



AI-generated image

NATURAL TOPICAL SOLUTIONS TO HELP MANAGE SKIN INFECTIONS



**EASE OF USE
FOR HIGH
COMPLIANCE**



**SCIENTIFICALLY
PROVEN
EFFICACY**



**TRENDSSETTING
INNOVATIONS
SINCE 2003**



Naturally efficient





Facts

Bacterial skin infection is one of the main reasons for antimicrobial use in dogs and cats¹.

Different types of pathogens can be encountered in pets such as bacteria and fungi, including yeasts.

Bacterial skin infection is one of the most common reasons for consulting a dermatologist².

These infections include pyoderma, which is often secondary to underlying disorders such as atopic dermatitis, Flea Allergy Dermatitis (F.A.D), demodicosis, sarcoptic mange, hyperadrenocorticism...³.

Several types of pyodermas exist :

Surface pyoderma (intertrigo and microbial overgrowth syndrome)

Superficial pyoderma affecting the epidermis (impetigo, bacterial folliculitis)

Deep pyoderma affecting the dermis or even the hypodermis (furunculosis, bacterial cellulitis)

«64% of dogs with canine atopic dermatitis develop a chronic bacterial infection which can reach up to 100% depending on the breed⁴».

Staphylococci are most often implicated in skin infections in dogs.

« In dogs, the pathogen identified in over 90% of cases is *Staphylococcus pseudintermedius*² ».

« More than 80% of staphylococcal strains produce penicillinases (resistance to penicillin G), 28% are resistant to clindamycin, 36% to tetracyclines, 13% to fluoroquinolones, and approximately 13% are resistant to first-generation cephalosporins and the combination of amoxicillin and clavulanic acid. There has been an increase in the frequency of staphylococcal strains resistant to methicillin⁵».



Malassezia dermatitis is another very common skin disease in pets and a frequent reason for consulting a veterinarian.⁶ Identification of the pathogen, *Malassezia pachydermatis*, along with any underlying conditions such as allergies is key to guiding the overall management of the condition.



1. Antimicrobial resistance, a real public health challenge around the world

Antimicrobial resistance remains **one of the 10 major threats** to humanity⁸. According to the World Health Organization (WHO), it was responsible for **1,27 million deaths** in 2019⁹ and could lead to up to **10 million deaths per year by 2050** if we do nothing⁸.

This phenomenon is partly due to the inappropriate use of systemic antibiotics in both human and veterinary medicine¹⁰.

For several years, the risk of resistance, particularly of methicillin-resistant strains of *S.pseudintermedius*, has been steadily increasing. To act against this antimicrobial resistance, guidelines on the proper use of antimicrobials in case of skin infections, written by veterinary scientific committees (WAVD and ISCAID) have multiplied.

2. Biofilm



The frequent formation **of bacterial biofilms** could also explain the phenomenon of **antimicrobial resistance**.

The protective matrix they form **limits the effectiveness of antibiotics**, but also that of antibodies and inflammatory cells of the animal. The action of flux pumps within the biofilm **allows certain antibiotics to be expelled** from the matrix. Finally, collaboration between bacteria **reduces** their metabolic activity and therefore their **receptivity to antibiotics**.

In dogs, biofilm formation has been proven in **skin and ear infections as well as in bite wounds**. Electron microscopy observations have revealed their presence in approximately 60% of chronic wounds in dogs.



Diagnosis

For each suspected case of pyoderma, a stepwise approach needs to be used before prescribing an antimicrobial treatment. Indeed, this can **contribute to reducing the inappropriate use of antimicrobials, promoting faster treatment success and preventing relapses** ⁷.

SKIN EXAMINATION

Recognize skin lesions typically associated with surface, superficial and deep pyoderma

CYTOLOGY

Identify bacterial aetiology e.g. intracellular cocci within neutrophils
Confirm that this is a pyoderma

FURTHER DIAGNOSTIC TESTS

Identify primary causes and rule out differential diagnoses
Why did the dog develop pyoderma?

Is **BACTERIAL CULTURE (BC) & ANTIMICROBIAL SUSCEPTIBILITY TESTING (AST)** needed for treatment choices?

TOPICAL THERAPY

Laboratory test results are not applicable for drugs applied topically

Breakpoints for topically applied drugs are not available

Not needed

SYSTEMIC THERAPY

LOW concern about drug resistance

BC/AST to guide responsible drug choices

If choosing drugs empirically, only consider first-choice agents

Preferred & recommended over empirical choices

HIGH concern about drug resistance

History of recurrent pyoderma, repeated antimicrobials, MRS infection
High regional prevalence of MRS
Rods or polymicrobial cytology

Always & strongly recommended

Diagram taken and adapted from the Guidelines on the use of antimicrobials in canine pyoderma by the International Society for Companion Animal Infectious Diseases (ISCAID) © 2025 A. Loeffler, C. L. Cain, L. Ferrer, K. Nishifuji, K. Varjonen, M. G. Papich, L. Guardabassi, S. M. Frosini, E. N. Barker, J. Scott Weese. Veterinary Dermatology published by John Wiley & Sons Ltd on behalf of ESVD and ACVD.

For more details



Managing pyoderma



Topical therapy is a great opportunity to promote responsible antimicrobial use in the management of patients with pyoderma.⁷

« Topical therapy used as sole antimicrobial treatment is **the treatment-of-choice** for **all cases of surface and superficial pyoderma** and also should be considered as **adjunct therapy** in **all cases of pyoderma** that require systemic treatment. »

Guidelines 2025

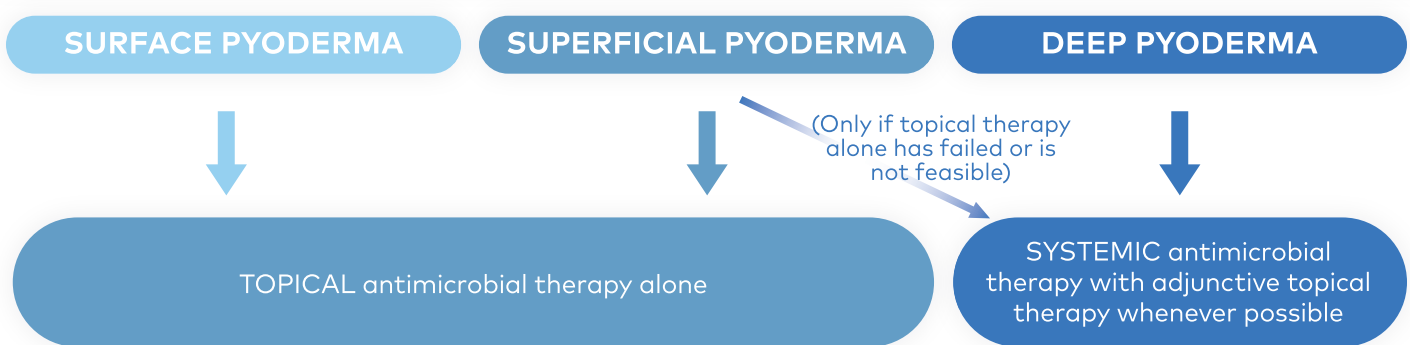


Diagram taken from the Guidelines on the use of antimicrobials in canine pyoderma by the International Society for Companion Animal Infectious Diseases (ISCAID) © 2025

