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Articles & Studies

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Summary

Chapter I - Canine Atopic Dermatitis (CAD)

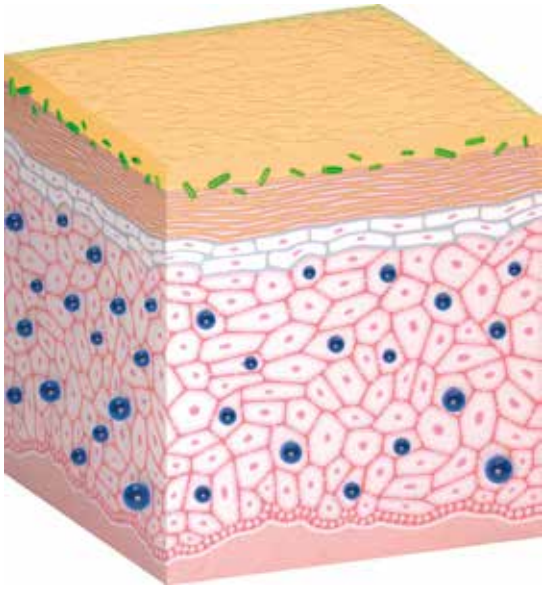
"Canine atopic dermatitis (CAD) is a genetically predisposed chronic skin disease. This common disease is also one of the main reasons for consultation in veterinary dermatology. Its treatment is always multimodal, such as:

1. Specific desensitization if the allergy has been identified and confirmed,
2. Reduction of skin inflammation by immunomodulatory, anti-allergic and/or topical or systemic antipruritic agents,
3. Skin rehydration and skin barrier repair.

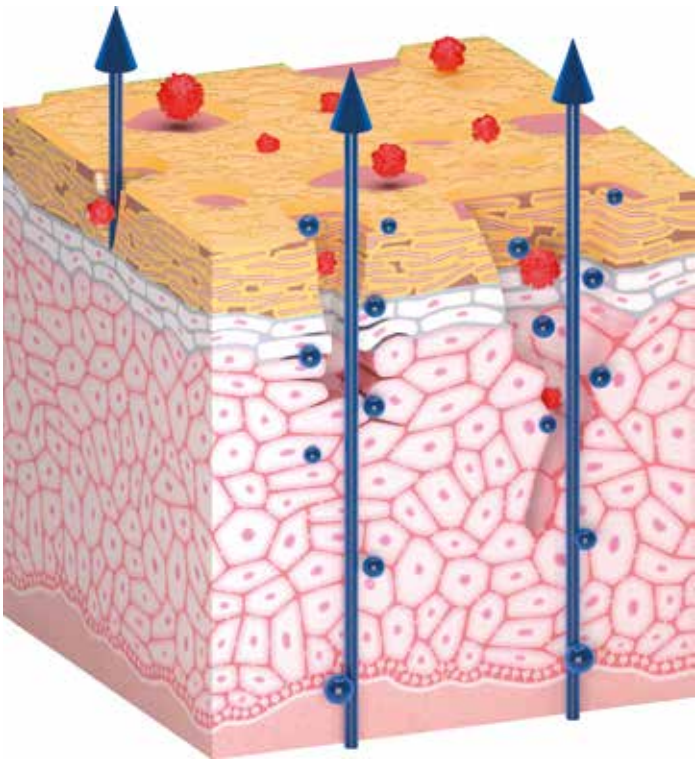
Skin barrier repair is particularly important in both short and long terms by rapidly improving the cosmetic appearance of the skin and fur to the owners' satisfaction while reducing allergen penetration, breaking the vicious circle of itchiness/scratching and limiting the TEWL in the long run.

Atopic skin is an allergic skin in need of specific care. Frequent, repeated and regular use of topical soothing moisturizers is always highly recommended. During inflammatory phases, spot-on treatment, shampoos, lotions or foams containing active ingredients with proven anti-allergic properties are preferable. During chronic phase, hydrating products are useful and recommended."

> From **"Handbook of Veterinary Dermo-Cosmetics"** by Dr. E. Bensignor and Dr. E. Vidémont – Med'Com 2016



Healthy skin



Atopic skin

In most skin diseases, barrier integrity is at stake when skin disorders occur. Clinical evidences demonstrate how topical dermo-cosmetic formulations can help repair skin barrier.

Based on natural ingredients, all Dermoscent® products are rich in plant-derived essential fatty acids (Omega 6 & Omega 3), carefully dosed synergies of essential oils along with other specific natural ingredients.

MULTICENTRIC RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED CLINICAL STUDY

The effect of Essential 6® spot-on in dogs with atopic dermatitis

Dr. M. Blaskovic, Dr. W. Rosenkrantz, Dr. A. Neuber, Dr. C. Sauter-Louis and Dr. R.S. Mueller

Article published in ***The Veterinary Journal*** (Feb. 2014) 199: p.39-43, open access; Supporting Original Study presentation by Dr. Ralf Mueller at the **2012 World Congress of Veterinary Dermatology** (WCVD) held in Vancouver.

Materials and methods:

A multicentric randomized, double-blind, placebo-controlled clinical study, was conducted over a period of 2 months on 48 atopic dogs by applying weekly either Essential 6® spot-on or a placebo formulation.

The treatment group consisted of 23 dogs classified with either moderate to severe CAD (n=12) or mild CAD (n=11).

25 dogs were included in the placebo group with either moderate to severe CAD (n=16) or mild CAD (n=9).

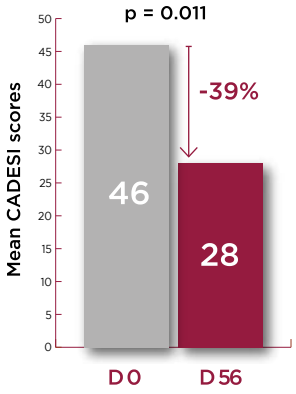
Canine Atopic Dermatitis Extent and Severity Index (CADESI-03) and pruritus scores were determined respectively by veterinarians and owners at D0 and D56.

Results:

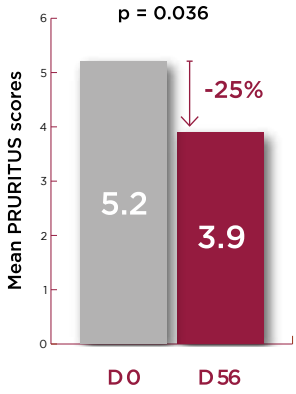
A significant and more important improvement in both CADESI and pruritus scores was seen in the treatment group (p=0.011 and p=0.036 respectively) than in the placebo group.

There were more dogs in the treatment group who showed significant improvement of at least 50% in CADESI (p=0.008) and pruritus scores (p=0.070) than in the placebo group.
No adverse reactions occurred.

Mean CADESI scores before and after 2 months of treatment in the treated group



Mean Pruritus scores before and after 2 months of treatment in the treated group



Conclusion:

Essential 6® spot-on, containing plant-derived polyunsaturated fatty acids and essential oils, helps alleviate the clinical signs of canine atopic dermatitis without side effect.

ICADA 2015
International guidelines for the management of CAD

The **ICADA** (International Committee on Allergic Diseases of Animals) mentioned in its 2015 updated **Guidelines the interest of using Essential 6® spot-on to help improve the clinical signs of CAD**, comparable to that of using conventional oral intake supplements rich in essential fatty acids with proven efficacy since decades.

Online access to the ICADA Guidelines:
http://www.biomedcentral.com/1746-6148/11/210

Effects of Essential 6® spot-on on canine skin equivalents: skin lipid assessment and morphological evaluation

Dr. S. Cerrato, Dr. L. Ramió, Dr. D. Fondevila, Dr. D. Rodes, Dr. P. Brazis, and Dr. A. Puigdemont

Article published in ***Journal of Veterinary Medicine*** (Nov. 2013); Article ID 231526, open access; Short Communication presented at the **2012 British Veterinary Dermatology Studying Group Spring Congress** (BVDSG).

Materials and methods:

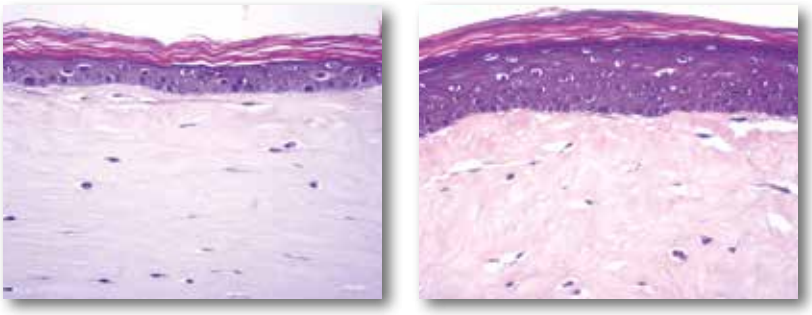
Canine skin equivalents have been used to assess the effects of Essential 6® spot-on on skin structure and composition.

22 skin equivalents were developed from freshly isolated cutaneous canine keratinocytes and fibroblasts. After seeding the keratinocytes on a fibroblast-collagen matrix, half of the skin equivalents were supplemented on the 7th day with Essential 6® spot-on and the other half with saline solution. All skin equivalents were then analyzed by histopathological techniques. In parallel, lipids were extracted from the epidermis with different mixtures of chloroform/methanol for 2 hours and quantitative analyses of these extracts were performed by thin layer chromatography coupled to an automated ionization detector. Three main lipidic groups: free fatty acids, cholesterol and ceramides were analyzed.

