

The image features a blue, translucent molecular lattice structure composed of interconnected hexagonal rings, resembling a honeycomb or carbon nanotube network. On the left side, a single hexagonal cell is highlighted as a glowing green bubble with a white hexagonal outline inside it. The text "ACTIVE NANO SHIELD" is centered over the image in a bold, dark font.

ACTIVE NANO SHIELD

Nano Labs & Co

Acinetobacter Baumannii has been recognized by the World Health Organization as one of the most threatening pathogens deserving urgent action.

It is one of the pathogens in the powerful six-pack known as ESKAPE, which has emerged as a multi-drug resistant pathogen found predominantly in facilities of healthcare, animal, and agricultural sectors.

Key factors determining its success as a pathogen include not only its extraordinary ability to develop resistance to antimicrobials but also its ability to persist in the hospital environment.

Quorum sensing regulates the behavior of a bacterial population behavior in response to diverse environmental signals, modulating motility and biofilm formation in *A. Baumannii*.

***Acinetobacter Baumannii's* greatest advantage, one that leaves them with seemingly no weakness, is their ability to communicate ...**

Bacterial communication relies on versatile chemical signaling molecules called autoinducers, which regulate bacterial gene expression in a process known as quorum sensing.

**Just as bacteria use communication to multiply and develop deadly viruses...
They also communicate nearby dangers and conditions of duress...**

Additionally, more recent studies have revealed how quorum sensing coordinates interactions within a species and between species both.

This emerging field of investigation shows how QS contributes to the success of bacteria in diverse environments—from polymicrobial infections to natural communities—and how these systems might be manipulated to encourage specific outcomes.

They even communicate, NOT to multiply...
but to stop further development ...
and immediately vacate an area of danger...
in a group effort to preserve the species...

*And in doing so, they spread the word to
those around them, to do the same*



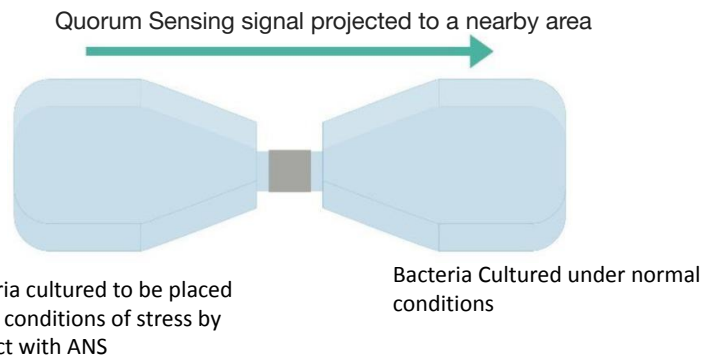
Quorum Sensing - A Study:

Bacteria effected by ACTIVE NANO SHIELD triggers area effect that stops the spread and travels beyond !

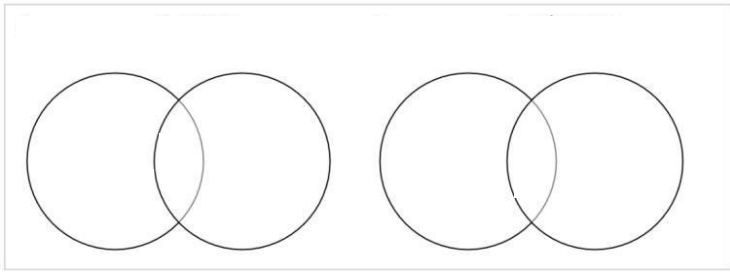
Weapons against Themselves: Identification and Use of Quorum Sensing Volatile Molecules to Control Bacterial Growth.

Experiment to confirm the presence of Quorum Sensing and the effects of a distress signal on nearby species Ability to multiply when the control colony is placed under duress.

An experimental setup used to observe the effect of the bacteria volatile on bacteria growth without physical contact.