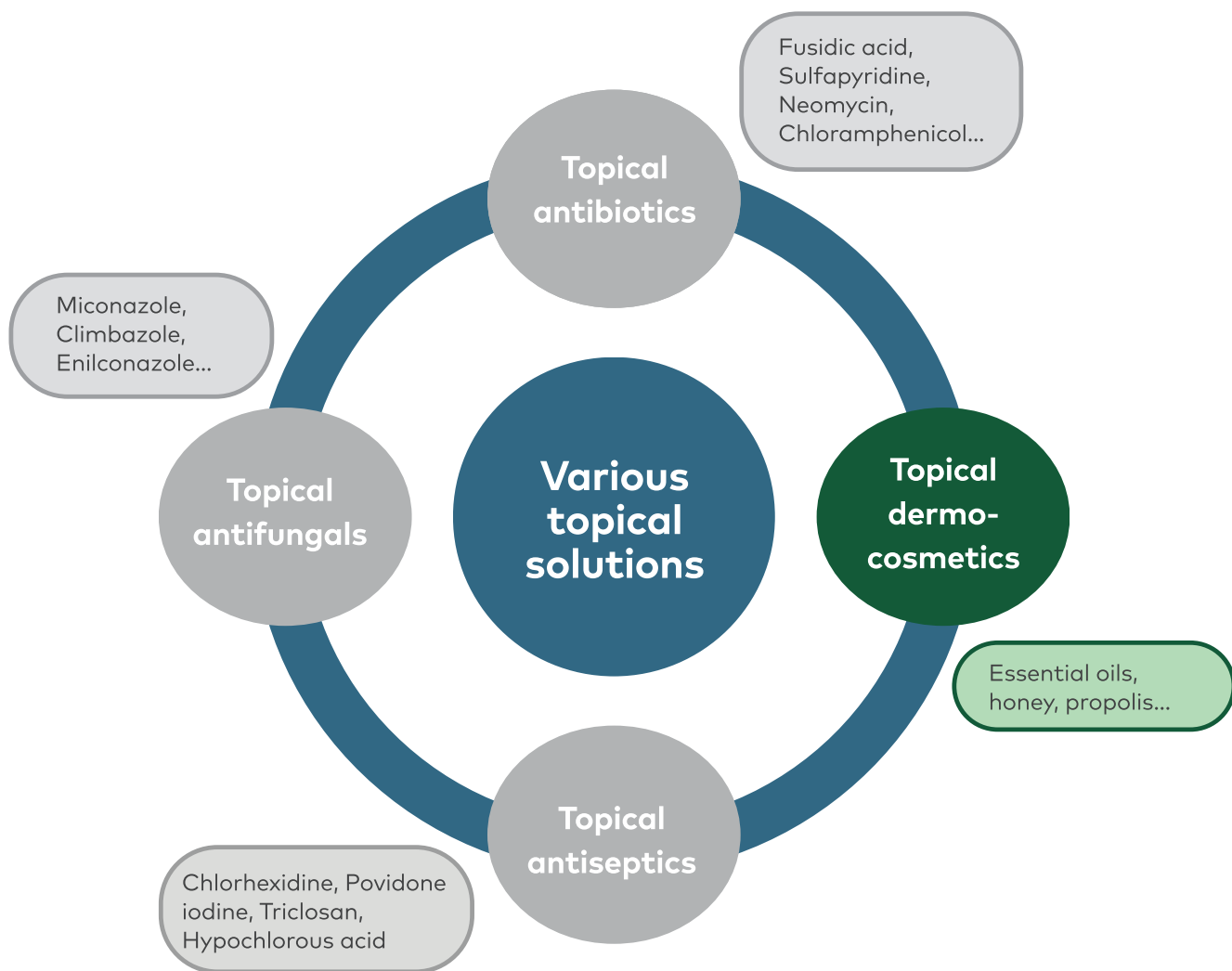
A.Loeffler, C. L.Cain, L. Ferrer, K.Nishifuji, K.Varjonen, M G Papich, L.Guardabassi, S M. Frosini, E N Barker, J Scott Weese. Veterinary Dermatology published by John Wiley & Sons Ltd on behalf of ESVD and ACVD.

As skin lesions are directly accessible, topical treatments (which come in various forms: spot-on, cream, shampoo, spray, wipes, foams, etc.) are particularly recommended in veterinary dermatology.²

Topical treatment offers many advantages⁷ :

- ✓ Reduces the need for systemic antimicrobials and limits their impact on the gut microbiota, as well as other adverse effects.
- ✓ Effective in the treatment of superficial and surface pyoderma; can replace systemic antimicrobials.
- ✓ When used as adjuvant therapy, it can reduce the duration of systemic treatment required.^{7,11}
- ✓ Effective against staphylococci that are sensitive or resistant to methicillin.
- ✓ Low risk of inducing antimicrobial resistance when used correctly, thanks to the high local concentration of active ingredients at the site of infection.
- ✓ **Safe, generally well tolerated, and suitable for long-term use.**^{7,12}
- ✓ **Often cost effective.**
- ✓ **Reduces malodor, scales and crusts, number of bacteria and biofilm and increases cleanliness. Improves hygiene and skin condition.**

Various topical solutions are available for the management of skin infections



Discover the guidelines ^{11,12,13} available on the website of the **World Association for Veterinary Dermatology** by scanning this QR code



Discover the **2025 guidelines on the use of antimicrobials in canine pyoderma** by the International Society for Companion Animal Infectious Diseases (ISCAID)⁷



In this brochure, we will focus on essential oils as alternative substances to help manage skin infections.

Our solution



« Phyto-aromatherapy [...] opens a new way, without toxicity, without environmental impact and without harmful side effects » ¹⁴

In the current context of rising antibiotic resistance and need for action, **essential oils should be part of the veterinarian's arsenal for managing skin infections.**

They indeed **offer interesting perspectives** thanks to their **multiple biological properties**, demonstrated in the literature, such as anti-inflammatory, sedative, digestive, **antimicrobial**, antiviral, and antioxidant effects. ¹⁵



HYGIENE IS ESSENTIAL



Bathing, regardless of the product used, is beneficial because of its mechanical action.

It cleanses the skin and removes dandruff and crusts. Water also rehydrates the *stratum corneum* and prepares the skin for the action of the active ingredients that will be used. In cases of pyoderma, it is therefore recommended to **bathe frequently**, initially every two days and then weekly as a maintenance.²

However, bathing can be challenging and thus reduce owner compliance, which is crucial in cases of skin infections. Therefore, various complementary or alternative formulations that are easier to use are available, such as rinse-free foams.

PYOclean® Shampoo

Purifying Shampoo



Once to twice weekly



PYOclean® Mousse

Rinse-free cleansing and purifying foam



As often as needed



100% natural active ingredients that purify, moisturize and support the skin barrier. *Oregano and manuka essential oils, propolis, honey, green apple lipoamino acids, EFA...*

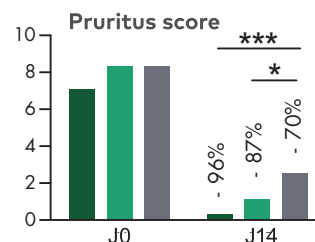
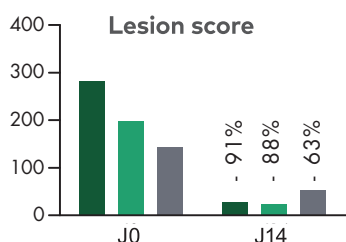


Easy to use
Rinse-free foam to space out shampoos, for frequent baths or localized areas, for animals with an aversion to water...



Efficacy proven in a published study¹⁶

- **30 dogs** with superficial pyoderma assigned to 3 groups:
 - Group 1: **PYOclean® Shampoo** twice a week & **PYOclean® Mousse** once a day
 - Group 2: **PYOclean® Shampoo** twice a week & **PYOclean® Spray** once a day
 - Group 3: Medical shampoo containing chlorhexidine, miconazole and microsilver (Biohex® Vetbiotek, USA) twice a week
- Duration : **14 days**
- Evaluation criteria: cytological, lesion and pruritus scores



Statistical significance; **, p < 0.01 ; ***, p < 0.001

●● These natural topical solutions can be considered as effective alternatives in a multimodal approach for managing superficial pyoderma in dogs.

STRENGTHENING THE SKIN BARRIER TO REDUCE RELAPSES



In some cases, infections can recur or even become chronic. To limit relapses, it is important to strengthen the skin barrier, which may be altered and contribute to the proliferation of pathogens on the animal's skin.



PYOspot®
Purifying spot-on

1 pipette per week in one point between the shoulder blades



100% natural active ingredients that purify, moisturize and support the skin barrier.
Neem and ajowan extracts, palmarosa and savory essential oils, EFA



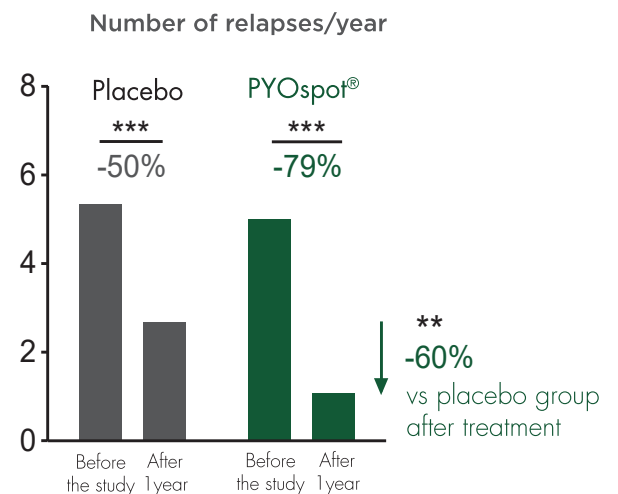
Easy to use



Efficacy proven in a published study¹⁷

- **25 dogs** with at least **3 episodes of pyoderma** per year
- 1 application of **PYOspot®** per week
- Follow-up of the number of relapses over one year

●● **Regular and long-term use of PYOspot® in addition to treatment for the underlying condition significantly reduces recurrent episodes of pyoderma. This natural topical solution could be a valuable complementary solution to control recurrences especially on a long-term basis.**



LOCALIZED AREAS



In cases of localized pyoderma, « sprays and lotions are interesting »²



PYOclean® Spray

Purifying spray

Twice a week



100% natural active ingredients that purify, moisturize and support the skin barrier.
N-acetylcysteine, manuka & lavandin essential oils, prebiotic, EFA...

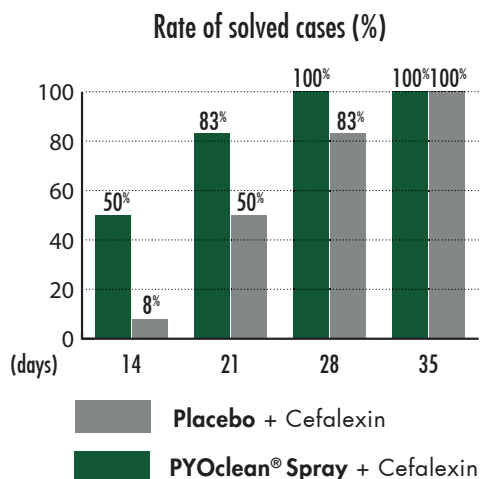


Ideal for chin acne, pododermatitis, lip edges, skin folds...