Results:

A thicker epidermis with an increased number of viable cell layers, a denser and more compact *stratum corneum* and a more continuous basal membrane were observed in the treated group compared to the control group.

Morphological differences were observed mainly in the epidermis layers after Essential 6® spot-on treatment, with keratinocytes and corneocytes showing a more developed structure. In terms of lipidic profile analysis, **samples treated with Essential 6® spot-on showed significant increase of ceramides** (51.7% +/- 1.3%, $p<0.01$) compared to untreated samples (41.6% +/- 1.4%).



Control skin | Treated skin

Canine skin equivalents, by mimicking healthy skin, were submitted to a histopathological analysis and a lipidic quantification. The immunohistological study showed the expression of specific epitopes of keratins with a thicker membrane in the treated group.

Conclusion:

The results of this *ex vivo* study showed the efficacy of Essential 6® spot-on in improving the *stratum corneum* thickness with increased ceramides.

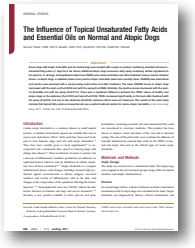
Based on plant-derived essential fatty acids and essential oils, Essential 6® spot-on is therefore a useful solution to help atopic animals reinforce their skin barrier through ceramide growth and thus improve their skin condition with a better defense against allergens and environmental aggressions.

RANDOMIZED CLINICAL STUDY

Effects of ATOP 7® Spray and Essential 6® spot-on on normal and atopic dogs

Dr. S. Tretter and Pr. R. S. Mueller - University of Munich

Article published in ***Journal of the American Animal Hospital Association JAAHA*** (July/Aug. 2011); 47(4): p. 236-240 and abstract presented as a Short Communication by Pr. R. S. Mueller at the **2010 North American Veterinary Dermatology Forum** (NAVDF) in Portland.


The Influence of Topical Unsaturated Fatty Acids and Essential Oils on Normal and Atopic Dogs

Materials and methods:

7 atopic dogs and 6 healthy dogs received weekly Essential 6® spot-on during 8 weeks. In parallel, 7 atopic dogs received ATOP 7® Spray once daily during 8 weeks. For ethical reasons, only dogs with moderate CAD were included.

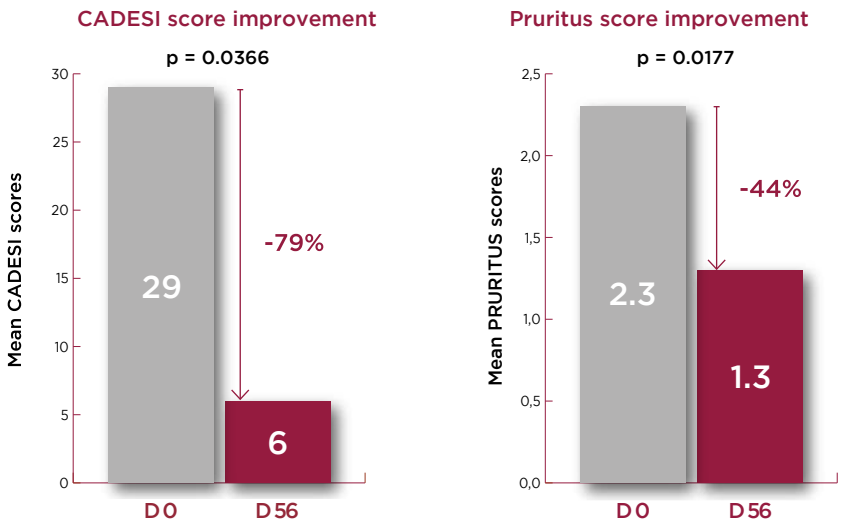
Clinical scores for both pruritus and CADESI (Canine Atopic Dermatitis Extent and Severity Index) were determined by a clinician at D0 and D56. 46 body sites were evaluated for erythema, lichenification, excoriation and alopecia on a scale from 0 to 5. The total of the scores obtained in all body sites were calculated to provide the CADESI score.

Results:

The CADESI score decreased in 13 out of 14 atopic dogs with a mean of 27.2 at D0 and 10.7 at D56. **In 9 out of 14 atopic dogs, the pruritus score decreased** with a mean of 2.6 at D0 and 1.7 at D56.

- In the group of atopic dogs receiving weekly Essential 6® spot-on, the CADESI score decreased from 25.1 to 15.3 (p=0.0043).
- In the group of atopic dogs receiving daily ATOP 7® Spray, the CADESI score decreased from 29 to 6 (p=0.0366) and the pruritus score from 2.3 to 1.3 (p=0.0177).

Group of atopic dogs treated with **ATOP 7® Spray**



Conclusion:

The results of this study on Essential 6® spot-on are comparable to those obtained in the double-blind study published in ***The Veterinary Journal*** in 2014. All atopic dogs treated during 8 weeks with either Essential 6® spot-on weekly or ATOP 7® Spray daily showed significant clinical improvement despite the small size of both groups.

Use of ATOP 7® Spray on a dog suffering from iatrogenic hyperadrenocorticism

Dr. M-C. Cadiergues, Dermatology Professor - École Nationale Vétérinaire de Toulouse

Anamnesis and medical history:

An 11-year-old intact female Coton de Tuléar was presented with a 9-month history of a severe inguinal inflammation. Bilateral and pruritic lesions appeared at the end of the summer along with a marked pedal pruritus. Treatment with topical prednisolone resolved pedal pruritus and partially improved abdominal lesions, mainly on the left side. Motivated by persistent pruritus and right side lesions, the owner continued abdominal application of prednisolone in large amount.

Complementary exams:

Five months later, no response after ACTH stimulation was found by functional investigation of the adrenal glands, and basal level of thyroxin was low.

Treatments and evolution:

Neither thyroxin supplementation nor combined topical and oral prednisolone administration gave significant improvement. A temporary improvement was obtained with oral administration of ciclosporin. At the end of this treatment, another course of topical and oral prednisolone was undertaken yet without success. Hydrocortisone aceponate was then used.

It was highly suspected that lesions were associated with iatrogenic hyperadrenocorticism. Cutaneous lesions were likely aggravated by local application of prednisolone.

It was then elected to discontinue thyroid supplementation and corticoids. ATOP 7® Spray, based on plant extracts with soothing and hydrating effect, was chosen as a sole topical treatment to be applied twice daily on the lesions.

Results:

3 weeks later, the owner reported a very positive evolution with resolution of the pruritus. Functional investigation of the adrenal glands with ACTH stimulation was repeated with still no response. ATOP 7® Spray was continued and further complemented with a moisturizing product.

5 months after the initial presentation of the dog: the general condition was excellent, skin thickness appeared normal. A post-inflammatory hyperpigmentation was generalized to the whole abdomen.

Before

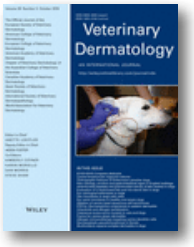
After

Assessment of the hydrating capacity[1] and acidifying effect[2] of ATOP 7® Hydra Cream

1. Pr. D. Pin and Dr. O. Fantini / Dermatology Unit - Institut Claude Bourgelat - VETAGRO SUP - Lyon

2. Pr. D. Pin and Dr. M. Mosca / Dermatology Unit - Institut Claude Bourgelat - VETAGRO SUP - Lyon

Abstract published in ***Veterinary Dermatology*** (Oct. 2018); 29(5): p. 355-374 and presented as a Short Communication by Dr. M. Mosca at the **2018 ESVD Congress** in Dubrovnik.



Introduction:

Treatment for skin dryness – also called xerosis – is important as dryness might lead to pruritus which might then lead to lesions or excoriations thus exposing the skin to risks of secondary infections. Local symptomatic management through application of topical care to hydrate the skin becomes thus essential.

Hydrating capacity

Materials & methods:

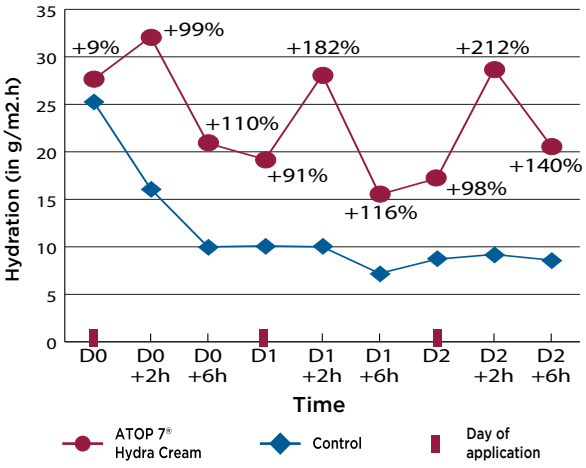
6 healthy adult Beagle dogs were enrolled in the study. One pair of hairless areas is defined as healthy/ intact skin and another pair as damaged by tape stripping. For each pair, one side will be the control while ATOP 7® Hydra Cream will be applied on the other side once daily, during 3 days. The hydration rate of the *stratum corneum* was measured 3 times a day with a corneometer: prior to ATOP 7® Hydra Cream application, 2H and 6H after application.

Results:

On intact skin in average: +194% of skin hydration after 2H and +108% after 6H.

On damaged skin in average: +164% of skin hydration after 2H and +122% after 6H (*graph below*).