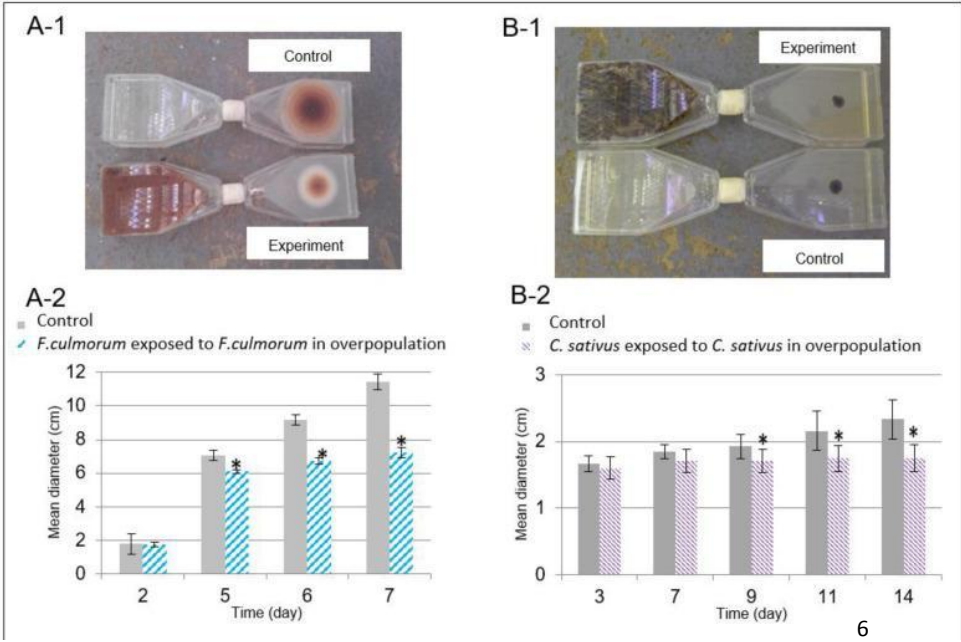
Quantum sensing measured in VOC Emitted



Add th description words and numbers

Write better whats happening

Figure 6 Pictures and effects of *F. culmorum* and *C. sativus* volatiles under stressed conditions towards *F. culmorum* (A) or the *C. sativus* (B) growth in normal conditions.



ANS is an Easily Applied, Non –Toxic, zero VOC, Coating that remains on the surface applied without evaporating or the need to wash away, leaving it to continue to keep the surface clear of bacteria and viruses as it also progressively extends its effectiveness further than the treated surface as the inflicted pathogens project signals of distress to nearby species stopping proliferation and development of harmful bacteria or virus and preventing further spread and transmission.

- Engineered for any surface, the coating is easily applied with a gentle squeeze of the trigger at the spray head, resulting in a fine mist that lightly covers the desired area.
- Controls viruses and bacteria by sanitizing the environment to rid the host cells that viruses need to proliferate.
- Included are Covid-19 and its variants & Delta Mutations.
- 100% non-toxic to humans and animals, for adults and children of all ages.
- It contains Zero VOCs with no harmful odors.
- Tested and Certified by SGS Labs, Japan’s Food & Lab Research, and other world-renowned independent laboratories have proven. It effective against over 397 bacteria, mold, and viruses found to be harmful to humans.

NOTABLE VIRAL & BACTERIAL STRAINS CERTIFIED TO BE EFFECTIVE AGAINST

- **Covid-19** and its mutated variants, including the Delta variant.
- **MRSA** Methicillin-resistant Staphylococcus aureus (*Does not give rise to resistant strains of these pathogens.*)
- **E.coli** ((Does not give rise to resistant strains of these pathogens.)).
- **Influenzas.** Staphylococcus Aureus. (*Does not give rise to resistant strains of these pathogens.*)
- **Stachybotrys** (Toxic Black Mold) and most other Chaetomium molds and fungi.

- The development of ANS has been ongoing for more than two decades
- Detailed studies have been conducted with some of the most renowned laboratories and institutions in the world during the campaign to fully document and certify the efficacy of ANS biocidal additive, APIZAS.