Efficacy proven in a published study¹⁸

- 12 dogs with superficial pyoderma
- Systemic treatment: **cefalexin** (15 mg/kg twice a day) in association with **PYOclean® Spray** on half of the body and a **placebo** spray on the other half
- Duration: **4 weeks**
- Follow-up of case resolution on D14, D21, D28 et D35



Hind limbs after 14 days:



PYOclean® Spray



Placebo

🔊 These results show that the use of **PYOclean® Spray** can help hasten the resolution of pyoderma when used in conjunction with systemic antimicrobial therapy. It could also shorten the duration of antimicrobial treatments.

IN CASES OF OTITIS EXTERNA



PYOclean® Oto Purifying ear cleanser



100% natural active ingredients that purify, moisturize and support the skin barrier.

N-acetylcysteine, red myrtle essential oil, honey, propolis...



Hygienic and practical single-doses:

limit cross-contamination between ears
improve compliance (easy and constant dosage)

During otitis externa: once a day to cleanse and prepare the ear canal prior to receiving the medical treatment.

Regular use to limit relapses: **once a week.**



Can be used on **rabbits**



Clinical case¹⁹

- **10 dogs** (18 ears) presenting with erythematato-ceruminous otitis externa or abnormal epithelial migration
- **PYOclean® Oto** application as stand-alone care once a day to twice a month depending on the cases
- Duration: **3 months**



-43%***

Abnormal epithelial migration



-91%***

Erythema

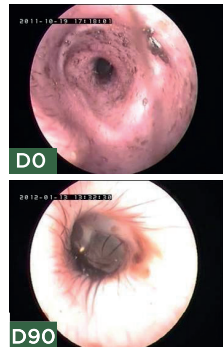


-75%*

Pruritus

***p<0,001 *p<0,05

Erythematoceruminous otitis in a 3-year-old Beagle



© M.-C. Cadiergues



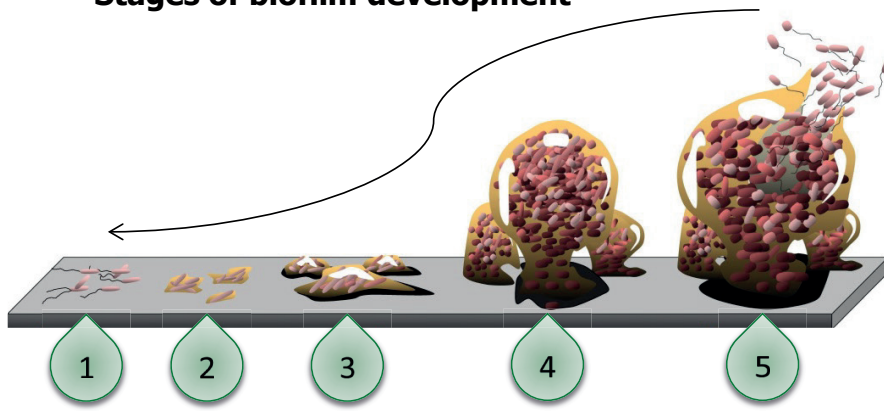
WHAT ABOUT BIOFILM ?



Indeed, biofilms are communities of microorganisms that bind together and secrete an adhesive and protective matrix, giving them remarkable resistance.

Substances such as **manuka essential oil**, **N-acetylcysteine** and **Tris-EDTA** have been successfully tested to **combat *Staphylococcus pseudintermedius* biofilm formation** ⁵.

Stages of biofilm development



- 1 Initial attachment:**
reversible/transitory adherence
- 2 Irreversible attachment:**
irreversible adherence, unicellular layer
- 3 Initial phase of biofilm maturation:**
aggregation in micro-colonies
- 4 Growth and maturation of biofilm**
- 5 Dispersion and distribution of biofilm**



ANTIBIOFILM SOLUTIONS



PYOclean® Spray

Purifying spray



PYOclean® OTO

Purifying ear cleanser



PYOclean® Mousse

Purifying rinse-free cleansing foam

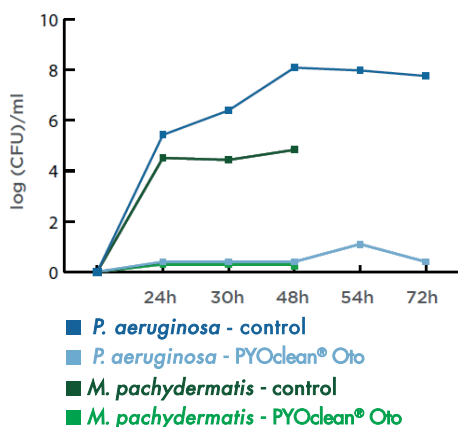
Ingredients that can help limit biofilm formation : *N-acetylcysteine, Manuka essential oil and Propolis*



In vitro efficacy proven in a published study ²⁰

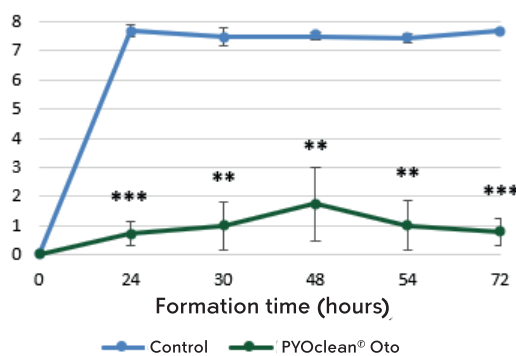
- Test on *Malassezia pachydermatis* & *Pseudomonas aeruginosa*, often involved in otitis with **PYOclean® Oto**
- Test on *Staphylococcus pseudintermedius* with **PYOclean® Spray**
- **Follow up of biofilm formation on 48 or 72h in the presence of PYOclean® Oto and PYOclean® Spray** or sterile distilled water as a control, with adhering cells counting
- Follow up on performed biofilms after 240min with **PYOclean® Oto**

Effect of **PYOclean® Oto** on biofilm formation versus control

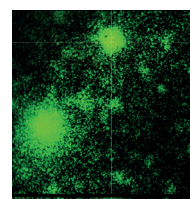


*p<0,05 vs control

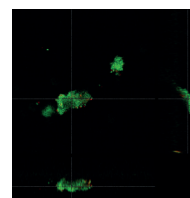
Effect of **PYOclean® Spray** on biofilm formation of *S.pseudintermedius* vs control



Effect on a *P. aeruginosa* mature biofilm after contact with **PYOclean® Oto** (confocal microscopy)



Control



After 1h of contact with **PYOclean® Oto**

PYOclean® Spray and PYOclean® Oto can help limit biofilm formation and weaken existing biofilms

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WHY INCLUDE THE PYO RANGE IN YOUR CARE PROTOCOL FOR THE MANAGEMENT OF SKIN INFECTIONS

- To help **purify the skin**
- To promote the **cutaneous barrier repair** and contribute to **restore the balance of the skin microbiota**
- To help soothe and hydrate the skin

REACTIVE CARE

Medicated treatments
 (antibiotics, antifungals, oclacitinib...)



In association with **PYO range**.....
 Natural topical solutions - **Chlorhexidine-free**



PROACTIVE CARE



VP10625ENT

Training & Scientific support
 Veterinary corner
www.dermoscent.com





Lunch & Learn :

Natural topical solutions to help manage skin infections

Name:

Date :



Our history

2003

Dermoscent[®] was created by a veterinarian & 2 specialists of human dermo-cosmetics



To offer innovative and efficient solutions, based on phytotherapy, to improve the skin health and well-being of animals and thus meet owners' expectations.