Evaluation of the hydrating capacity of ATOP 7® Hydra Cream on damaged skin



% calculated for each measure by comparing them to the control group.

Acidifying effect

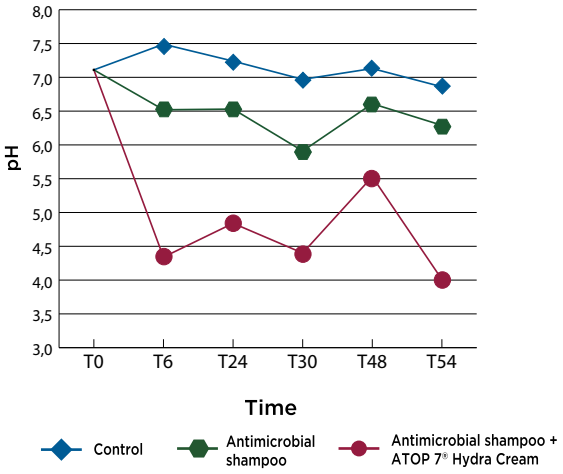
Materials & methods:

8 healthy adult Beagle dogs were enrolled in the study. Three hairless areas are defined as: control site (no product application), antimicrobial shampoo alone, antimicrobial shampoo followed by one application of ATOP 7® Hydra Cream. Each shampoo was performed at T0, T24h and T48h. pH were assessed before and 6, 24, 30, 48 and 54 h after application with a Hanna pH-meter.

Results:

ATOP 7® Hydra Cream enabled a durable decrease of the cutaneous pH. This result was significant at all times compared to the control and at 48H and 54H compared to the site with the shampoo alone ($p < 0.05$).

Evaluation of cutaneous pH (mean value)



Conclusion:

ATOP 7® Hydra Cream has demonstrated a long-lasting hydrating capacity. Its acidifying properties might also be interesting to promote skin barrier homeostasis and cutaneous antimicrobial defence. ATOP 7® Hydra Cream can be a useful solution in treating skin dryness and also in skin diseases with risks of secondary infection.

Use of ATOP 7® Mousse on localized lesions of atopic dermatitis in dogs

Dr. E. Bensignor and Dr. L. Fabriès

Article published in ***Veterinary Dermatology*** (Oct. 2018); 29(5): p. 446-448 and presented as a Short Communication by Dr. E. Bensignor at the **2018 GEDAC Congress** in Chamonix.

Introduction:

Treatment compliance is an issue for both dogs and humans suffering from AD. With only few controlled clinical studies evaluating the interest of topical non-steroidal agents for the treatment of CAD, this study evaluates the interest of ATOP 7® Mousse in the management of CAD.

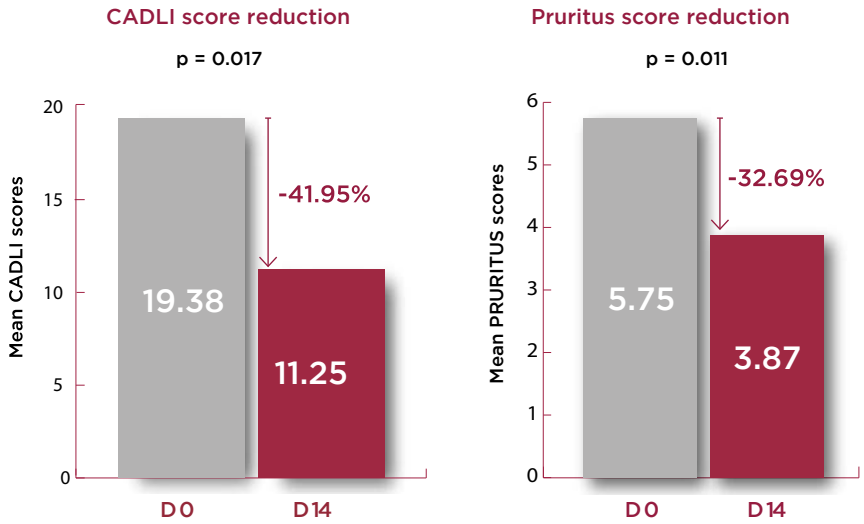
Materials and methods:

8 dogs with mild to moderate CAD were treated with ATOP 7® Mousse twice weekly for 14 days. Clinical lesions (CADLI) and pruritus (VLAS) were evaluated by the investigator. A cosmetic score (0 = bad to 4 = excellent) was assigned by the veterinarian and the owners according to 3 criteria: appearance of the coat after application, smell of the product and ease of use.

Results:

All dogs completed the study. There was a significant diminution of CADLI score with -41.95% (p=0.017) and pruritus score with -32.61% (p= 0.011). Cosmetic characteristics were viewed positively for all criteria with an average score of 3.63 for the product odor, 2.88 for the appearance of the coat after product application and 3.25 for product ease of use. Moreover, both the owners and the investigator were satisfied with product efficacy.

Evolution of CADLI and pruritus scores between D0 to D14



Conclusion:

ATOP 7® Mousse has been proven to be effective as a sole care in improving clinical signs of moderate CAD. With a galenic form which encourages compliance from the owners, its use could be considered as a therapeutic option for moderate clinical lesions of CAD. Further studies could be conducted to demonstrate the steroid sparing effect by using this foam adjunctively to conventional treatments in more severe cases of CAD.

II

Chapter II - Skin infections & otitis externa

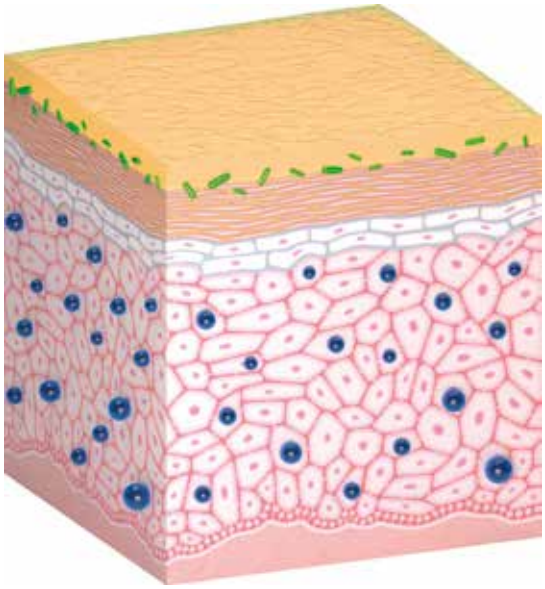
"Skin is sterile at birth. Bacteria colonize the cutaneous surface during birth and the hours following birth. Healthy skin is inhabited by various bacterial species, forming the skin microflora. This is the cutaneous bacterial ecosystem.

While certain bacteria are pathogenic, other species do not cause infection. They are permanently established on the skin where they multiply and prevent the attachment and proliferation of other microorganisms through competing for nutrients and bacterial interference. They are indispensable and beneficial to the body. A good equilibrium of these residential bacteria prevents skin from pyoderma.

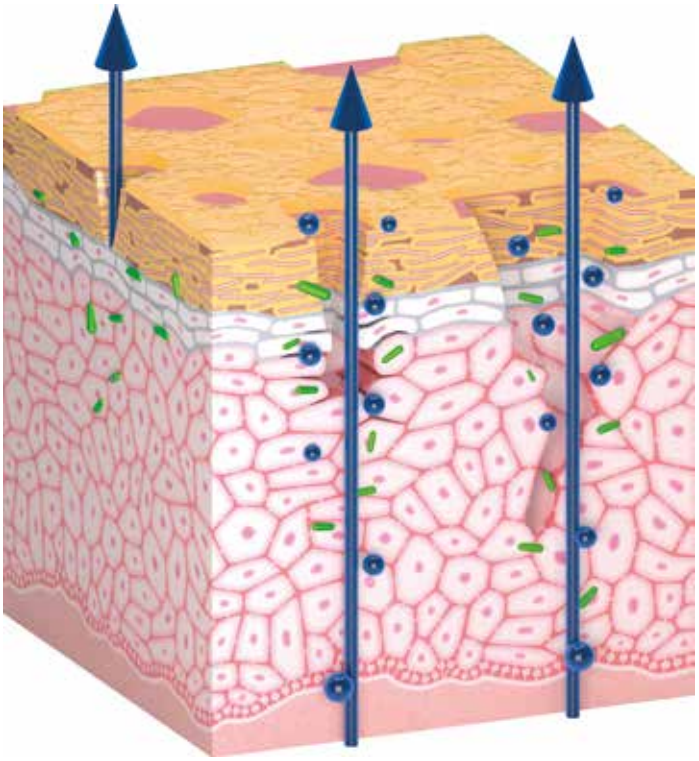
The prolonged use of topical antiseptics should not be recommended generally because these substances eliminate the beneficial skin flora and, as a result, render the skin more vulnerable to intrusion of pathogenic species. Several dermo-cosmetic solutions can be used to successfully decrease skin infection risk. They are also good options to complement specific antimicrobial therapies. Various formulations are available such as shampoos, lotions, sprays or spot-on, in order to:

- reduce bacterial and/or *Malassezia* adhesion,
- promote natural defense of the skin barrier,
- prevent the proliferation of pathogenic microorganisms."