“Joint research with Shiga (National) University of Medical Science in Otsu, Japan, has shown that APIZAS has the effect of inactivating the new coronavirus”

University and Laboratory Efficacy testing and research studies conducted

- Japan Food and Research Laboratories, *Japan's number-one testing facility recognized worldwide that is sponsored by the Japanese Government (see supporting documents)*
- Shiga (National) University of Medical Science in Otsu, Japan: http://mcl.co.jp/images/pr_sendo.pdf (see supporting documents -A-)
- SGS Labs (was established in 1878 with 2,650 offices and laboratories worldwide)
- Kanagawa Dental University in Yokosuka, Kanagawa, Japan, Study of Dentistry Applications (see supporting Documents -B-)
- Mitsuo Sakawa: Research on antibacterial floor resins. 44 (2): 226–233, 2000.
- Research on the addition and application of antibacterial zeolite to floor resin. Japan Prosthodontic Society 39:919–926, 1995.
- Kanagawa Dental University Graduate School of Dentistry, Advanced Oral Medicine Department (see supporting Documents -C-)

Joint Ventures of Products currently in circulation with marketing and distribution
















- *AIGI Co., Ltd.* <http://www.ai-gi.com/product.php>
- *MCL (Medical Care Lab Company).* <http://mcl.co.jp/product02.html>
- *Medical devices----*
- *Dental Clinic of Nihonbashi Mitsukoshi Japan approved and implemented surgical and prosthetics*
- *Alzheimer's trials to begin February 2023 Shiga (National) University of Medical Science (Televised program)*
- *National Hospitals of Taito-ku, Tokyo, and Nihonbashi Mitsukoshi are implementing to utilize of Anti-Virus and Anti-mold materials in all new construction.*
- *Implementation in the waterways and aqueducts of the rice fields of Japan*
- *Discussions with Hanwa, and Mitsui Chemicals for the development of potential uses and benefits in future products*

It is effective against many bacteria, including bacteria and fungi that live in our familiar environments

It is also effective against viruses such as influenza and avian influenza (H5N1, H7N1).

The sterilization speed is fast, and the antibacterial effect continues as long as the coating remains.

With chlorine-based drugs, the effect of organic substances decreases sharply, leading to the development of legionella bacteria, but ANS provides a stable antibacterial effect.

Corresponding Bacteria	Ethanol	Sodium hypochlorite	COMBATISOL
General bacteria (Escherichia coli, O-157, Staphylococcus aureus, etc.)			
Bacteria (Legionella, etc.)			
Filamentous fungi (yeast, black mold, etc.)			
Viruses (norovirus, influenza, etc.)			
Spore bacteria (Bacillus cereus, etc.)			

Name BACTERIA	Minimum stunted concentration (apizas concentration)	Name VIRUS	Minimum stunted concentration (apizas concentration)
Staphylococcus aureus (MRSA)	6ppm	Influenza (Hong Kong) virus	300ppm
Intestinal bacteria	4ppm	Herpes (type 1) virus	300ppm
Escherichia coli	5ppm	Rotavirus Porcine influenza virus	200ppm
Legionella spp.	150ppm	Rotavirus Porcine influenza virus	80ppm
Bacillus Cereus	33ppm	Foot-and-mouth disease	2000ppm
Salmonella	33ppm	Feline calicivirus	400ppm
Serratia bacteria	33ppm	Norovirus model (Caliciviridae)	200ppm
O-157	16ppm	Avian influenza (H7N1)	6000ppm
Black mold (koji)	150ppm	Avian influenza (H5N1) Bird Flu	6000ppm
Yeast (bread)	60ppm		

* The minimum growth inhibitory concentration (MIC value) is the minimum concentration that blocks bacteria and viruses. The blocking concentration varies depending on the situation.

Disinfecting is an immediate action solution that is rendered ineffective by harmful pathogens after only minutes

- Cleaning the surface with disinfectants requires a sanitary wash to remove the poisons from the surfaces
- Most other disinfecting products are of a highly evaporating substance that leaves the surface vulnerable again in under 20 minutes
- Because bacteria are still present in the immediate environment, reinfection ensues
- Mutant strains are formed from the pathogens that are left injured during the disinfection process

