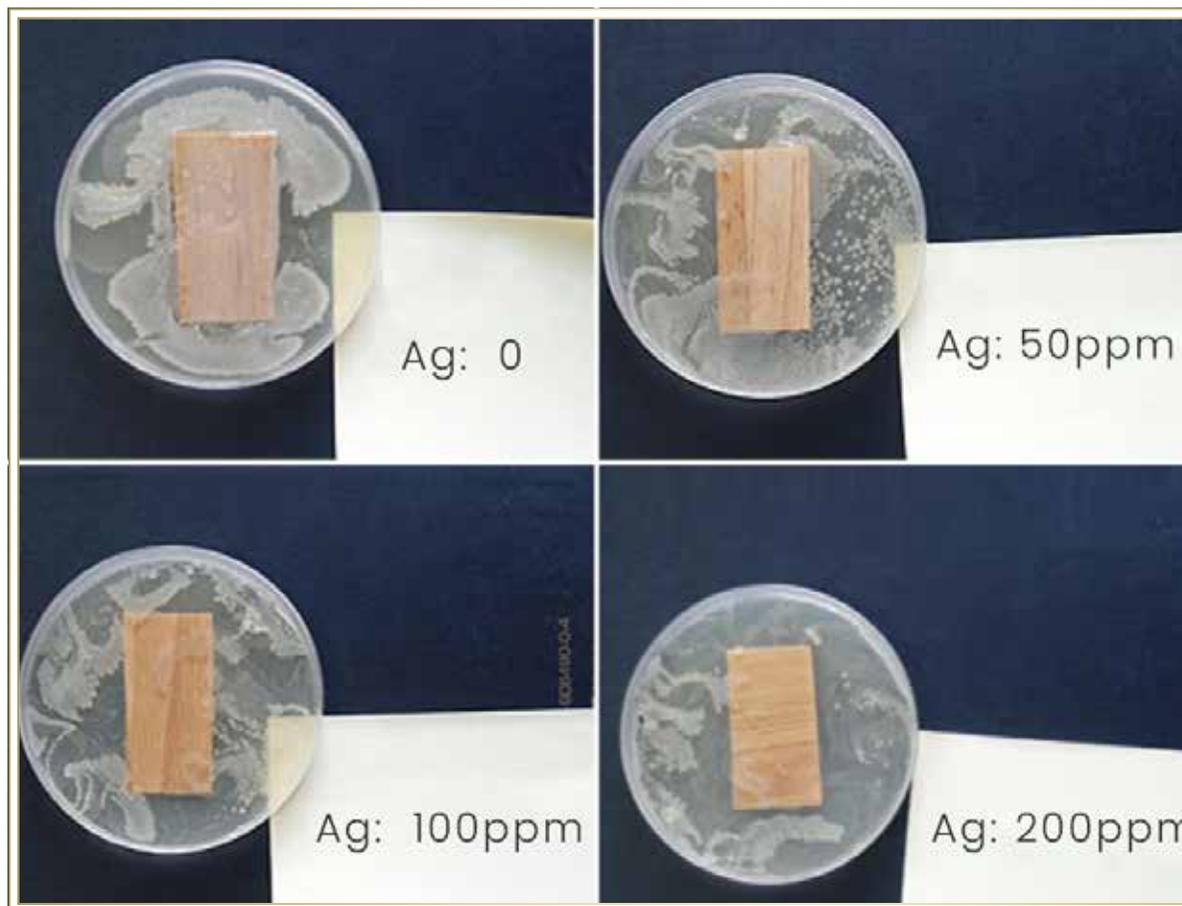


PE foil without silver

PE foil with silver (86ppm Ag)

5. An amount of 1 ml of Escherichia Coli bacteria was disseminated on the fragment of PCV floor coverings which was afterwards closed in the Petri dishes. The incubation has lasted for 2 hours in the temperature of 37 degrees. Then samples were embeded in agar and incubated for 24 hours also in the temperature of 37 degrees.

FINAL CONCLUSION: The sample with PCV floor coverings impregnated with nano silver has stopped the process of growth of bacterias. The higher was the concentration of silver nanoparticles, the quicker and more efficient was the process of elimination of bacterias.





6. The experiment with a root of parsley.

The experiment with the root of parsley was conducted with/without the usage of silver nanoparticles.

A. Photographs taken after 55 days.



The root of Parsley without nano silver.

B. Photographs taken after 83 days.



The root of Parsley without nano silver.

C. Photographs taken after 167 days.



The root of Parsley without nano silver.



The root of Parsley with nano silver (50ppm).



The root of Parsley with nano silver (50ppm).