2021

Dermoscent[®] / **LDCA** is now part of Nextmune



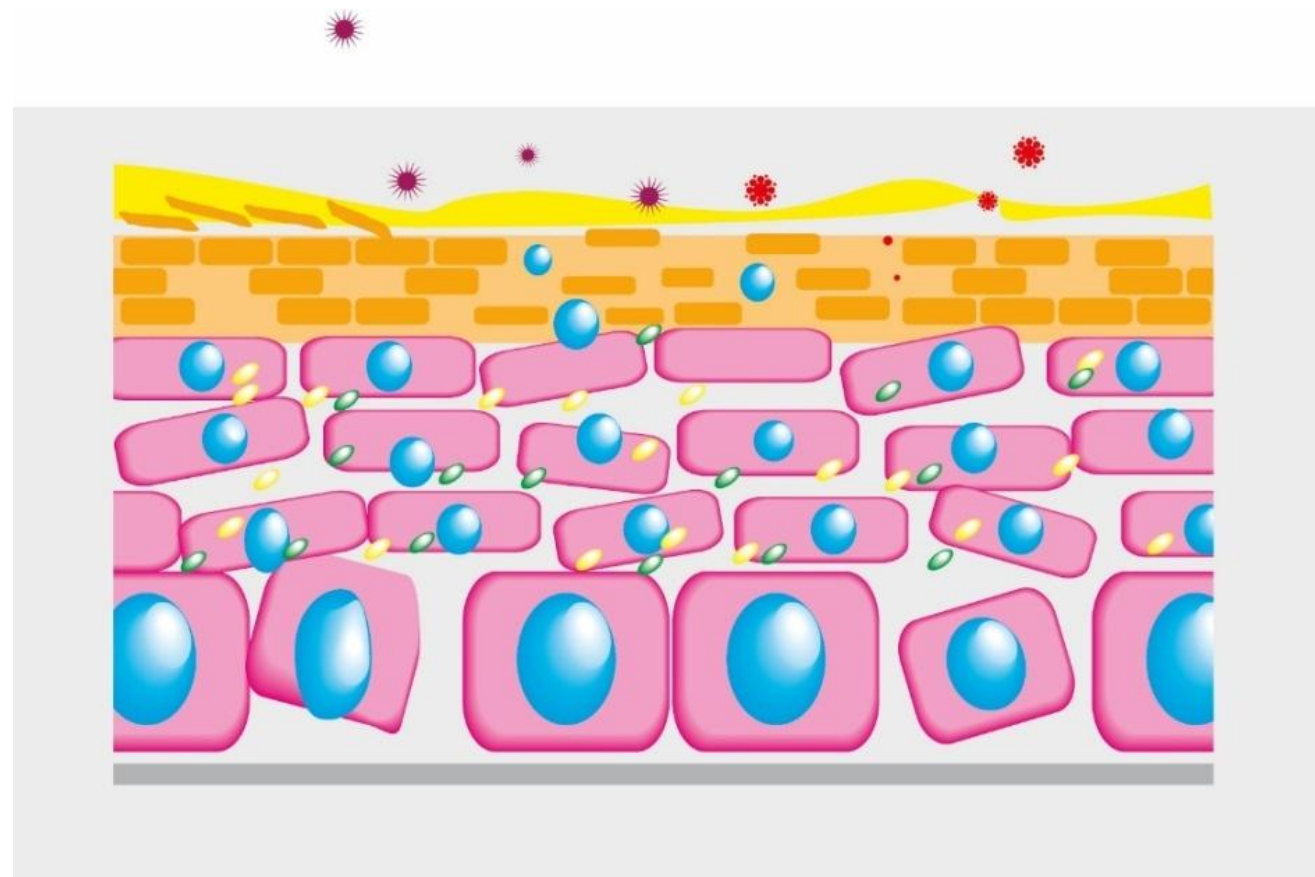
Our values

Dermoscent[®] is founded on a unique trilogy of expertise



Our expertise >>> THE SKIN

At the origin of numerous skin disorders > a skin barrier defect



- Skin hydration decreases / increases Trans-Epidermal Water Loss (TEWL)
=> **scaling/dandruff**
- Reduces protection against pathogens and allergens penetration
=> **inflammatory reactions, allergic reactions**
- Unbalance of skin ecosystem & microbial proliferation
=> **skin infections, bad odors**
- Sebaceous gland activity is altered
=> **seborrhea disorders**
- Hair follicle is weakened
=> **hair loss or reduced hair growth**



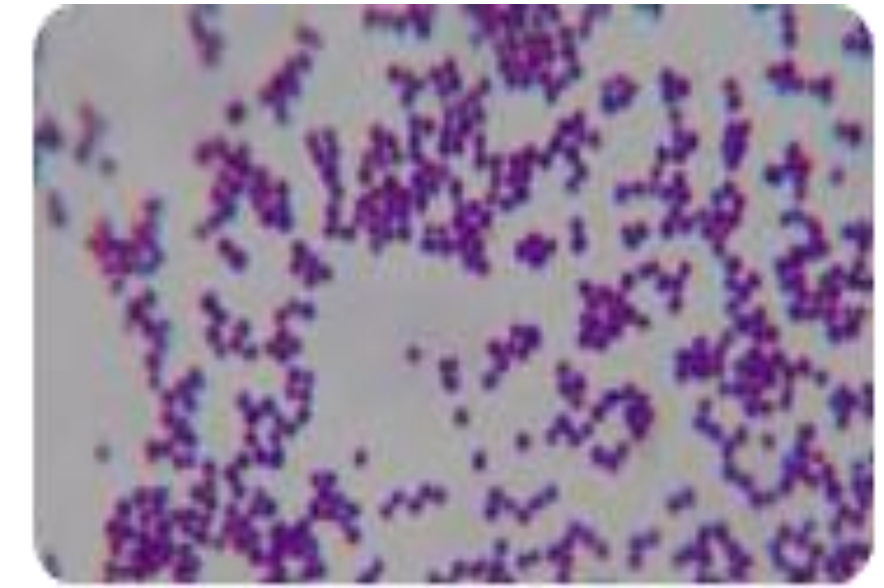
Reinforcing or maintaining the skin barrier with **LIPIDS** is KEY to prevent and help manage skin disorders



Facts

Bacterial skin infection is **one of the main reasons** for **antimicrobial use** in dogs and cats ¹

- Bacterial skin infection is one of the most common reasons for consulting a dermatologist ²
- Among them, 2 major skin infections exist :
 - * **Pyoderma**
 - * ***Malassezia* Dermatitis**



Focus on pyoderma

- Several types of pyodermas exist :
 - * Surface pyoderma
 - * Superficial pyoderma
 - * Deep pyoderma



- In more than **90%** of pyoderma cases in dogs, *Staphylococcus pseudintermedius* is isolated ²
- **Over 80%** of staphylococcal strains are resistant to penicillin G, and the frequency of methicillin-resistant strains has increased.³

Antimicrobial resistance, a real public health challenge around the world



Remains **one of the 10** major
threats to humanity ⁴



In 2019, it was responsible for
1,27 million deaths and could
lead to **up to 10 millions** deaths
per year **by 2050**⁵

Inappropriate use of systemic antibiotics in both human and veterinary medicine



Guidelines on the proper use of antimicrobials in case of skin infections, written by veterinary scientific committees (WAVD & ISCAID) have multiplied

Focus on the different guidelines

2014⁶

Veterinary Dermatology

Vet Dermatol 2014; **25**: 163–e43

DOI: 10.1111/vde.12118

Guidelines for the diagnosis and antimicrobial therapy of canine superficial bacterial folliculitis (Antimicrobial Guidelines Working Group of the International Society for Companion Animal Infectious Diseases)

2017⁷

Veterinary Dermatology

Check for updates

Vet Dermatol 2017; **28**: 304–e69



DOI: 10.1111/vde.12444

Recommendations for approaches to meticillin-resistant staphylococcal infections of small animals: diagnosis, therapeutic considerations and preventative measures.
Clinical Consensus Guidelines of the World Association for Veterinary Dermatology

Daniel O. Morris*, Anette Loeffler†, Meghan F. Davis‡, Luca Guardabassi§ and J. Scott Weese¶



NEW

2025⁸



GUIDELINES

Veterinary Dermatology

Antimicrobial use guidelines for canine pyoderma by the International Society for Companion Animal Infectious Diseases (ISCAID)

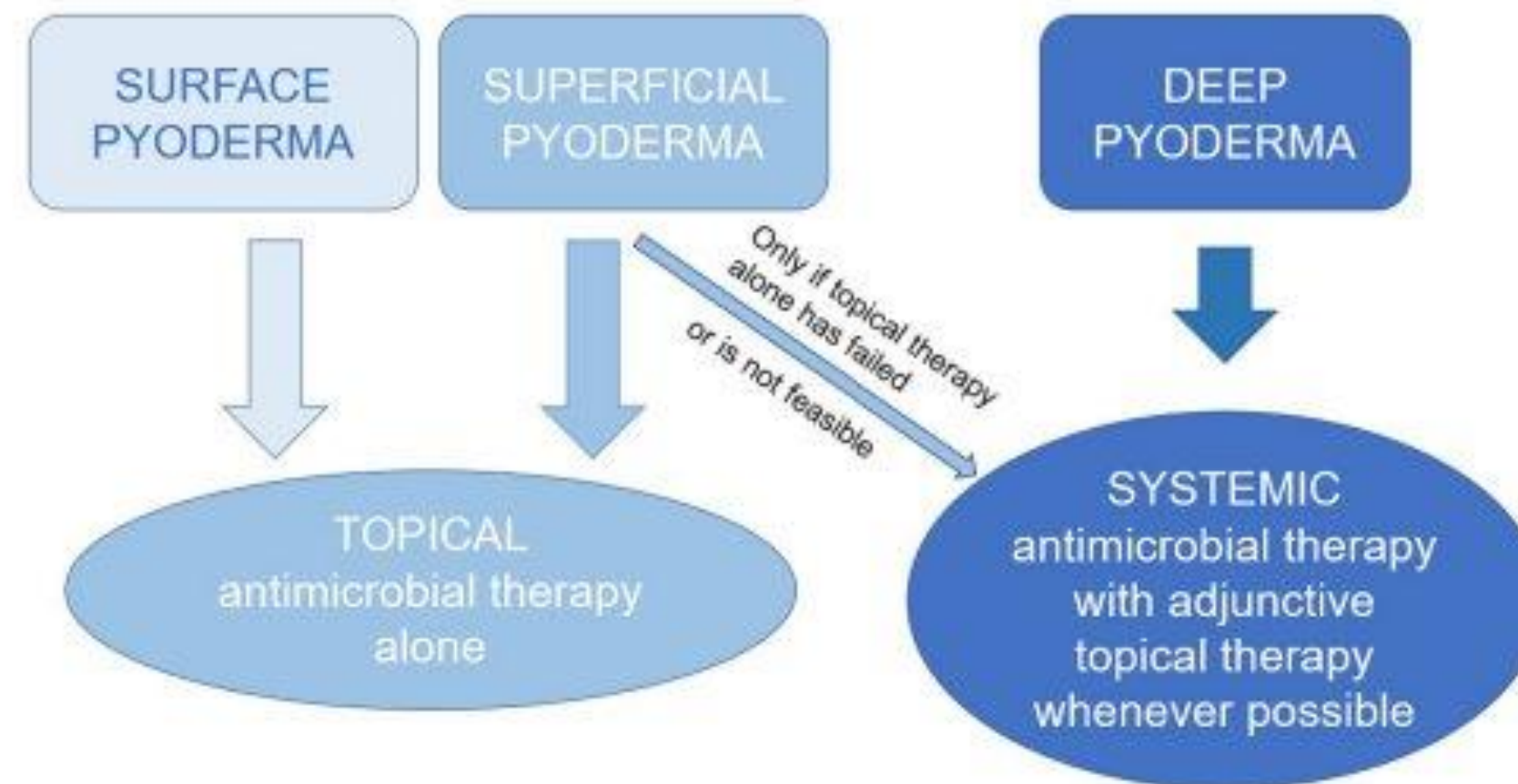


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Emi N. Barker⁸ | J. Scott Weese⁹