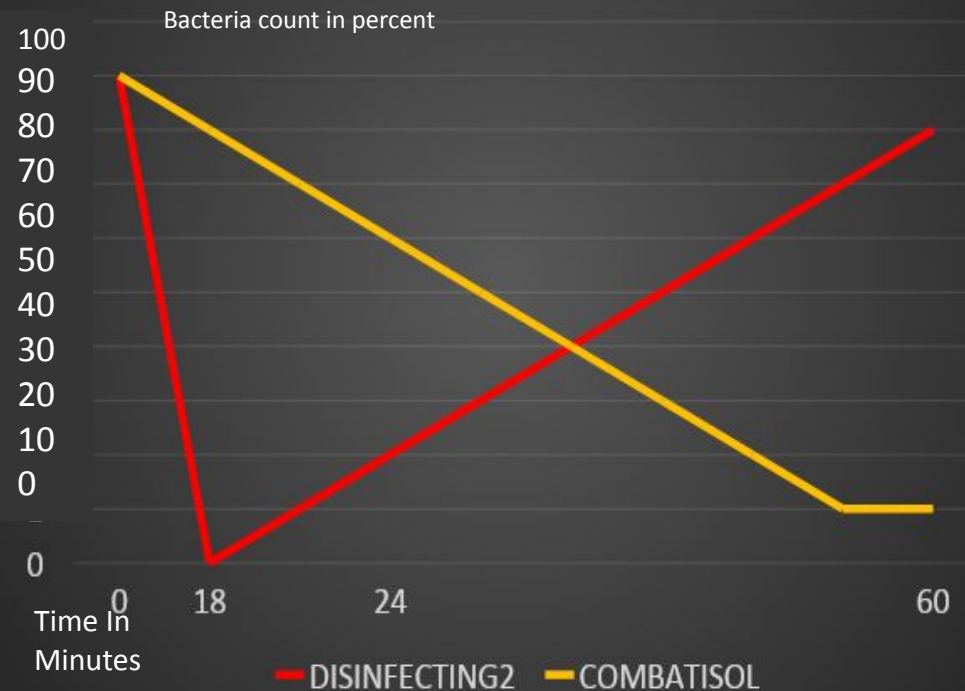
Cleaning the surface with bleach requires a sanitary wash so as not to leave poison on the surface

Most other disinfecting products are of a highly an evaporative substance that leaves the surface vulnerable again in under 20 minutes or less.

Disinfecting creates mutant strains from the pathogens that are left injured during the process.

ANS remains on the surface, continuing to be effective whilst not causing mutation in the pathogens

EFFICACY OF ACTIVE NANO SHIELD VS DISINFECTING



BENEFITS

- One simple application of **ANS** can last for months
- **ANSs** long-lasting coating containing its proprietary biocide solution and keeps the surface free of hundreds of pathogens
- Protection lasts throughout the life of the coating. As long as the coating remains on the surface, **ANS** will continue to be effective
- **ANSs** foundation is made from water-based non-toxic components with NO VOCs and no odors

WHETHER YOU ARE PROTECTING:

People

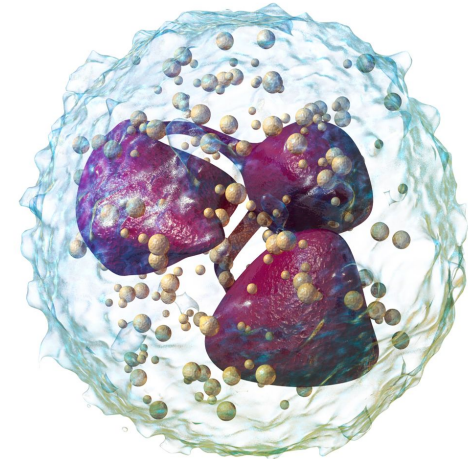
Surfaces

Buildings

Entire Environments

ANS OFFERS SOLUTIONS IN:

- **ARCHITECTURAL APPLICATIONS**
- **MEDICAL DEVICES**
- **AGRICULTURAL ALTERNATIVES**
- **HOSPITALITY AND TRANSPORTATION INDUSTRY IMPROVEMENTS**
- **INPATIENT AND OUTPATIENT FACILITY PROTECTIONS**
- **CHILD CARE AND EDUCATIONAL CENTER PRODUCTS AND SERVICES**



WHERE TO APPLY

- Safe to apply anywhere, recommended everywhere – in residential and commercial environments
- Apply a light mist on outside of clothing, apply coating on frequently touched surfaces (such as doorknobs, handles, faucets, keyboards, handrails), treat high traffic areas such as public facilities, examination rooms, conference rooms or cafeterias.
- Usable in all places where 100% non-toxic product is required or desired.