> From **"Handbook of Veterinary Dermo-Cosmetics"** by Dr. E. Bensignor and Dr. E. Vidémont – Med'Com 2016



Healthy skin

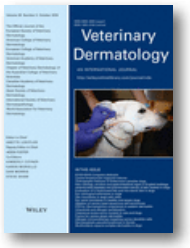


Infected skin

Effects of PYOclean® Oto and PYOclean® Spray against *Staphylococcus pseudintermedius*, *Malassezia pachydermatis* and *Pseudomonas aeruginosa* biofilms

C. Feuillolay, Dr. E. Bensignor, Dr. L. Fabriès, R. Andriantsalama and C. Roques

> Abstract published in ***Veterinary Dermatology*** (Oct. 2018); 29(5): p. 355-374 and presented as a Short Communication by Dr. L. Fabriès at the **2018 ESVD Congress** in Dubrovnik.



Introduction:

Biofilm plays an increasingly important role in some cases of pyoderma and otitis externa in dogs, as it may contribute to treatment failures and microbial resistance. The aim of this study was to assess the effect of PYOclean® Spray and PYOclean® Oto , containing N-acetylcysteine and other natural ingredients, on microbial biofilm formation and on mature biofilm.

Materials and methods:

PYOclean® Oto was tested with *Malassezia pachydermatis* and *Pseudomonas aeruginosa* which are the most frequent pathogens encountered in otitis externa. PYOclean® Spray was tested with *Staphylococcus pseudintermedius*, the most frequent pathogen in skin infections. Sterile water was used as a control.

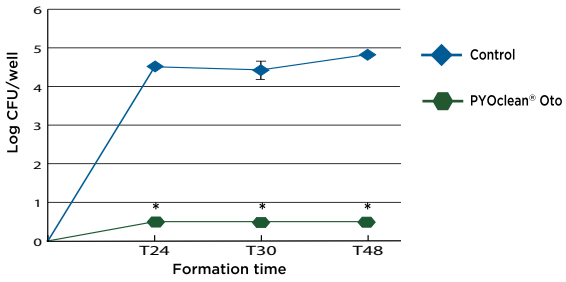
Activity on biofilm formation was assessed in microtiter plates by counting adhered microbial colonies at 24, 30, 48, 54 and 72H. Effects on a preformed biofilm were assessed by counting adhered and planktonic microbial colonies at 10, 20, 30, 120 and 240 min and evolution of the structure was visualized with a confocal microscope. Numbers were calculated as log CFU/mL or log CFU/well (CFU = colony-forming unit).

Results:

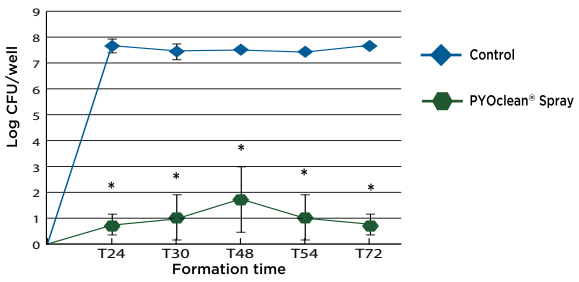
A significant inhibition of biofilm formation (*p<0.05) was demonstrated with a difference of 4.3 log for *M. pachydermatis*, 7.25 log for *P. aeruginosa* and 6.9 log for *S. pseudintermedius*, compared to the control. This activity remained effective for as long as the product was in contact with the microorganisms.

Results obtained on preformed biofilms suggest a disruptive effect on adhered colonies, prior to elimination of planktonic microorganisms. This effect was significant (*p<0.05) on *P. aeruginosa* biofilm with reduction of 3.7 log of adhered colonies and of nearly 5 log of planktonic colonies after 120 min.

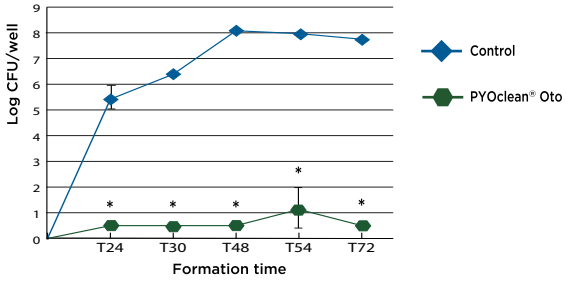
Effect of PYOclean® Oto on biofilm formation of *M. pachydermatis*



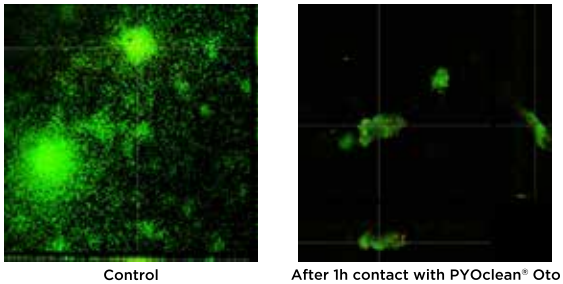
Effect of PYOclean® Spray on biofilm formation of *S. pseudintermedius*



Effect of PYOclean® Oto on biofilm formation of *P. aeruginosa*



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



Control — After 1h contact with PYOclean® Oto

Conclusion:

With a significant inhibitive effect on biofilm formation and a disruptive action on mature biofilms, PYOclean® Spray and PYOclean® Oto have been demonstrated effective *in vitro*. Their use can be considered, in combination with conventional therapies, for the treatment of skin and ear infections. Clinical studies should be conducted to confirm these results.

RANDOMIZED DOUBLE-BLIND
PLACEBO-CONTROLLED CLINICAL STUDY

A split-body, randomized, blinded study to evaluate the efficacy of PYOclean® Spray in the management of canine superficial pyoderma

Dr. E. Bensignor, Dr. L. Fabriès and Lucie Baillieux

Poster presented at **WCVD** (World Congress of Veterinary Dermatology) held in Bordeaux, 2016; publication in ***Veterinary Dermatology*** (Dec. 2016) 27(6): p. 464–467.

Introduction:

Bacterial pyoderma is a frequent disease in dogs. Despite widespread availability of effective antibiotics, Good Clinical Practice recommends the avoidance of long-term use of antibiotics to prevent bacterial resistance. The aim of this study was to evaluate the resolution speed of clinical signs of bacterial pyoderma in dogs treated with a systemic antibiotic along with PYOclean® spray, composed of plant-derived essential fatty acids, essential oils and other specific natural ingredients such as N-acetylcysteine with antibiofilm properties.

Materials and methods:

12 dogs with superficial bacterial pyoderma were included and followed-up for up to 35 days. Both investigator and owners were blinded. All dogs were treated with a systemic antibiotic (cefalexin) associated with randomly PYOclean® Spray on half of their bodies and a placebo spray on the other half. A clinical and cytological composite score was calculated at inclusion and every week until resolution of pyoderma.

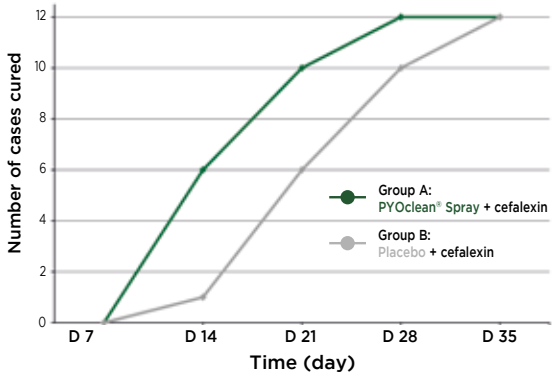
Results:

Mean pyoderma scores were significantly reduced ($p<0.05$, Wilcoxon-Signed Rank Test) in both groups:

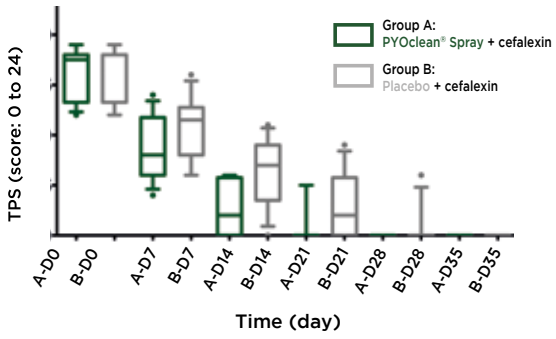
- Week 1: -47% with PYOclean® Spray versus -34% with the placebo
- Week 2: -83% with PYOclean® Spray versus -60% with the placebo
- Week 3: -95% with PYOclean® Spray versus -82% with the placebo
- Week 4: -100% with PYOclean® Spray versus -96% with the placebo

50% of the treated sites with PYOclean® Spray were considered clinically and cytologically cured at week 2, 83% at week 3 and 100% at week 4 compared to respectively 8%, 50% and 83% for the placebo treated sites. All dogs completed the study without any side effects.

Number of cases cured after treatments



Total Pyoderma Scores (TPS)



D 14

With placebo spray

With **PYOclean® Spray**

Conclusion:

These results suggest that the use of PYOclean® Spray may help decrease the length of antibiotic treatment and the consumption of antibiotics in canine bacterial pyoderma.

Evaluation of the efficacy of PYOclean® Oto in dogs suffering from erythemato-ceruminous external otitis or defects in epithelial migration

Dr. C. Pressanti and Pr. M-C. Cadiergues - Dermatology Unit, École Nationale Vétérinaire de Toulouse, France

> Poster presented at the **2012 AFVAC Congress** in Lyon.

Introduction:

The present study was conducted to evaluate the *in vivo* efficacy of PYOclean® Oto, an ear cleanser containing essential oil of red myrtle and propolis, in treating canine erythemato-ceruminous otitis externa (ECOE) or abnormal epithelial migration (AEM).