Topical therapy is KEY for managing skin infections

- 2025 guidelines indicate :

Topical therapy used as sole antimicrobial treatment is **the treatment-of-choice** for all cases of surface and superficial pyoderma and also should be considered as **adjunct therapy** in all cases of pyoderma that require systemic treatment
Guidelines 2025⁸



Topical therapy is KEY for managing skin infections

- Topical treatment offers many advantages⁸ :

Reduces the need for systemic antimicrobials and limits their impact on the gut microbiota

Effective in the treatment of superficial and surface pyoderma

Used as adjuvant therapy, it can reduce the duration of systemic treatment^{7,8}

Effective against staphylococci that are sensitive or resistant to methicillin

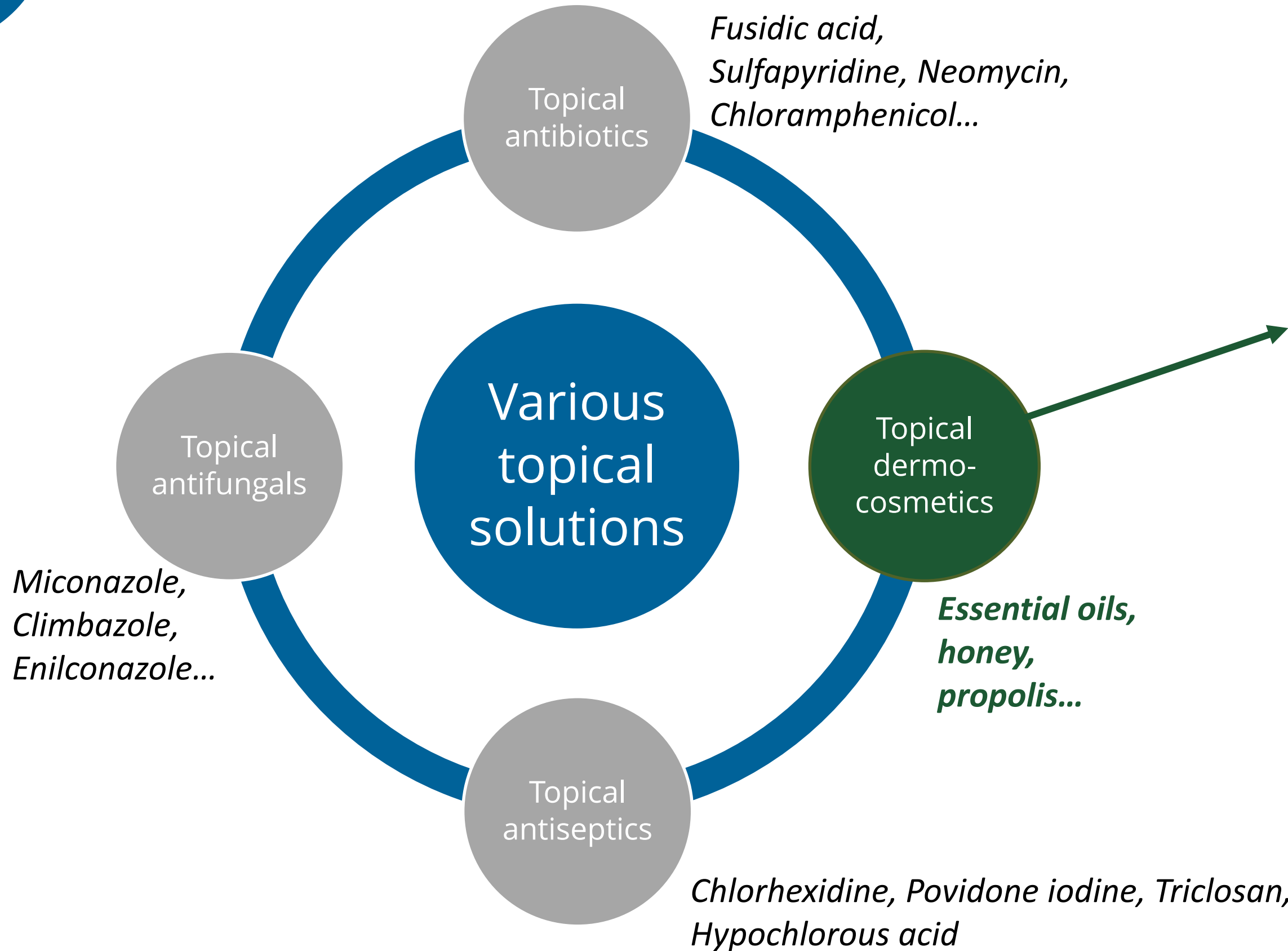
Low risk of inducing antimicrobial resistance

Safe, generally well tolerated, and suitable for a long-term use^{7,9}

Often cost effective

Improves hygiene and skin condition

Various topical solutions exist



Dermoscent[®] offers the **PYO line** designed to help **manage skin infections and combat antimicrobial resistance**



Essential Oils

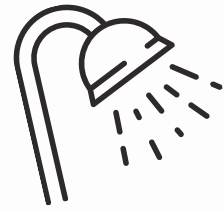
Essential oils

- They offer **interesting perspectives** thanks to their **multiple biological properties**, demonstrated in the literature, such as ¹⁰ :
 - * anti-inflammatory,
 - * sedative,
 - * digestive,
 - * **antimicrobial**,
 - * antiviral,
 - * antioxidant effects
- They should be part of the veterinarian's arsenal for **managing skin infections**

« Phyto-aromatherapy [...] opens a **new way, without toxicity, without environmental impact** and without **harmful side effects** » ¹¹

PYO line

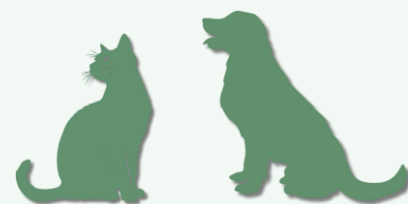




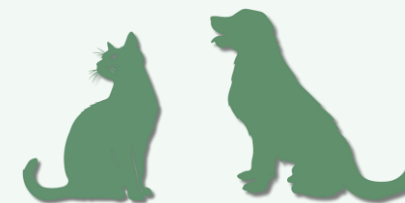
Hygiene is ESSENTIAL

Bathing, regardless of the product used, is **beneficial** because of its **mechanical action**.
It **cleanses** the skin and **removes** dandruff and crusts. ²

PYOclean® Shampoo



PYOclean® Mousse



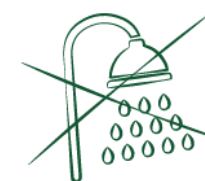


Hygiene is ESSENTIAL



PYOclean® Shampoo

Purifying & hydrating shampoo



PYOclean® Mousse

Rinse-free purifying foam



A mild yet effective formula which does not irritate nor dehydrate the skin



200 ml

Once to twice a week

100% NATURAL ACTIVE INGREDIENTS

- Green apple of lipoamino acids
- Oregano & manuka essential oils
- Propolis
- Honey
- Hemp seed soil: rich in EFA



Antibiofilm

Easy to use: rinse-free

Helps extend the time between shampoos



150 ml

As often as needed

100% NATURAL ACTIVE INGREDIENTS

- Green apple of lipoamino acids
- Saponaria root & lichen extracts
- **N-acetylcysteine**
- Propolis & honey
- Manuka & lavandin essential oils
- Glycerin from vegetable origin
- Hemp seed oil: rich in EFA



Hygiene is ESSENTIAL

SCIENTIFIC EVIDENCE

Efficacy of proprietary formulations containing essential oils and plant extracts compared to chlorhexidine plus miconazole shampoo in canine superficial pyoderma,

C. Romero, G. Sheinberg, A. M. Cordero, R. Heredia

Poster WCVD 2020, Abstract Veterinary Dermatology, October 2020

Protocol

- 30 dogs with superficial pyoderma assigned to 3 groups:

Group 1: **PYOclean® Shampoo** twice a week & **PYOclean® Mousse** once a day

Group 2: **PYOclean® Shampoo** twice a week & **PYOclean® Spray** once a day

Group 3: Medical shampoo containing chlorhexidine, miconazole and microsilver (Biohex® Vetbiotek, USA) twice a week

- Duration: 14 days
- Evaluation criteria: cytological, lesion and pruritus scores

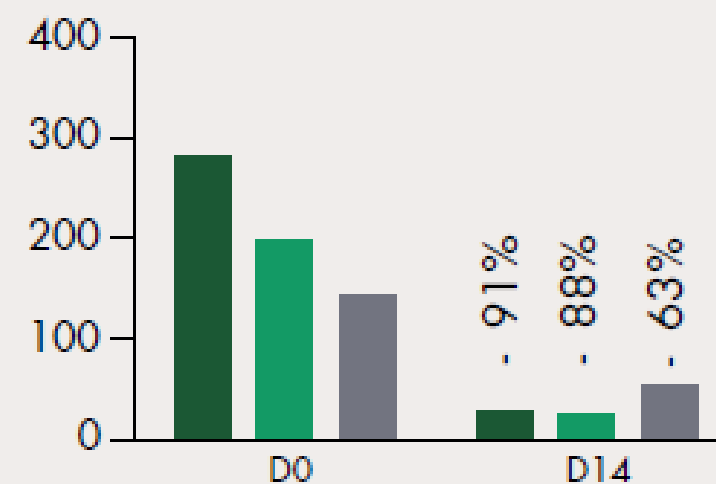
Results

■ PYOclean® Shampoo + PYOclean® Mousse ■ PYOclean® Shampoo + PYOclean® Spray ■ Biohex® shampoo

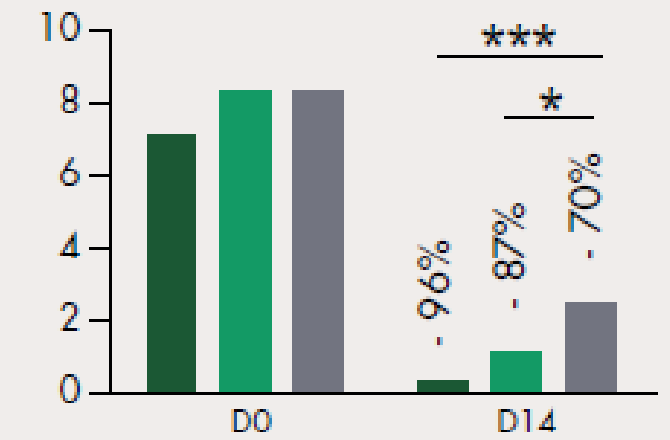
- Cytological score:

Cocci **-93%** **-93%** **-81%** Yeasts **-82%** **-92%** **-90%**

Lesion score

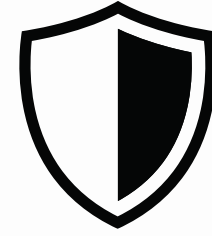


Pruritus score



Statistical significance *, p < 0.05 ; ***, p < 0.001

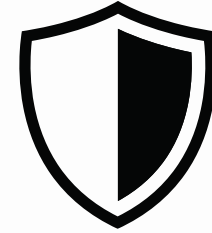
Conclusion : These natural topical solutions can be considered as effective alternatives in a multimodal approach for managing superficial pyoderma in dogs.



Strengthening the skin barrier to reduce relapses

To **limit relapses**, it is important to **strengthen the skin barrier**, which may be altered and contribute to the proliferation of pathogens on the animal's skin.





Strengthening the skin barrier to reduce relapses

PYOspot® : Purifying spot-on



INDICATION

Prevention and adjuvant solution for generalized *pyoderma* and *Malassezia dermatitis*

- Helps rebalance the skin flora
- « 3 in 1 » action: purifying, soothing and hydrating
- **Helps prevent relapses**



4 pipettes



QUICK & EASY APPLICATION FOR OPTIMAL COMPLIANCE

1 pipette per week as long as necessary

KEY INGREDIENTS

- Neem and ajowan extracts
- Palmarosa & savory essential oils
- Lavandin and lemon eucalyptus essential oils
- Hemp seed and tamanu oils: rich in EFA



Reinforce the skin barrier and reduce relapses

SCIENTIFIC EVIDENCE

Topical application of a proprietary blend of essential oils and plant extracts (PYOspot®) is associated with fewer relapses of pyoderma

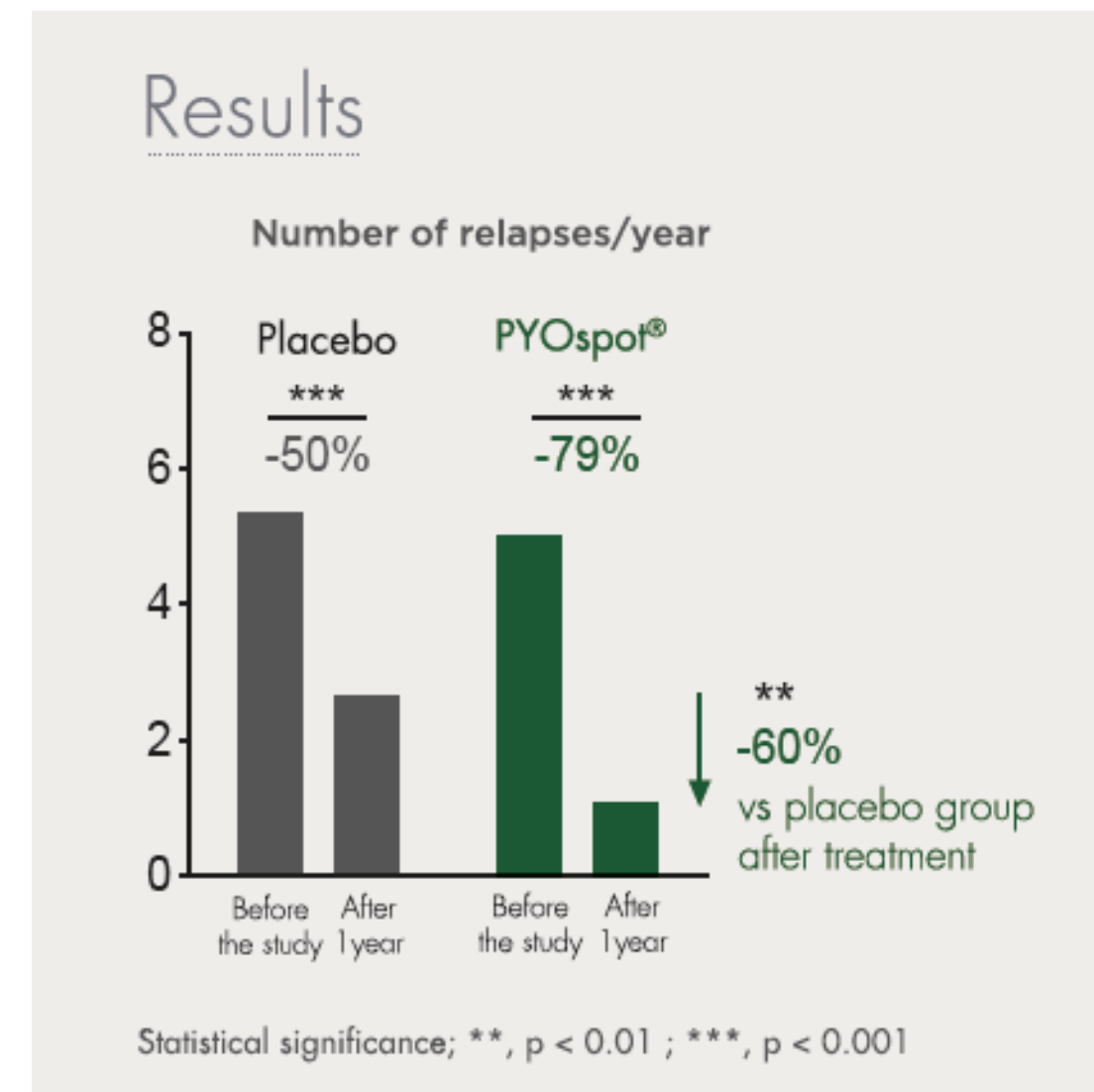
V. Fadok, F. Seckerdiek, E. Bensignor, C. Noli, A. Oliveira, R. Mueller Article in Poster WCVD 2020, Abstract *Veterinary Dermatology*, October 2020

Protocol

- 26 dogs with at least 4 episodes of pyoderma per year
- 1 weekly application of **PYOspot®** or placebo
- Follow-up of the number of relapses over 1 year

Conclusion :

“Regular and long-term use of PYOspot® in addition to treatment for the underlying condition significantly reduces recurrent episodes of pyoderma. This natural topical solution could be a valuable complementary solution to control recurrences, especially on a long-term basis”.



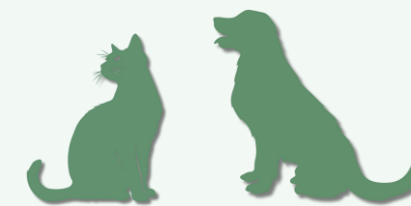


Localized areas

In case of **localized pyodermas**, « **sprays and lotions are interesting** ». ²



PYOclean[®] Spray





Localized areas

PYOclean Spray® : Purifying spray

INDICATION

Localized skin infections: **pyoderma** and **Malassezia dermatitis**, chin acne...