□ Integrations in Construction

□ Anti mold

prevention and remediation

□ Job Production and Safety

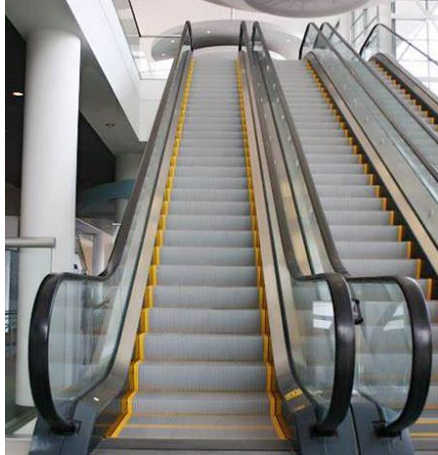
scaffolding, tools, lifts, cranes

□ Architectural integration— interior and exterior

flooring, walls, rest rooms, escalators and more

□ Jobsite OSHA Sanitation Compliance

Commercial
Residential



In terms of cleanliness, OSHA references the American National Standards Institute, which states that if 20 people are using one toilet, it should be serviced at least twice a week. If 10 people are using one toilet, once-a-week servicing should be enough. In practice, ACE Enterprises' Glen Elrod recommends one toilet per eight employees and basing cleaning not only on number of employees but on shifts (see p. 25). It's better to be safe than sorry. A first sanitation offense costs up to \$12,675 per violation. Failure to fix the problem could cost the same amount per day, while the fine for a repeat violation could reach as high as \$126,749.

- Dental
- Operative and Post-Operative Solutions
- Ophthalmic Applications



- Mouth guards and dental intraoral devices

- Silicone PHMB-type Foam Dressings

for use in the management of various wounds including pressure sores, diabetic ulcers, post-op surgical wounds and burns.

- PHMB-type ophthalmic solutions

for treatment of Acanthamoeba keratitis

- Catheter Coating

for preventing the implant-associated infections caused by the bacterial colonization

- Acute Traumatic Wound Care

Direct application to prevent formation of biofilm, destroy those already formed and aide in the healing process



[AMS receives CE mark for Silicone PHMB Foam Dressing - Med-Tech Innovation \(med-technews.com\)](#)

[Polyhexamethylene Biguanide \(PHMB\) Ophthalmic Solution in Subjects Affected by Acanthamoeba Keratitis - Full Text View - ClinicalTrials.gov](#)

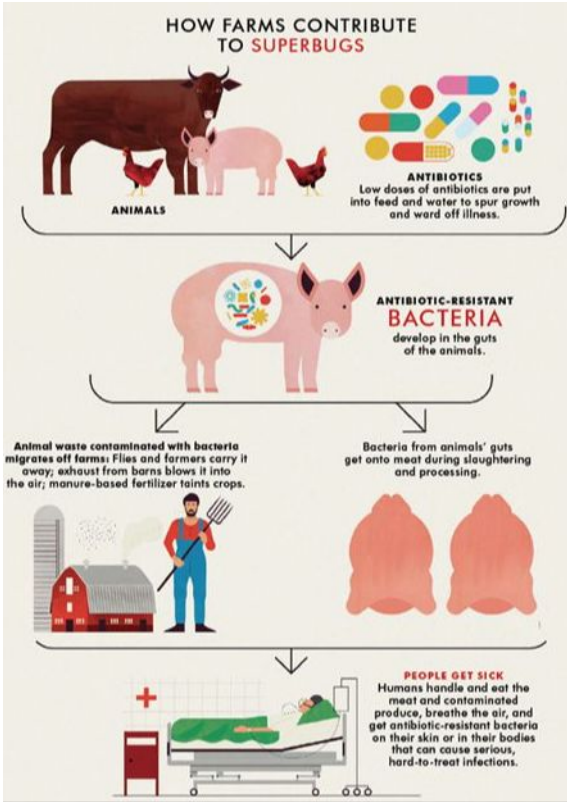
[Water-Insoluble Polymeric Guanidine Derivative and Application in the Preparation of Antibacterial Coating of Catheter | ACS Applied Materials & Interfaces](#)

[Chlorhexidine gluconate or polyhexamethylene biguanide disc dressing to reduce the incidence of central-line-associated bloodstream infection: a feasibility randomized controlled trial \(the CLABSI trial\) - PubMed \(nih.gov\)](#)