Materials and methods:

Inclusion criteria were clinical signs of ECOE (erythema and moist, brown, waxy discharge) or AEM in one or both ears.

Exclusion criteria were parasitic otitis, auricular foreign body, purulent otitis, end-stage proliferative ear disease, occlusive masses, ruptured tympanic membrane, use of systemic or topical antifungal, antibacterial or anti-inflammatory agents or use of an ear cleanser within 2 weeks prior to the study.

The owners were shown how to treat the affected ears by completely filling the ear canal with the solution and massaging the ear for one minute. The frequency of use was determined by the clinician for each dog and adjusted according to clinical progress. No placebo group was included for ethical reasons. For each ear, clinical and cytological criteria were evaluated. 10 dogs of various breeds between 1 and 11 years-old were included. All but 2 had bilateral auricular abnormalities.

11 ears showed ECOE and 7 had AEM. *Malassezia* overgrowth was present in 8 ears. According to the investigator's decision, ears were treated daily (2 ears), every other day (5 ears), twice weekly (4 ears), weekly (6 ears) or fortnightly (1 ear). Clinical scores at the initial visit (V1) and final visit (V4) 12 weeks after were measured.

Results:

As soon as from further visits (V2, V3, V4), ear cleanser applications could be spaced out for 14/18 ears. Clinical scores were significantly reduced and measured at V4 for epithelial migration, erythema, and total clinical score. *Malassezia* overgrowth was controlled in 5/8 ears. No adverse effect.

D0 D21 D49 D84

Conclusion:

This study confirms that thorough and regular ear cleansing is an important therapeutic component in the management of canine otitis externa. Moreover, it also confirms the necessity of clinical assessment (otoscopic examination) and cytological evaluation to follow the progression of the otitis even when a sole ear cleanser is prescribed. PYOclean® Oto was proven safe and effective in the management of canine ECOE or AEM in this study. *Malassezia* overgrowth was controlled in 5/8 ears with the sole use of this ear cleanser. PYOclean® Oto is considered remarkable as a standalone cleansing care with its monodose format ensuring sufficient dose whilst preventing cross contamination. Additional investigations with controlled studies would be interesting to confirm these promising results.

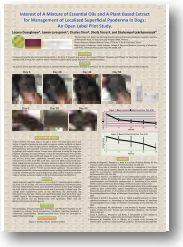
OPEN CLINICAL STUDY

Interest of PYOspot® and PYOclean® Shampoo for the management of localized superficial pyoderma in dogs

Dr. L. Duangkaew, Dr. L. Larsuprom, Dr. C. Chen and Dr. S. Torres

Poster presented at **2016 WCVD** (World Congress of Veterinary Dermatology) in Bordeaux.

Published in ***Thai Journal of Veterinary Medicine*** (Dec. 2017) 47(4): p. 513-522, open access.



Introduction:

In vitro antimicrobial activity against *Staphylococcus pseudintermedius* having been demonstrated in PYOspot® and PYOclean® Shampoo, this open study was to evaluate their clinical efficacy as sole cares in the management of localized superficial canine pyoderma.

Materials and methods:

20 dogs diagnosed with superficial bacterial skin infection were enrolled. They were bathed weekly for 8 weeks with PYOclean® Shampoo followed by the application of PYOspot® 48h later. Clinical lesions and pruritus scores were assessed by clinicians with:

- a scoring method from 5 to 1: 5=no improvement, 4=<25%, 3=25%-49%, 2=50%-74%, and 1=>75%-100% improvement
- a visual analog scale from 0 to 10: 0=no pruritus, 10=severe pruritus

Wilcoxon Signed Rank Test was used to compare scores between D0, D14, D28, D42 and D56.

Results:

16 dogs completed the study and 4 discontinued prematurely due to lack of improvement or worsening of clinical signs.

- The average lesion scores at D14 (2.6±0.5), D28 (2.05±0.6), D42 (1.63±0.7) and D56 (1.13±0.5) were significantly improved from D0 (5) ($p<0.0001$).
- The average pruritus scores at D14 (3.75±1.37), D28 (3.15±2.01), D42 (2.26±2.45) and D56 (0.81±1.56) were significantly reduced compare to D0 (4.90±1.74) ($p<0.007$).

D0

D56

Conclusion:

A weekly topical application of PYOspot® and PYOclean® Shampoo, composed of natural ingredients with antimicrobial properties, can be considered as an effective option to manage localized superficial pyoderma. A controlled study should be conducted to support these results.

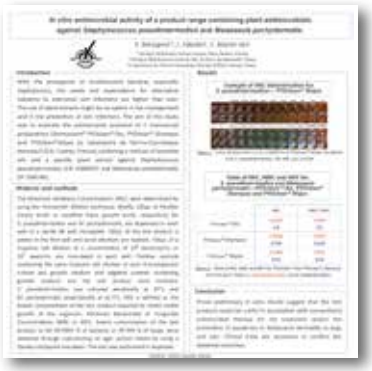


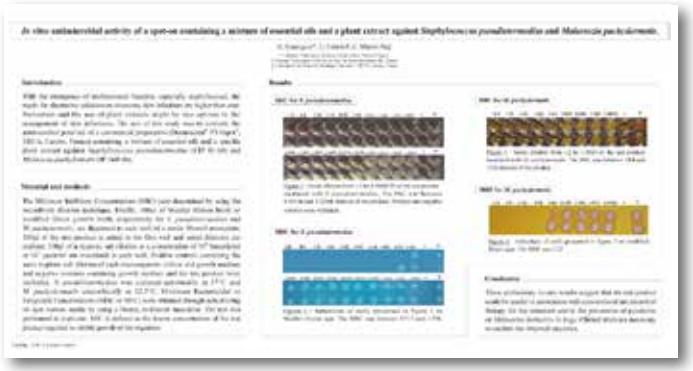

In vitro antimicrobial activity of the PYO range against *Staphylococcus pseudintermedius* and *Malassezia pachydermatis*

Dr. E. Bensignor *et al.*

Poster presented at the **2015 North American Veterinary Dermatology Forum** (NAVDF) held in Nashville.

Poster presented at the **2012 World Congress of Veterinary Dermatology** (WCVD) in Vancouver.





Introduction:

These *in vitro* studies were meant to evaluate the antimicrobial potential of PYOspot®, PYOclean® Oto, PYOclean® Wipes and PYOclean® Shampoo, all containing plant-extracted essential fatty acids, essential oils, and other specific natural ingredients against *Staphylococcus pseudintermedius* (CIP 81.60 or 108864T) and *Malassezia pachydermatis* (IP 1649.86).

Materials and methods:

The Minimum Inhibitory Concentrations (MIC) were determined by using the microbroth dilution technique. The Minimum Bactericidal or Fungicidal Concentrations (MBC or MFC) were obtained through subculturing on agar media by using a Denley multipoint inoculator. Positive and negative controls were included. *S. pseudintermedius* was cultured aerobically on Muller Hinton broth or agar at 37°C and *M. pachydermatis* anaerobically on modified Dixon broth or agar at 32.5°C.

Results:

	MIC *S. pseudintermedius* *M. pachydermatis*	MBC	MFC
PYOclean® Shampoo	1/1024 1/128	1/1024	1/128
PYOclean® Wipes	1/1024 1/16	1/512	1/16
PYOclean® Oto	1/1024 1/4	1/1024	1/2
PYOspot®	1/32762 to 1/65536 1/32 to 1/64	1/256 to 1/512	1/32

Conclusion:

These results suggest that the tested products could be useful in association with conventional antimicrobial therapies for the treatment of superficial pyoderma, *Malassezia* dermatitis or otitis externa in dogs and cats. Clinical trials are necessary to confirm these outcomes.

Chapter III - Kerato-seborrheic disorders

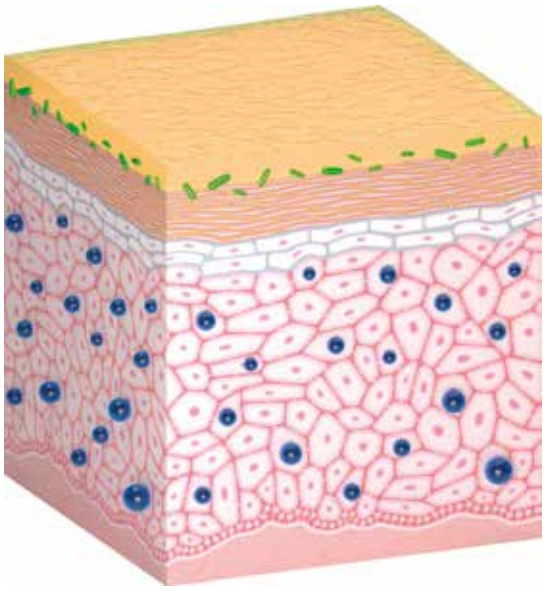
"One can find under this term almost all epidermal anomalies involving:

- an anomaly in the process of corneogenesis, characterized by abnormal exfoliation of corneocytes
- and/or abnormal sebum production [...]

