

ANTIBACTERIAL EFFECT OF DERMFACTOR

The test was carried out in two hospital wards (a surgical ward May 10, 2021 and ICU May 31, 2021) while the patients were staying in the room covered by the study.

The aim of the test was to demonstrate the effect of nanosilver elements on small pathogens.

Research characteristics:

First, samples were taken from surfaces that were frequently touched by the staff and patients. Next, they were taken from the same surfaces again - immediately after using DERMFACTOR and 5 hours later. The material was sent to the microbiological laboratory for sample analysis. The obtained results have been presented in the tables, whereas the conclusions and findings – below them.

TEST IN THE SURGICAL WARD

Examination	Time “0”	After using DERMFACTOR	After 5 hours
1. Door handles	Coagulase-negative staphylococcus, bacilli, (moderately abundant growth)	Coagulase-negative staphylococcus, Enterococcus sp., slight growth	Coagulase-negative staphylococcus, bacilli – single colonies
2. Soap dispenser and hand sanitiser	Coagulase-negative staphylococcus, gram-negative bacilli, Escherichia Coli ESBL (+), Enterococcus faecalis (abundant growth)	Coagulase-negative staphylococcus, poor growth	Single Coagulase-negative staphylococci
3. Bed grab rails	Coagulase-negative staphylococcus, Enterococcus faecalis (slight growth)	No growth	Single coag-neg staphylococci
4. Drip hanger	Coagulase-negative staphylococcus (slight growth)	No growth	No growth
5. Urine bag	Coagulase-negative staphylococcus, Enterococcus faecalis, Acinetobacter baumannii (abundant growth)	Coagulase-negative staphylococcus, Enterococcus faecalis (single colonies)	No growth
6. Ring cancellation button	No growth	No growth	No growth
7. Bedside cabinet (surface)	Coagulase-negative staphylococcus, Streptococcus salivarius (abundant growth)	Coagulase-negative staphylococcus (slight growth)	Coagulase-negative staphylococcus, Streptococcus salivarius (slight growth)
8. TV remote control	Coagulase-negative staphylococcus, Enterococcus faecalis (slight growth)	Coagulase-negative staphylococcus, Enterococcus faecalis (slight growth)	Single coagulase-negative staphylococci

9. Panel – oxygen inlet	Coagulase-negative staphylococcus (slight growth)	No growth	No growth
10. Light switch	Coagulase-negative staphylococcus, Citrobacter freundii (slight growth)	No growth	No growth

CONCLUSIONS

1. The test was conducted on May 10, 2021 in a surgical ward.
2. The effect of DERMFACTOR was clearly visible.
3. Spray application of the preparation (aerosol) makes it significantly easier to reach hard-to-reach surfaces and places where the use of an ordinary disinfecting liquid was not possible.
4. High quality of nanosilver means that DERMFACTOR does not oxidize and remains on the surface much longer than other disinfectants, despite the fact that the surface was often touched by patients and the staff.
5. After 5 hours from the application of the preparation, only on some surfaces frequently touched by patients and the staff was it possible to observe a slight growth of the so-called “skin staphylococcus” - the physiological human microbiota.
6. DERMFACTOR does not irritate the epidermis of people who have frequent contact with the disinfected surface. The specificity of nanosilver causes that in contact with the skin it stimulates its regeneration, which is the opposite effect compared to other preparations of this type.
7. On the basis of the observations it can be concluded that DERMFACTOR is a preparation with a high efficiency and safety profile. As the best-in-class alcohol-free disinfectant, it can be effectively and safely used in surgical wards in hospital units.

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TEST IN THE INTENSIVE CARE UNIT

Examination	Time “0”	After using DERMFACTOR	After 5 hours
1. Computer keyboard	Coagulase-negative staphylococcus (MRCNS) (slight growth)	Coagulase-negative staphylococcus (MRCNS) (slight growth)	Aerobic bacilli (slight growth)
2. A table on wheels	Coagulase-negative staphylococcus (MRCNS), Gram-positive bacilli (moderately abundant growth)	Aerobic bacilli (slight growth)	Aerobic bacilli (slight growth)
3. Infusion pump	Coagulase-negative staphylococcus (MRCNS) (moderately abundant growth)	Coagulase-negative staphylococcus (MRCNS) (slight growth)	Coagulase-negative staphylococcus (MRCNS) (slight growth)
4. Side of the bed	Coagulase-negative staphylococcus (MRCNS), Enterococcus faecium (moderately abundant growth)	Coagulase-negative staphylococcus (MRCNS), Enterococcus faecium (slight growth)	Coagulase-negative staphylococcus (MRCNS) (slight growth)
5. Tap	Gram-negative bacilli, Stenotrophomonas maltophilia (moderately abundant growth)	Coagulase-negative staphylococcus (MRCNS) (slight growth)	No growth of bacterial flora
6. Washbasin, silicone	Aerobic bacilli (slight growth)	No growth of bacterial flora	No growth of bacterial flora
7. Bedside panel	No growth of bacterial flora	No growth of bacterial flora	Coagulase-negative staphylococcus (MRCNS), MDR Acinetobacter baumannii, AmpC (moderately abundant growth)
8. Worktop	Coagulase-negative staphylococcus (MRCNS), MDR Acinetobacter baumannii, AmpC (moderately abundant growth)	Coagulase-negative staphylococcus (MRCNS) (moderately abundant growth)	Coagulase-negative staphylococcus (MRCNS) (slight growth)
9. Front door handle	Coagulase-negative staphylococcus (MRCNS) (slight growth)	No growth of bacterial flora	No growth of bacterial flora
10. A tray next to the patient’s bedside table	Aerobic bacilli (slight growth)	No growth of bacterial flora	Coagulase-negative staphylococcus (MRCNS) (slight growth)