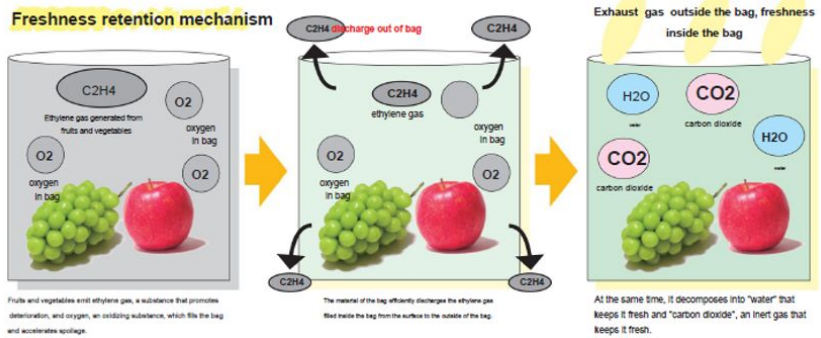
[Randomized controlled clinical trial on the antiseptic efficacy of polihexanide 0.04% on acute traumatic wounds - PubMed \(nih.gov\)](#)

- Alternatives to Antibiotics
 - Improve living conditions

- Processing
 - Treated surfaces
 - Employee uniforms and protective gear
 - Modified Packaging



INNOVATIVE NEW TECHNOLOGY FOR MAINTAINING FRESHNESS: FRUITS AND VEGETABLES, MEAT & FISH (Patent pending)



The ethylene adhering to the inside of the bag reacts with the antibacterial agent and oxygen to decompose into water and carbon dioxide, and ethylene and oxygen causing the normal process of deterioration and oxidation to be reduced to a minimum which results in freshness maintained.

- Restaurants
- Bars
- Hotels
- Delis and Convenience Stores
- Public Transportation and Hubs
- Events
- Houses of Worship
- And much more



pathogens spread within the facility and via caretakers into the community. Many facilities handle large groups of people in close confinement

- acute-care hospitals
- rehabilitation centers
- psychiatric hospitals
- addiction treatment centers
- nursing homes
- Correctional Facilities



Facilities often hold

- The immunocompromised population in society
 - Physically less able of self care or mentally in need of assistance
- Evidence suggests that there is a correlation between inflammation, weakening of the blood-brain barrier, and infectious bacteria, viruses or fungi reaching the brain that can activate microglia. Once microglia are activated, they can cause inflammation in the brain in such a way that is thought to be involved in the progression of dementia and contribute to the symptoms of certain psychiatric disorders*

- ANS can be used on
- ❖ surfaces
 - ❖ Gowns, uniforms, bedding



[\(PDF\) Neglecting antibiotic stewardship in prisons: A concern for antimicrobial resistance response \(researchgate.net\)](#)
[Infections and dementia | Alzheimer's Society \(alzheimers.org.uk\)](#)
[Bacterial infection and Alzheimer's disease: a meta-analysis - PubMed \(nih.gov\)](#)

- Nurseries and pre-schools
- Schools
- Libraries



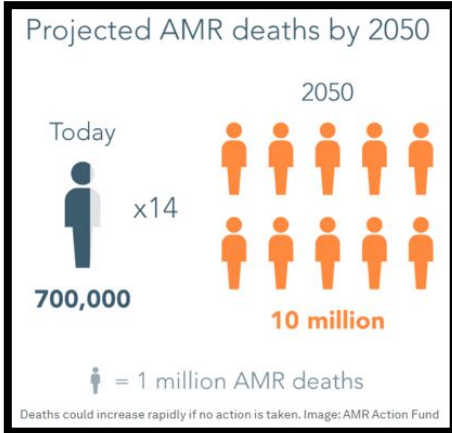
WORLD ANTIBIOTIC AWARENESS WEEK



- Antibiotics
- Antivirals
- Antifungals
- Antiparasitics

18 to 24 November is World Antimicrobial Awareness Week

- Awareness alone is not enough
- We need to Actively Protect our Children
- With special attention to environmental enteropathy, to offer those who are vulnerable an equal start at life