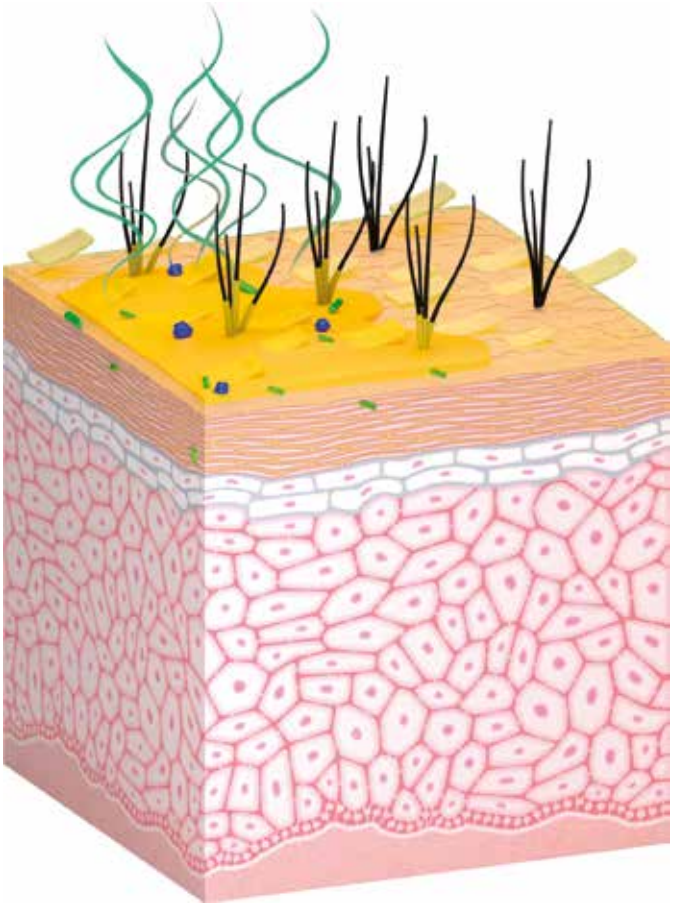
They may be minor anomalies or actual dermatoses (ichthyosis for example). A single dermatose can cause dry or oily seborrheic keratosis depending on the case, and can change from dry to oily as the disease becomes chronic (e.g. FAD, sarcoptic mange...). [...]

Various diseases can cause an unpleasant odor. The smell is linked to the secretion from various glands, especially sweat glands and sebaceous glands in domestic carnivores. Any alterations in these glands or their functioning, from genetic, endocrine or inflammatory origin, can be responsible for bad odors, possibly associated with changes in the skin appearance (this is called "seborrhea") and deterioration of the hydrolipidic film. [...] Bad odors could cause considerable embarrassment to pet owners and constitute thus their motivation for veterinarian consultations. Various dermo-cosmetic products designed to regenerate the skin surface by accelerating cell renewal are available."

> From **"Handbook of Veterinary Dermo-Cosmetics"** by Dr. E. Bensignor and Dr. E. Vidémont – Med'Com 2016



Healthy skin



Kerato-seborrheic skin

Characterization of the cutaneous microbiota associated with malodor in bloodhound dogs and the effect of Essential 6® spot-on

Dr. C. Meason-Smith, Dr. C. E. Older, Dr. R. Ocana, Dr. B. Dominguez, Dr. S. D. Lawhon, Dr. Jing Wu, Dr. A. Patterson and Dr. A. Rodrigues Hoffmann

Article published in ***Veterinary Dermatology*** (Dec. 2018); 29(6): p.465-475 and abstract presented as a Short Communication at the 2018 **NAVDF Congress** in Hawaï.

Introduction:

Malodor in animals is a frequent issue which can be embarrassing for pet owners. There are very few data available on the subject while in humans, studies have demonstrated a link between malodor and cutaneous microflora. The aim of this study was to compare the skin microbiota of dogs with or without strong body odor and to determine the potential effect of Essential 6® spot-on on the cutaneous flora.

Materials and methods:

27 bloodhound dogs were enrolled in the study and assessed as with or without strong body odor based on a mean malodor score from 0 (normal body odor) to 3 (severe malodor). They were then assigned to 3 groups:

- control group with normal body odor
- malodor group, treated once a week with a placebo
- malodor group, treated once a week with Essential 6® spot-on

Dogs with strong body odor were randomly assigned to placebo or Essential 6® spot-on.

Surface skin swabs were collected from axilla and dorsum at inclusion and after 4 weeks for DNA extraction and sequencing using NGS (Next-Generation Sequencing). Additionally, quantitative PCR for *Malassezia spp.*, *Staphylococcus spp.* and *Staphylococcus pseudintermedius* were performed.

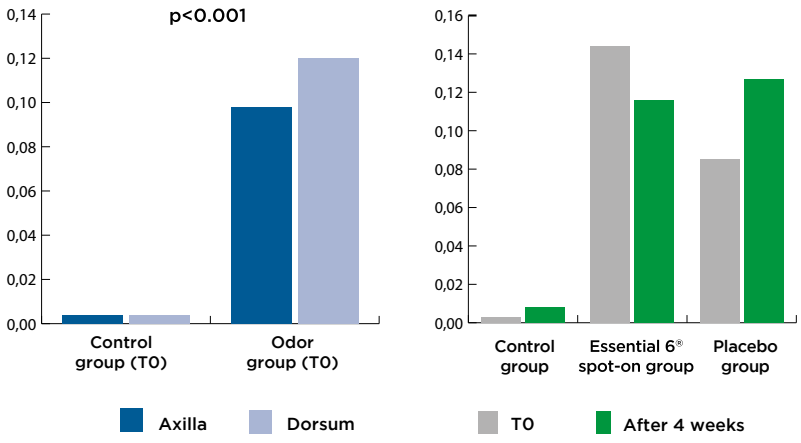
Results:

NGS analysis demonstrated significant differences in bacterial communities between the 3 groups. At D0, dogs with strong body odor presented a reduced diversity of their skin microbiota with changes in certain bacterial taxa and increased abundances of *Malassezia spp.*, *Staphylococcus spp.*, *Staphylococcus pseudintermedius*, *Psychrobacter* and *Pseudomonas aeruginosa*.

After 4 weeks of treatment:

- **mean malodor score was significantly reduced in the group treated with Essential 6® spot-on, but not the placebo group (p<0.05)**
- **a shift in bacterial community structure was observed in the group treated with Essential 6® spot-on but not the placebo group (p<0.05)**
- *Psychrobacter spp.* was less abundant in some of the dogs treated with Essential 6® spot-on whereas it was more abundant in the majority of dogs in the placebo group.

Median relative abundance of *Psychrobacter*



Conclusion:

Essential 6® spot-on significantly improved malodor in dogs with a direct effect on skin microbiota. Moreover, a novel association between cutaneous malodor and 2 bacterial genera, *Psychrobacter* and *Pseudomonas* is highlighted.

Sebaceous adenitis and mural folliculitis in a cat responsive to topical essential fatty acid supplementation

Dr. K. Glos, Dr. W. Von Bomhard, Dr. S. Bettenay & Dr. R. S. Mueller

> Article published in ***Veterinary Dermatology*** (Feb. 2016); vol. 27(1), p. 57–e18.

Medical history and treatment:

A 5-year-old castrated cat suffering from severe multifocal mural folliculitis and perifollicular dermatitis along with sebaceous adenitis was presented. After unsatisfactory results with antibiotics followed by oral supplements and cleansing wipes, Essential 6® spot-on was chosen since the owner declined ciclosporin due to difficulties in oral ingestion and potential side-effects.

Results:

The cat responded with marked improvement within 1 month. After 6 months of sole treatment of Essential 6® spot-on, the cat showed an excellent clinical improvement with dense hair regrowth and a marked decrease in seborrheic dermatitis although periocular and perinasal scaling persisted. This improvement was sustained for 12 months until a severe deep pyoderma occurred. The owner reported not to have applied Essential 6® spot-on for the previous 4 weeks. After a therapy leading to a rapid clinical improvement, Essential 6® spot-on is implemented again accompanied with ATOP 7® Spray allowing the cat to remain clinically stable for another 18 months.

Conclusion:

This case demonstrates how using Essential 6® spot-on made of plant-derived of essential fatty acids on a regular basis (here, during more than 3 years) can be a viable alternative to ciclosporin in treating successfully sebaceous adenitis in cats.

Autosomal recessive congenital ichthyosis due to *PNPLA1* mutation in a golden retriever-poodle cross-bred dog and the effect of topical therapy

Dr. C. Tamamoto-Mochizuki, Dr. T. Olivry *et al.*

> Article published in ***Veterinary Dermatology*** (Aug. 2016); vol. 27(4), p. 306–e75.

Medical history and treatment:

A 6-month-old goldendoodle cross-bred female dog was presented for excessive generalized scaling, which started at the age of 6 weeks. Medical history, clinical and microscopic findings led to the diagnosis of an ARCI variant, confirmed by a genetic testing showing a mutation of *PNPLA1,* identical to ARCI seen in golden retrievers.

The initial treatment consisted of oral essential fatty acids supplements (Efa-Z®, Virbac) twice a day and a humectant rinse (Humilac®, Virbac) along with a shampoo (HyLyt®, Bayer) once a week, showing mild improvement without true success. A weekly application between the shoulders of Essential 6® spot-on was added.

Results:

5 months after, further improvements were observed even at the most severe dorsal area. 13 months after the initial presentation, the dog showed marked improvement with only mild scaling on her thighs. The owner reported that during this period of time, Essential 6® spot-on was temporarily discontinued for 2.5 weeks and the clinical signs were worsened regardless of the oral intakes. Skin lesions improved again after Essential 6® spot-on was resumed. In order to determine if the humectant (Humilac®, Virbac) was of help for scaling management, application was discontinued.