CONCLUSIONS:

1. The test was carried out on 31st May 2021 in the ICU, where the high risk of nosocomial infections caused primarily by the serious condition of inpatients is considerably higher (immunological disorders, forced lying position during treatment, reduced consciousness and reflexes, damage of the integumentary system, cardiovascular and respiratory disorders, dysfunction of multiple organs at the same time, prior antibiotic therapy), methods of treatment and monitoring (central venous catheter, ventilator, immunosuppressive drugs), characteristic environmental microflora (highly resistant microbes), broad-spectrum antibiotic treatment and rapid colonization.
2. The effect of DERMFACTOR is clearly visible.
3. After 5 hours from the application of the preparation, only on some surfaces frequently touched by patients and the staff was it possible to observe a slight growth of the so-called "skin staphylococcus" - the physiological human microbiota.
4. Spray application of the preparation (aerosol) makes it significantly easier to reach hard-to-reach surfaces and places where the use of an ordinary disinfecting liquid was not possible.
5. High quality of nanosilver means that DERMFACTOR does not oxidize and remains on the surface much longer than other disinfectants, despite the fact that the surface was often touched by patients and the staff.
6. DERMFACTOR does not irritate the epidermis of people who have frequent contact with the disinfected surface. The specificity of nanosilver causes that in contact with the skin it stimulates its regeneration, which is the opposite effect compared to other preparations of this type.
7. On the basis of the observations it can be concluded that DERMFACTOR is a preparation with a high efficiency and safety profile. Owing to its properties, it can be safely used in the ICU.
8. The use of DERMFACTOR enables a considerable reduction in the incidence of nosocomial infections and owing to that it can significantly reduce the number of nosocomial infections during procedures and save more lives.

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THE ANTI-BACTERIAL EFFECT OF DERMFACTOR

The test of Dermfactor was conducted on 21st September 2021 in the Department of Laboratory Diagnostics at the provincial hospital in Chełm.

CI's objective was to check the efficacy of the preparation and demonstrate its effect on microbes accumulating on protective masks. The subject of the test were surgical masks that were worn by medical staff for 2 hours.

Test characteristics:

16 samples were taken from masks of medical staff working in a laboratory after 2 hours of wearing them. Next, the samples taken again after 5 minutes from the moment of applying Dermfactor on them. The material was sent to the microbiological laboratory for analysis.

The obtained results are presented below:

Mask no.	Increase in bacterial flora before applying Dermfactor	Bacterial flora after applying Dermfactor
1	Abundant	None
2	Very abundant	None
3	Scant	None
4	Scant	Trace amount
5	Scant	Trace amount
6	Abundant	None
7	Abundant	None
8	Abundant	Trace amount
9	Abundant	None
10	Averagely abundant	Trace amount
11	Abundant	Trace amount
12	Scant	None
13	Abundant	None
14	Scant	None
15	Very abundant	Trace amount
16	Very abundant	Trace amount
17	No increase	No increase

CONCLUSIONS:

1. The test was conducted on 21st September 2021 in the Department of Laboratory Diagnostics at the provincial hospital in Chełm.
2. 16 samples were taken from masks worn by medical staff for 2 hours.
3. Inoculations showed the presence of the following bacteria: gram-positive bacteria *Actinomyces* spp. *Streptococcus sanguinis*, *S. mutant*, bacteria from the clusters *Bacteroidetes* and *Firmicutes*, as well as *Corynebacterium* spp., *Aureobacterium* spp., *Staphylococcus epidermidis*, *S. capitis*, α -hemolytic streptococci, gram-negative and gram-positive cocci.
4. After the application of DERMFACTOR, complete or significant disappearance of harmful bacterial flora was observed.
5. Spray application of the preparation (aerosol) significantly facilitates covering a larger surface of the mask without making it wet.
6. Owing to high quality nanosilver, DERMFACTOR does not oxidize and stays on the surface much longer than other disinfectants. It makes it possible to use the mask much longer without the risk of proliferation of additional and harmful bacteria.
7. DERMFACTOR does not irritate the epidermis in people who have frequent contact with the disinfected surface. Owing to its specificity, nanosilver stimulates the regeneration of skin, which is the opposite effect compared to other preparations of this type. This has a significant impact on reducing skin swelling resulting from long-term wearing of the mask.
8. Based on the conducted observations, it can be concluded that DERMFACTOR is highly efficient and safe. As the best-in-class and alcohol-free disinfectant, it can be used safely and effectively in hospital and medical facilities.
9. Due to effective and safe disinfection, DERMFACTOR significantly contributes to the protection of life and health of medical staff who use protective masks for many hours a day.

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