Helps:

- Purify & rebalance the skin flora
- Limit the formation of biofilm & disrupt mature biofilm
- Hydrate and soothe the skin

Unique antimicrobial and antibiofilm action
Strengthens the skin's natural defenses thanks to a prebiotic
Helps limit the use of antibiotics

Twice a day as soon as the 1st clinical signs appear

Superficial cases: as a unique treatment

Severe cases: as an adjunctive care along with usual medication (antimicrobials, antifungals, etc.)



50 ml

KEY INGREDIENTS

- Lavandin essential oil
- Manuka essential oil
- **N-acetylcysteine**
- Prebiotic agent
- Hemp seed oil: rich in EFA



Localized areas

SCIENTIFIC EVIDENCE

A split-body, randomized, blinded study to evaluate the efficacy of a topical spray composed of essential oils and essential fatty acids from plant extracts with antimicrobial properties

E. Bensignor, L. Fabriès, L. Bailleux

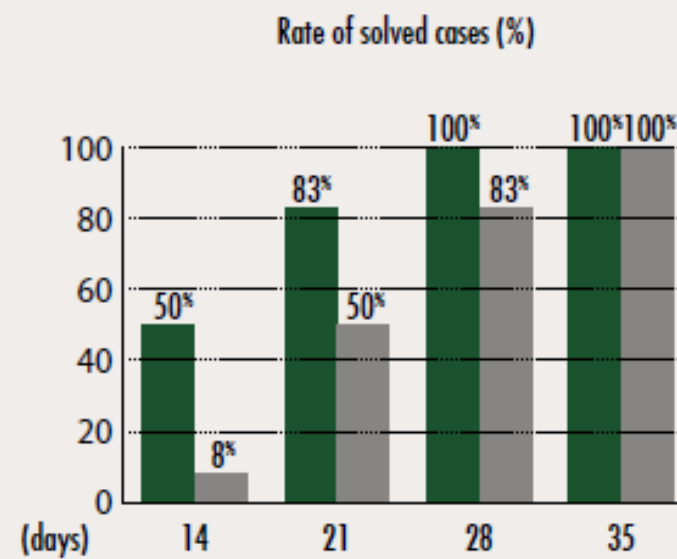
Article *Veterinary Dermatology*, December 2016 & Poster WCVD 2016

Protocol

- **12 dogs** with a superficial pyoderma
- Systemic treatment: **cefalexin** (15 mg/kg twice a day) in association with **PYOclean® Spray** on half of the body and a **placebo** spray on the other half
- Duration: **4 weeks**
- Follow-up of case resolution on D14, D21, D28 et D35

Results

- Placebo + Cefalexin
- PYOclean® Spray + Cefalexin



Hind limbs
after 14 days:

PYOclean® Spray



Placebo



Conclusion :

“These results show that the use of PYOclean® spray can help hasten the resolution of superficial pyoderma when used in conjunction with systemic antimicrobial therapy. It could also shorten the duration of antimicrobial treatments.”

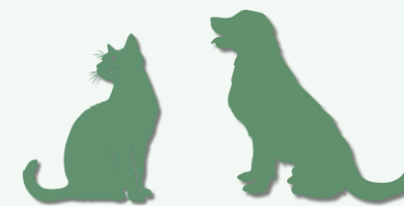


Otitis externa

Otitis externa is an inflammatory disease of the external auditory canal and **can be complicated by bacteria or yeast.**



PYOclean® Oto





Otitis externa

PYOclean Oto® : Purifying & soothing ear cleanser

INDICATION

- Prevention of recurrent erythematous-ceruminous otitis (ECO)
- Complementary care for treatment of otitis externa

Helps:

- Cleanse & deodorize
- Purify thanks to antimicrobial and antibiofilm active ingredients
- Limit the proliferation of pathogens & rebalances skin flora
- Soothe the ear canal



Hygienic and practical single-dose format

ECO: once a day prior to the medical treatment

Maintenance to avoid relapses: once a week for one month and then once every two weeks as long as necessary



10 single-doses

KEY INGREDIENTS

- Green apple lipoamino acids
- **N-acetylcysteine**
- **Propolis**
- Honey
- Red myrtle essential oils



Otitis externa

SCIENTIFIC EVIDENCE

Evaluation of an ear cleaner based on natural ingredients with antimicrobial, anti-biofilm and anti-inflammatory properties in rabbits with otitis externa

G. Sheinberg, A. Martin Cordero, C. Romero, A. Flores, R. Heredia,
Short Com ESVD 2019, Abstract Veterinary Dermatology, December 2019

PROTOCOL

30 rabbits showing clinical signs of otitis externa or prone to recurrent otitis are included.

- ▶ 15 rabbits receive PYOclean[®] Oto 1x/week
- ▶ 15 rabbits do not receive any product
- ▶ Duration of the study: 4 weeks (+1 week of follow-up after stopping the application)

RESULTS

CYTOLOGY

At D0: All rabbits had parasites (*Psoroptes cuniculi*) and bacteria. No *Malassezia*.

100% NEGATIVE CYTOLOGIES after 1 month of PYOclean[®] Oto application. (No change in the control group)

CLINICAL LESIONS

D0

73% of the ears had lesions evaluated as severe (67% in the control group)

D21, D28 & D35

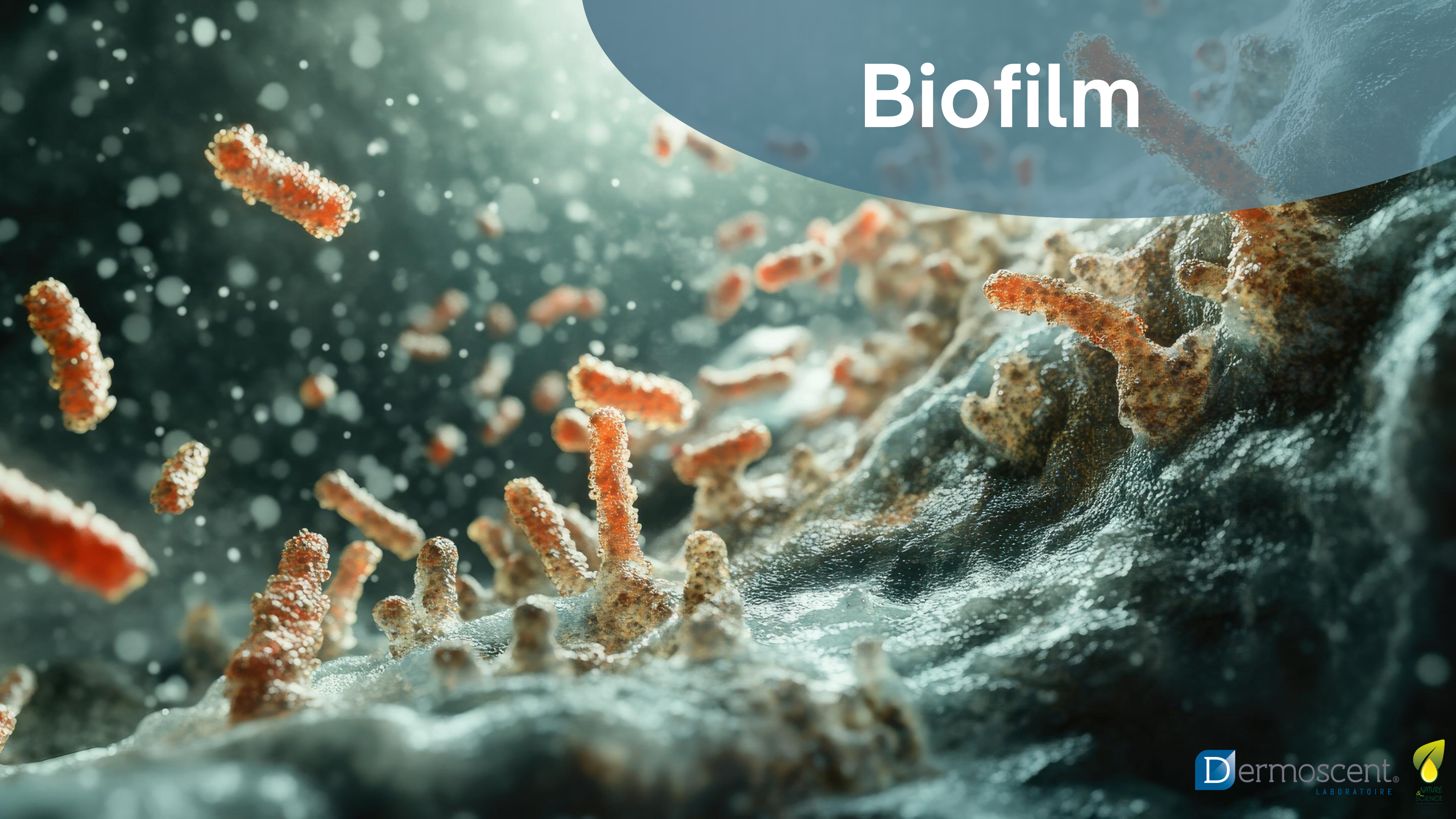
100% OF EARS WITHOUT LESION in the group with PYOclean[®] Oto (0% in the control group)



Conclusion :

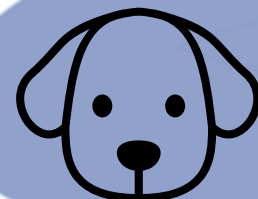
Significant improvement in cytology and clinical signs of otitis with PYOclean[®] Oto. In this study, PYOclean[®] Oto enabled the successful management of otitis externa in rabbits as stand-alone care.