Two months later, the owner reported that the skin lesions had not deteriorated, the humectant was thus withdrawn from the skin care protocol.

18 months after the initial presentation, the protocol combining an oral supplement twice a day with a weekly application of Essential 6® spot-on, a topical EFA supplement, after a shampoo resulted in a satisfactory control of the disease.

Conclusion:

A long term combination of oral EFA plus Essential 6® spot-on, a topical EFA supplement containing as well essential oils, appeared beneficial in this ARCI case. The application of Essential 6® spot-on was important since its temporary discontinuation resulted in lesions deterioration while resuming it enabled, again, a marked improvement. ARCI resulting in abnormalities of the *stratum corneum* lipids formation, the topical EFA supplement might be of interest in improving this skin condition. Reports of further ichthyosis cases treated in a similar way are necessary to determine which ARCI subsets would benefit from this combined treatment.

Multicentric open study for dermo-cosmetic evaluation of Essential 6® spot-on in domestic carnivores with kerato-seborrheic disorders

Dr. E. Bensignor, Dr. M. Nagata and Dr. T. Toomet

Article published in ***Pratique Médicale et Chirurgicale de l'Animal de Compagnie*** (PMCAC, 2010); 45: p. 53–57.

Introduction:

The efficacy of Essential 6® spot-on was demonstrated through a large scale multicentric evaluation in 7 countries across 3 different continents under various climates and conditions.

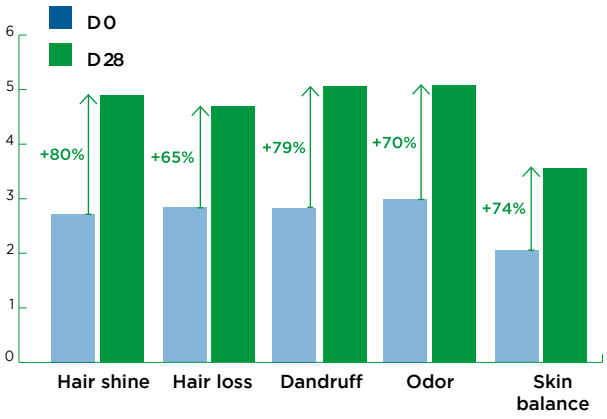
Materials and methods:

The evaluations were assessed under veterinarian supervision on **210 dogs** and **79 cats**. Each animal received a weekly application of Essential 6® spot-on during 4 weeks. 5 criteria were evaluated on dogs and 4 criteria on cats each week.

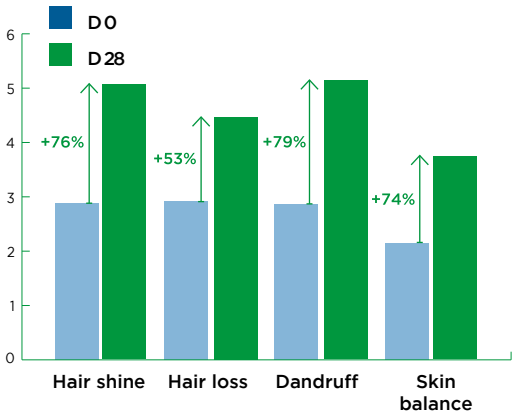
Results:

More than 80% of dogs and 70% of cats have presented remarkable and significant improvement (p<0.0001) of fur shine, hair loss, scales, and skin dryness/greasiness balance as well as malodor improvement specifically in dogs.

Scoring results on 210 dogs before and after treatment with Essential 6® spot-on



Scoring results on 79 cats before and after the treatment with Essential 6® spot-on



Conclusion:

This field study conducted on a very big number of dogs and cats shows that Essential 6® spot-on is an effective care to improve skin and coat conditions. The results observed in this study are in accordance with previous studies published in France and in Japan from 2005 to 2009. Numerous recent evidence-based studies and publications presented in earlier pages further demonstrate the efficacy of Essential 6® spot-on in helping reduce TEWL, promote lipid growth and enable skin barrier repair.

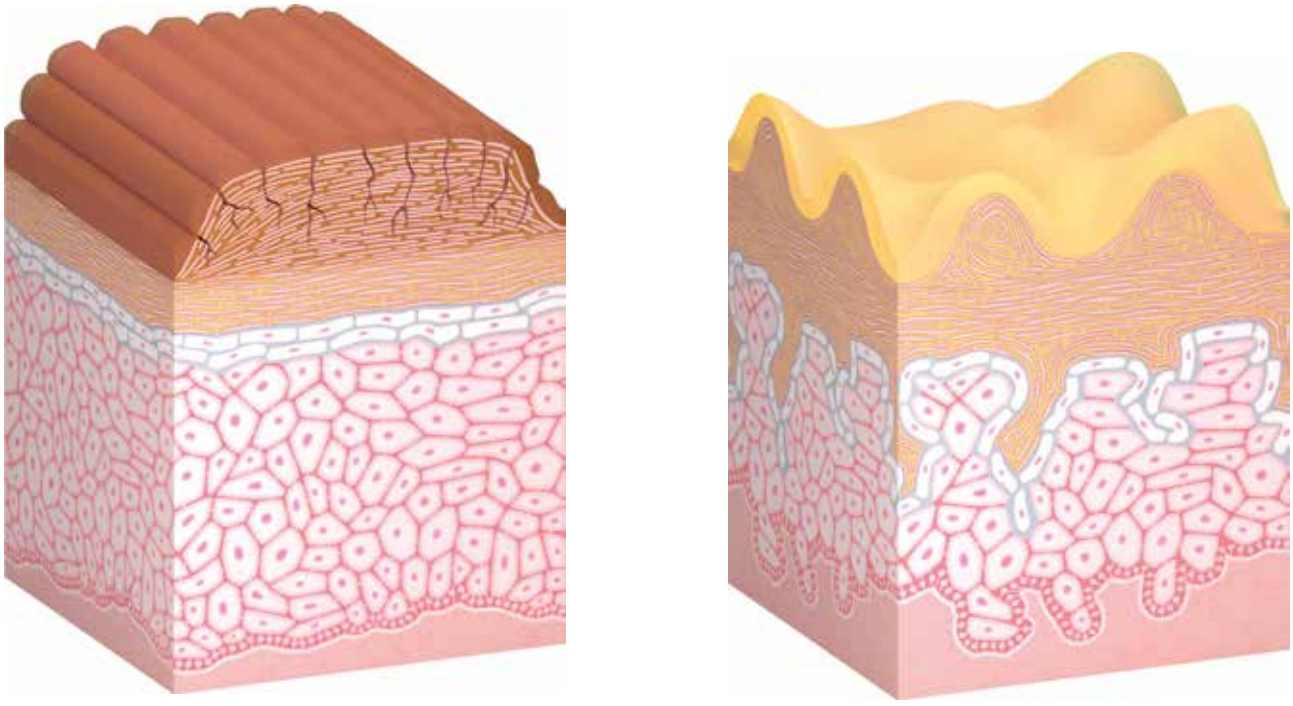
Interest of Essential 6® spot-on in the management of kerato-seborrheic disorders: clinical studies published since 2005

Informations Dermatologiques Vétérinaires (IDV) 2005, 2006 & 2007 by Dr. E. Bensignor *et al.*;
Japanese Journal of Veterinary Dermatology *(JJVD)* in March 2009, vol. 15 p. 19-26 by Dr. M. Nagata *et al.*

Chapter IV - Hyperkeratinization and more...

"Hyperkeratosis refers to an increase in thickness of the *stratum corneum*. This clinical presentation is found in some skin diseases and tends to affect certain locations, such as the nose, pads, elbows and pressure point areas (these are called "calluses"). Dermo-cosmetics play a major role in moisturizing the skin, reducing the size of the hyperkeratotic areas and avoiding common infectious complications, which can become problematic over time. It's recommended to apply moisturizing and mild keratolytic active ingredients to enable penetration into thickened *stratum corneum*. They must be used regularly (at least once a day) to ensure a satisfactory efficacy."

> From **"Handbook of Veterinary Dermo-Cosmetics"** by Dr. E. Bensignor and Dr. E. Vidémont – Med'Com 2016



Different forms of hyperkeratosis

Control of idiopathic nasal hyperkeratosis in dogs with Dermoscent BIO BALM®

Dr. M. Catarino, Dr. C. Pressanti, Dr. P. Mimouni, Pr. M-C. Cadiergues

Study presented as Short Communication by Pr. M-C. Cadiergues at **2015 ESVD Congress** held in Krakow, and published in ***Veterinary Dermatology*** (Apr. 2018); vol. 29(2), p. 134-e53, open access. Doctoral thesis of Dr. M. Catarino at École Nationale Vétérinaire de Toulouse.

Introduction:

Hyperkeratosis often results from defects in the process of corneogenesis. This affection, frequently encountered on noses of dogs, is often considered a cosmetic problem by pet owners. However, cracks may sometimes appear, increasing the risk of infection. Currently, practitioners lack proof of efficacious solutions to control this condition and prevent the infection with compliance.

The aim of this study was to investigate the efficacy of Dermoscent BIO BALM® for the treatment of idiopathic nasal hyperkeratosis in dogs.

Materials and methods:

The trial was conducted over 2 months on 47 dogs suffering from idiopathic nasal hyperkeratosis (39 ended the study). They were treated either with Dermoscent BIO BALM®, or a placebo composed of jellified water with equivalent consistency to the balm. All dogs were randomized to receive a daily topical application. 4 criteria were evaluated: lichenification, surface extent, skin dryness and skin suppleness. Evaluation was effectuated at D0, D30 and D60.