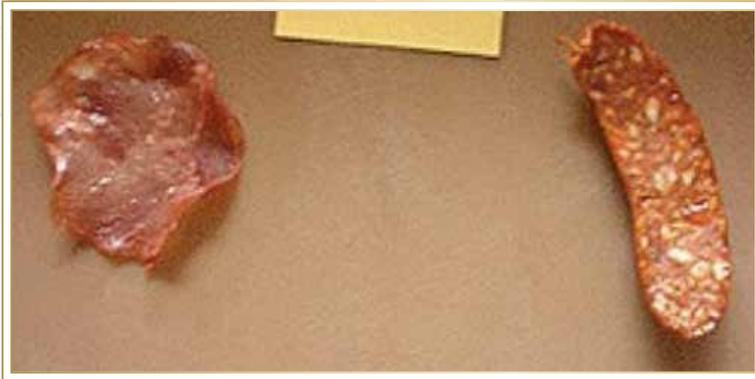


The root of Parsley with nano silver (50ppm).



7. The experiment with meat. During the experiment meat was stored in a propylene containers impregnated or non-impregnated with silver nanoparticles.

A. Photographs taken after 7 days.



Meat stored in the container impregnated with nano silver (concentration: 100ppm).



Meat stored in the non-impregnated container.

B. Photographs taken after 14 days.



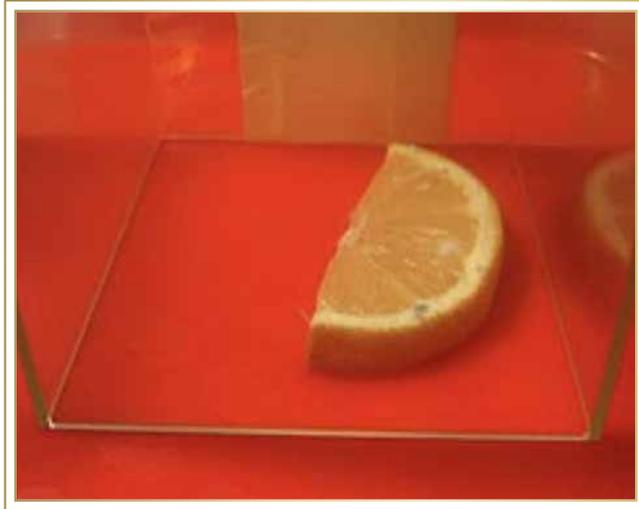
Meat stored in the container impregnated with nano silver (concentration: 100ppm).



Meat stored in the non-impregnated container.



8. The experiment with lemon.



Lemon incubated for 7 days in a polystyrene container impregnated with silver nanoparticles (concentration: 4ppm).



Lemon incubated for 7 days in a polystyrene, non-impregnated container.



BACTERICIDAL POLYMERS

Functions and properties of polymers with addition of nano silver are following:

- ◆ transparency (above 90%),
- ◆ gleaming surface,
- ◆ high bactericidal efficiency at low concentrations of nano silver,
- ◆ thermal stability (above the melting point),
- ◆ can be used in microwave ovens,
- ◆ low price.





THE APPLICATION OF BACTERICIDAL POLYMERS GIVES A PLENTY OF BENEFITS

- 1.** New possibilities in compiling Hazard Analysis and Critical Control Point System which aims at improving safety and quality of food.
- 2.** Elimination and/or limitation of safety threat of food – new methods in each step of process of production and distribution.
- 3.** New possibilities in creating Good Manufacturing Practice System which concerns proper preparation of production halls, stores, devices, machines. This system also involves storage of raw materials and personal hygiene of employees.
- 4.** Diminishment of health hazard by elimination of microbiological agent.
- 5.** Elongation of period of edibility of produced food.

EXEMPLARY APPLICATIONS OF BACTERICIDAL POLYMERS

- ◆ medical equipment (coatings and plastics with an addition of nano silver – definite sterilization),
- ◆ operating theatre (walls and ceilings impregnated with nano silver),
- ◆ protective clothing, mattresses, sheets (impregnated with nano silver – the process of impregnation must be repeated after 50th laundry),
- ◆ bandages, bands, surgical dressings (in order to eliminate the development of bacterias in the wound),
- ◆ hospital rooms, waiting rooms, surgeries – these are the places where the amount of bacterias is really high. Consequently, many surgeries end up with various infections. Thus, bactericidal properties are highly required in hospitals and health clinics.
- ◆ Pharmacy (nano silver as a component of gels, creams and salves – longterm bactericidal properties).



OUR RANGE OF PRODUCTS



If you would like to sell / distribute our unique products and create your own business please contact us for more details.

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