[Environmental enteropathy and malnutrition: do we know enough to intervene? | BMC Medicine | Full Text \(biomedcentral.com\)](#)
[Specific bacteria help explain stunted growth in malnourished children – Washington University School of Medicine in St. Louis \(wustl.edu\)](#)
[Stunted childhood growth is associated with decompartmentalization of the gastrointestinal tract and overgrowth of oropharyngeal taxa - PubMed \(nih.gov\)](#)

“Joint research with Shiga (National) University of Medical Science in Otsu, Japan, has shown that APIZAS has the effect of inactivating the new coronavirus”

Shiga (National) University of Medical Science in Otsu, Japan: http://mcl.co.jp/images/pr_sendo.pdf



Shiga University of Medical Science

ADOX Co., Ltd.

Medical Care Lab Co., Ltd.

Confirmation of inactivation of new coronavirus by newly developed antibacterial agent (Adox)

Overview - Shiga University of Medical Science (Professor Yasushi Ito, Department of Disease Control and Pathology, Department of Pathology) conducted the experiment, described later regarding the antibacterial agent "Adox" newly developed by Adox Co., Ltd..

We have confirmed that it inactivates with concentrations well below the measurement limit.

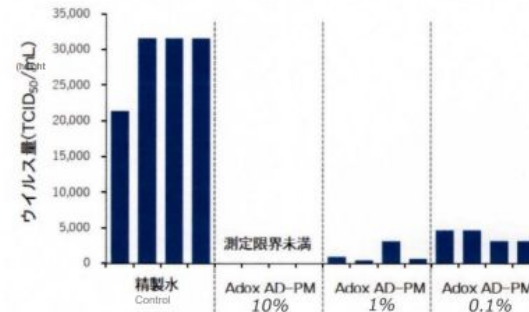
Conclusion - We have academically verified that the newly developed antibacterial agent "Adox" can be used as a means to prevent the spread of the new corona virus, and that we can expect a safe and sustainable effect that does not damage the material.

Experiment

A virus solution containing SARS-CoV-2 hCoV-19/Japan/QK002/2020 (Alpha strain, provided by the National Institute of Infectious Diseases) was added to the test sample below and allowed to stand at room temperature for 30 minutes. The sample virus mixture was inoculated into VeroE6/TMPRSS2 cells, the virus was quantified, and the effect was evaluated. Antibacterial agent "Adox", and specifically "Adox AD-PM"

research result

When the sample was 10%, the virus concentration fell below the measurement limit, confirming inactivation. At 1% and 0.1% samples, the virus concentration decreased, but did not fall below the limit of measurement.



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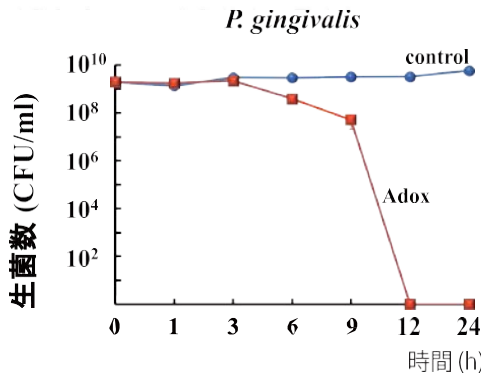
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(5) 第2132号 2020年(令和2年) 11月3日(火曜日) 日本歯科新聞



55 (1), 2020年。これにより「Adox」を含有したアクリルレンデイスクが、義歯床材として十分な特性を持ち、静菌・口臭予防の効果期待できることが確認された。

同研究グループは現在、将来の保険取扱いを視野に入れ、材料メーカー、ラボとの連携を検討中という。



Adoption of APIZAS in the field of Dentistry has begun. The effectiveness against oral bacteria and safety of oral use was recognized after research at the Kanagawa Dental University in Yokosuka, Kanagawa, Japan.

Inorganic APIZAS powder was mixed with denture resin tested for its effect on oral bacteria (P. Gingivalis, S. Mutans, C. Albicans)

antibacterial effect was demonstrated with suppression of proliferation observed

Since it is effective against periodontal disease bacteria, cavities-causing bacteria, halitosis-causing substances, candida bacteria, etc., it exerts a great effect in improving the oral environment.

Bacteria that cause gum disease are also associated with the development of Alzheimer's disease and related dementias, especially vascular dementia.