Biofilm



Biofilm

- A **biofilm** is a **community of microorganisms** that bind **together** and secrete an **adhesive and protective matrix**, giving them remarkable **resistance capabilities**.
- They contribute to the phenomenon of antibiotic resistance through several mechanisms ³:
 - * The adhesive and protective matrix **limits the effectiveness of antibiotics**.
 - * **Expulsion of certain antibiotics** from the matrix via efflux pumps.
 - * Collaboration between bacteria that **reduces their receptivity to antibiotics**.
- **Substances** such as **manuka essential oil**, **N-acetylcysteine** and **Tris-EDTA** have been successfully tested to **combat *Staphylococcus pseudintermedius* biofilm formation** ³.



In dogs, **biofilm formation** has been observed in **skin and ear infections as well as in bite wounds**.

PYO line solutions



PYOclean[®] Mousse



PYOclean[®] Spray



PYOclean[®] Oto





Antibiofilm

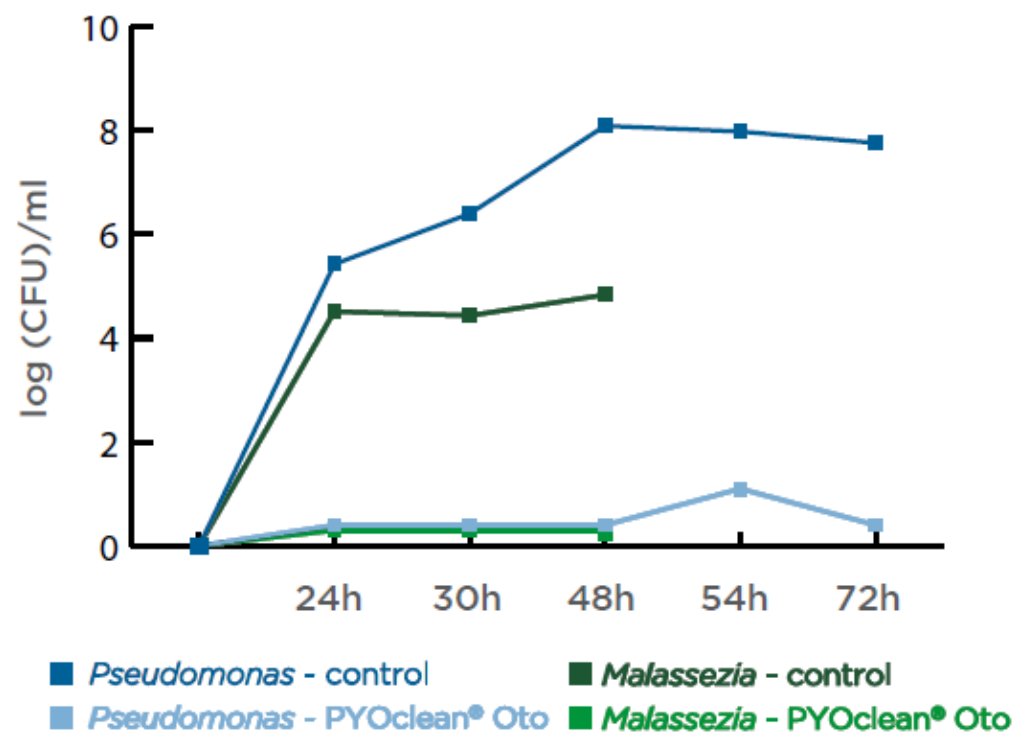
SCIENTIFIC EVIDENCE

Evaluation of N-acetylcysteine combined with natural extracts against *Staphylococcus pseudintermedius*, *Malassezia pachydermatis* and *Pseudomonas aeruginosa*

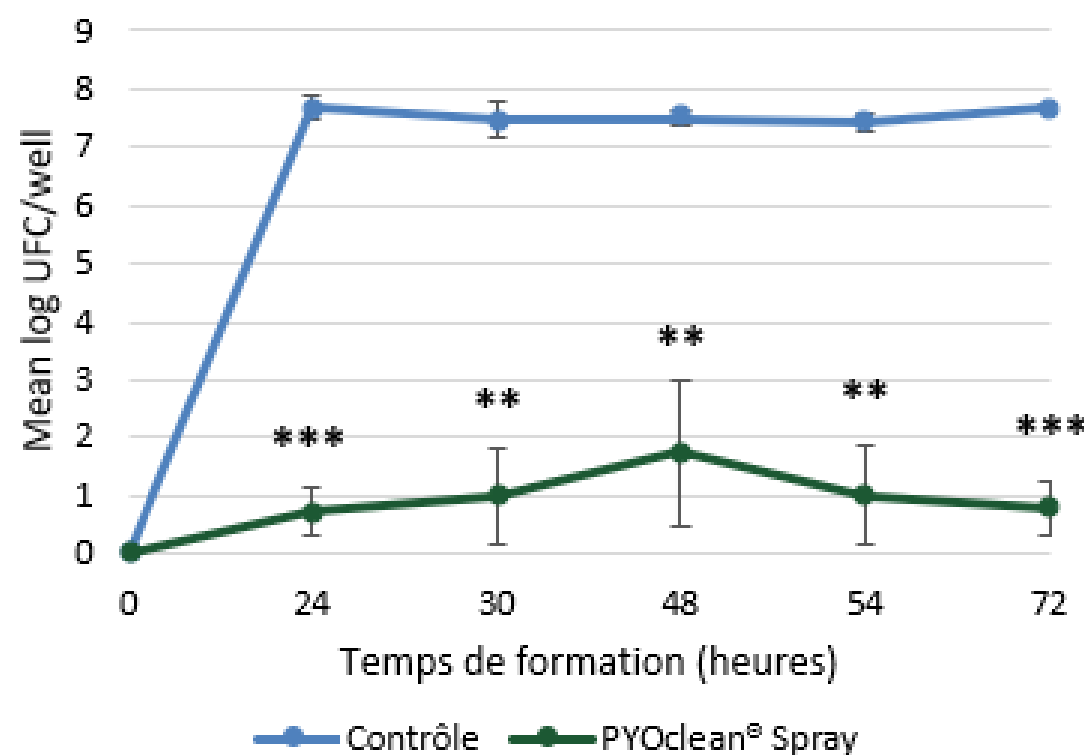
C. Feuillolay, E. Bensignor, L. Fabriès, R. Andriantsalama, C. Roques
Poster NAVDF 2019, Abstract Veterinary Dermatology, August 2019

PROTOCOL

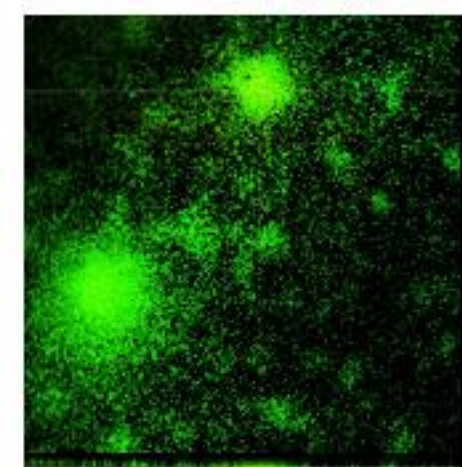
- Test on *Malassezia pachydermatis* & *Pseudomonas aeruginosa*, often involved in otitis with **PYOclean[®] Oto**
- Test on *Staphylococcus pseudintermedius* with **PYOclean[®] Spray**
- **Follow up of biofilm formation on 48 or 72h in the presence of PYOclean[®] Oto and PYOclean[®] Spray or sterile distilled water as a control, with adhering cells counting**
- **Follow up on performed biofilms after 240min with PYOclean[®] Oto**



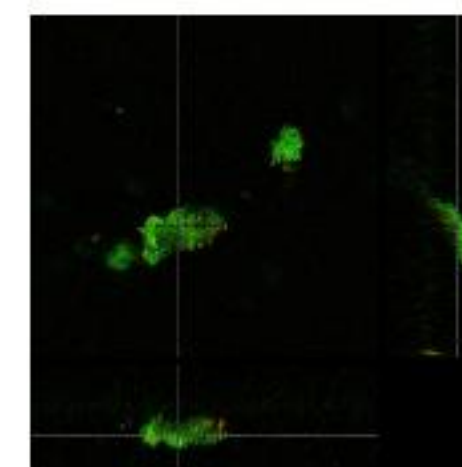
Effect of **PYOclean[®] Oto** on biofilms formation vs control



Effect of **PYOclean[®] Spray** on biofilm formation of *S. pseudintermedius* vs control



Before
PYOclean[®] Oto



After 1h with
PYOclean[®] Oto

Disruption of *P. aeruginosa* **mature biofilm** after contact with **PYOclean[®] Oto** (confocal microscopy observation)

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Questions ?



Naturally efficient