Results:

Significant improvement was observed on all four criteria all along the study at D30. **The improvements on D60 for lichenification, surface extent, suppleness and total score were respectively -31.2%, -18.3%, -72.8% and -36.8% in the group of Dermoscent BIO BALM® (p<0.05)** and -11.9%, +2.3%, -42.1% and -14% in the placebo group. 81% of the owners in the treated group were satisfied.

No major adverse event was reported.

Before **Dermoscent BIO BALM®**

After **Dermoscent BIO BALM®**

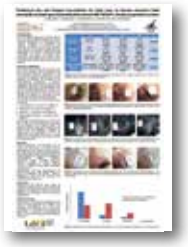
Conclusion:

This double-blind study shows the interest of using Dermoscent BIO BALM® for idiopathic nasal hyperkeratosis in dogs, which could be suggested as a long term therapy.

OPEN CLINICAL STUDY

Treatment of non-infected calluses in dogs with Dermoscent BIO BALM®: a prospective open study

Dr. E. Gaillard, Dr. C. Pressanti, Pr. M-C. Cadiergues, Dr. E. Bensignor



Poster presented as a Short Communication at the **2011 Congress of European Society of Veterinary Dermatology** (ESVD) held in Brussels. Doctoral thesis of Dr. E. Gaillard at École Nationale Vétérinaire de Toulouse.

Introduction:

Pressure point calluses are common in dogs. They are considered as minor unless infected. In addition to hygienic measures, prevention and treatment are based on topical care yet very few specific products are available.

Materials and methods:

35 dogs were included and all with 1 or several non-infected calluses. Dermoscent BIO BALM® was applied once daily during 3 months by the owners. Each callus was evaluated on 4 criteria at D0, D30, D60 and D90 by scoring: lichenification (score 0 to 4), scaling (score 0 to 4), thickness (in mm) and affected surface (in mm^2).

Results:

31 dogs completed the study (63 calluses). No adverse reaction was observed.

Scores were significantly reduced (p<0.0001) from D30 to D90 for all 4 criteria, lichenification, squamosis, thickness, area (*table below*).

Overall 94% of the owners found Dermoscent BIO BALM® as "easy to apply" and the final result was satisfactory for 83%.

	D0	D30	D60	D90	p
Lichenification (0 - 4)	2.2 ± 1,4 (0 - 4)	1.5 ± 1 (0 - 4) **31.5%**	1 ± 0,9 (0 - 3) **55.4%**	1 ± 1 (0 - 2) **66.8%**	< 0.0001
Squamosis (0 - 4)	1 ± 1 (0 - 4)	1 ± 1 (0 - 2) **54.2%**	0.3 ± 0.5 (0 - 2) **78%**	0.2 ± 0.5 (0 - 2) **85.9%**	< 0.0001
Thickness (mm)	9.8 ± 3.6 (3.6 - 18)	8.2 ± 2.5 (2.5 - 15) **16.4%**	7.1 ± 2.7 (2 - 15) **26.8%**	6.8 ± 2.6 (0 - 15) **30.7%**	< 0.0001
Total affected area (mm^2)	467.4 ± 438.3 (61.2 - 2381.8)	375.1 ± 356.5 (32.9 - 1482.1) **19.8%**	327.8 ± 314.0 (8.1 - 1127.5) **29.9%**	289.4 ± 330.7 (5.9 - 1390) **38.1%**	< 0.0001

Mean +/- σ (min-max) scores, percentage of reduction from baseline of four criteria over the study period and p value of the Wilcoxon test.

Conclusion:

Dermoscent BIO BALM® is proven effective and safe to treat non-infected canine calluses.

The role of dermo-cosmetics in modern dermatology for veterinarians…

"**Cosmetology is an art as old as humanity.** After millennia limited to "folk remedies" and in the last 20 years, it has become the subject of a considerable amount of research and publications and a major discipline in dermatology. Moreover, a global industry has been established with an exponentially growing turnover throughout the world in both industrialized regions as well as emerging countries.

Surprisingly, dogs and cats do not seem to benefit from the same phenomenon: talking about cosmetology for these species still makes veterinarians smile at best, and at worst it can even be viewed as superfluous or ridiculous. Yet, when an owner acquires an animal, doesn't he or she expect to pet and hug a furry companion who logically, looks and smells good?

For several years, my experience through thousands of consultations in private clinics and veterinary faculties along with continuous contacts with various major laboratories working in both veterinary dermatology and human cosmetology, has made me aware that we, as veterinary surgeons need to get acquainted with this discipline. It has become necessary for veterinarians to bring it to life, to make it rigorous and scientific in order to release it from the deadlock in which it has, unfairly, been stuck.

The evolution of our society, in particular, the growing importance of appearance (including through one's pet) favors this rehabilitation. Veterinarians should legitimately be interested in this niche, as other professions do not hesitate to invest in it if we do not."

> From **"Handbook of Veterinary Dermo-Cosmetics"** by Dr. E. Bensignor and Dr. E. Vidémont – Med'Com 2016

Regular and continuous use of good quality and evidence-based dermo-cosmetic cares enables not only the improvement of animal skin condition, but also early detection of potential dermatological disorders.

For more information on clinical cases and studies presented in this report, or to find out more about Dermoscent®, please sign up on the Vet Corner of our website by scanning this QR code.

SKIN CARE PROTOCOL

SKIN AND COAT CONDITION	RECOMMENDATION	PROTOCOLS
KERATO-SEBORRHEIC DISORDERS (dry or greasy seborrhea, dandruff/squamosis, hair loss, malodour, skin imbalance) 	**Essential 6® spot-on**	1 pipette per week for 2 months, and 1 pipette every 2 weeks after.
	Essential 6® Sebo Shampoo **Essential Mousse®**	**Essential 6® Sebo Shampoo**: once to several times a week. Leave on for 2 minutes, then rinse. **Essential Mousse®**: rinse-free cleanser. As often as necessary.
ALLERGIC DERMATITIS (atopic dermatitis, pruritic dermatitis...) 	**Essential 6® spot-on** **ATOP 7® Spray** **ATOP 7® Hydra Cream**	**Essential 6® spot-on**: Mild cases: 1 pipette per week for 2 months, and 1 pipette every 2 weeks after. Moderate or severe cases: use in conjunction with immunosuppressants to boost skin barrier. **ATOP 7® Spray:** once to several times a day to manage pruritus. **ATOP 7® Hydra Cream:** once or twice a day to hydrate.
	ATOP 7® Shampoo **ATOP 7® Mousse**	**ATOP 7® Shampoo:** once to several times a week. Leave on for 2 minutes, then rinse. **ATOP 7® Mousse:** rinse-free cleanser to soothe the skin. Twice a week.
PYODERMA OR *MALASSEZIA* DERMATITIS  	**PYOspot®** **PYOclean® Spray**	**PYOspot®**: 1 pipette per week to help reduce recurrences as long as possible, and use adjunctively with usual therapies during infections to reduce relapses. **PYOclean® Spray**: twice a day during 2-3 weeks directly on the lesions. Alone or in association with the treatment.
	PYOclean® Shampoo **PYOclean® Mousse** **PYOclean® Wipes**	**PYOclean® Shampoo:** once to several times a week to help reduce recurrences and in alternation with medicated shampoos during infections. Leave on for 2 minutes, then rinse. **PYOclean® Mousse:** rinse-free cleanser to purify the skin. Twice a week. **PYOclean® Wipes:** to purify specific areas (skin folds, interdigital spaces, etc.). As often as necessary.
AURICULAR HYGIENE 	**PYOclean® Oto** **Essential Oto®**	**PYOclean® Oto**: use before the medicated treatment to prepare the ear canal or as a regular cleanser to help reduce relapses in otitis externa. **Essential Oto®:** regular hygiene of healthy ears, once to twice a week.
HYPERKERATINIZATION: NOSE & PADS, CALLUSES **SUPERFICIAL LESIONS** 	**Dermoscent BIO BALM®** **Cicafolia®**	**Dermoscent BIO BALM®**: apply on affected areas until absorption, once to several times a day, as long as necessary. **Cicafolia®**: once to several times a day until complete skin recovery.
SUN PROTECTION AND PHOTODERMATITIS 	**SunFREE**	Apply prior to exposure, reapply in case of prolonged exposure and after each bathing for dogs.
AGING ANIMALS 	**SILVER Massage Oil** **SILVER Spot®**	**SILVER Massage Oil**: usage recommendation depending on case needs to improve mobility. **SILVER Spot®**: once a week as long as necessary to help manage cutaneous and behavioral disorders.
SKIN DISORDERS RELATED TO STRESS 	**Aromacalm® collar**	In association with usual treatment for severe cases or alone for mild to moderate cases. Replace the collar every 30 days.
NORMAL OR SENSITIVE SKIN KITTENS, PUPPIES 	**EFA Physio Shampoo**	Once to several times a week. Leave on for 2 minutes, then rinse.
PREDISPOSITION TO URINARY TRACT INFECTION 	**Food supplement: Uti-Zen®**	Once a day as long as necessary.
QUALITY OF APPENDAGES 	**Food supplement: Keravita®**	Once a day as long as necessary.

MADE IN FRANCE
Made in France by
Laboratoire de Dermo-Cosmétique Animale (LDCA)
www.dermoscent.com