One theory is that bacteria and the inflammatory molecules they make can travel from infections in the mouth through the bloodstream to the brain.

Journal of Alzheimer's Disease, 2020, Clinical and bacterial markers of periodontitis and their association with incident all-cause and Alzheimer's disease dementia in a large national survey, Beydoun M, et al

Antimicrobial effects and mechanical properties of acrylic resin containing aPIZAS

Abstract: Objectives: Denture plaque and poor denture hygiene are associated with stomatitis. They may also serve as a reservoir of potential infectious pathogens, and may contribute to oral malodor. The prevention of microbial adhesion to denture surfaces is essential for maintaining good oral hygiene and preventing plaque accumulation. The purpose of present study was to evaluate the antimicrobial effects and mechanical properties of acrylic resin containing aPIZAS. aPIZAS has been shown to suppress the growth of fungi, bacteria, and algae, and is an antibacterial agent that is used in a wide range of fields. It is also chemically stable and safe. Methods: Acrylic resin disk containing 1.5%, 1.0% and 0.5% aPIZAS were used in this study. Acrylic resin disks containing aPIZAS on mechanical strength was evaluated by Water absorption test and three-point bending test. The antimicrobial effects of aPIZAS and acrylic resin disks containing aPIZAS were performed using *Streptococcus mutans*, *Porphyromonas gingivalis* and *Candida albicans*. The deodorizing activity of acrylic resin disks containing aPIZAS immersed in *P. gingivalis* suspension was also examined. Results: The water absorption, flexural strength and flexural modulus of acrylic resin disks containing aPIZAS were not significantly different from those of acrylic resin disks without aPIZAS. The aPIZAS showed bactericidal activity against *P. gingivalis*, *S. mutans* and *C. albicans*. Bacterial adhesion to the acrylic resin disks containing aPIZAS was significantly lower than those of acrylic resin disks without aPIZAS. Acrylic resin disks containing aPIZAS deodorized methyl mercaptan produced by *P. gingivalis*. Conclusions: Acrylic resin disks containing 1.0% aPIZAS were confirmed to exert antibacterial effects and deodorant effects. Furthermore, the mechanical properties were similar to disks without aPIZAS. These results suggest that acrylic resin disks containing aPIZAS is very useful as a dental material.

Division: Japanese Division Meeting

Meeting: 2020 Japanese Division Meeting (Virtual)

Location: Virtual, Japan

Year: 2020

Final Presentation ID: 15

Abstract Category|Abstract Category(s): Microbiology/Immunology

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Abstract Archives Article publication
from International Association of
Dental Research

Research on development of dental acrylic resin using antibacterial aPIZAS

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Kanagawa Dental University Graduate School of Dentistry, Advanced Oral Medicine Department 4) Stocks Nissho Chemical Company (Receipt: March 4, 2020, Acceptance: April 1, 2020)

Study on development of dental acrylic resin using aPIZAS

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Abstract

The purpose of the present study was to evaluate the antimicrobial effects and mechanical properties of acrylic resin containing aPIZAS, a specially processed zinc powder. aPIZAS has been shown to suppress the growth of fungi, bacteria, and algae, and is an antibacterial agent that is used in a wide range of fields. It is also chemically stable and safe. Dental plaque is a causative factor for caries and periodontal disease, and has also been linked to stomatitis, which may serve as a reservoir of potentially infectious pathogens. The prevention of microbial adhesion to denture surfaces is essential for maintaining good oral hygiene and preventing plaque. *Porphyromonas gingivalis*, *Streptococcus mutans*, and *Candida albicans* were used to assess the antibacterial activity of aPIZAS powder and acrylic resin disks containing aPIZAS. After the addition of aPIZAS powder to the culture medium, viable cell counts were assessed after 1, 3, 6, 9, 12, and 24 hours. Acrylic resin disks containing aPIZAS were placed in the culture medium and cultured for 18 hours. The number of microorganisms adhering to the disks was calculated. The deodorizing activity of acrylic resin disks containing aPIZAS immersed in bacterial solution was also examined. Acrylic resin disks containing 1.0% aPIZAS were confirmed to exert antibacterial and deodorizing effects. Furthermore, their mechanical properties were similar to disks not containing aPIZAS. Thus, acrylic resin containing aPIZAS is very useful as a dental mate

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