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Occurrence of *Malassezia* dermatitis in Dogs in and around Navsari (Gujarat)

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Abstract

Malassezia dermatitis is a common clinical disorder in dogs caused by the yeast, *Malassezia pachydermatis*, clinically characterized by intense pruritus, alopecia, hyperpigmentation, lichenification, and visibly increased skin thickness. As *Malassezia* dermatitis mimics many other pruritic dermatoses, its diagnosis particularly the differential diagnosis of the disease is quite challenging. A total of 895 dogs presented to the Veterinary Clinical Complex and in and around Navsari during the period of six months, from February 2024 to July 2024 were screened for *Malassezia* dermatitis. Of these, 140 dogs (15.64%) demonstrated clinical signs indicative of dermatological disorders and were subjected to cytological examination for confirmation. Therefore, 40 dogs (28.57%) were found afflicted with *Malassezia* dermatitis. The overall occurrence of dermatological disorders in dogs in and around Navsari was 15.64 percent while, the overall occurrence of *Malassezia* dermatitis was 4.47 percent and among the suspected dogs, the occurrence was 28.57 percent. No significant variation between age, sex, breed, and month was observed for the occurrence of *Malassezia* dermatitis. However, dogs aged between 1-4 years, Labrador Retrievers and male dogs had higher occurrence of disease.

Keywords: *Malassezia* dermatitis, Navsari, cytological examination, occurrence, dogs

Introduction

The skin, as the body's largest organ, acts both anatomically and physiologically to separate the internal environment from the external. Its condition is a reflection of overall bodily health and can be influenced by various internal and external factors (Muller and Kirk, 2013) ^[1]. Managing skin diseases in dogs is challenging due to their chronic nature, causing discomfort for animals and anxiety for owners. Accurate identification and treatment are essential to prevent chronic illness and ensure complete recovery. Ongoing veterinary care is often necessary to manage these conditions effectively.

Malassezia pachydermatis, formerly known as *Pityrosporum canis*, is a common commensal organism found in the anal sacs, anus, auditory canal, and skin of both healthy and sick dogs. It is a nonmycelial, unipolar, lipophilic budding yeast. Belgian veterinarian Dufait first identified this organism as a disease-causing agent (Kumari, 2007) ^[2].

Malassezia pachydermatis, part of the normal canine cutaneous microbiota, acts as a facultative pathogen when conditions like cutaneous inflammation and altered sebum production favor its spread. These changes can lead to yeast dermatitis in any age, breed, or season of dogs (Nardoni *et al.*, 2004) ^[26]. Diagnosing it as a pathogen can be challenging. Certain dog breeds, such as the German Shepherd, Poodle, Cocker Spaniel, West Highland White Terrier, and Daschund, have a higher predisposition than others (Mircean *et al.*, 2010) ^[3]. In addition to food allergies, elevated relative humidity and extreme outside temperatures may raise the incidence of disease among young ones (Carlotti, 2006) ^[14].

Malassezia dermatitis in dogs can present as either localized or generalized, marked by intense pruritus, alopecia, hyperpigmentation, lichenification, and thickened skin. Additional symptoms include erythema, scaling, rancid odor, greasiness, and hyperkeratinization (Ganguly *et al.*, 2013) ^[15]. Commonly affected areas are the muzzle, lips, ears, ventral neck, axilla, and ventral body, and it may be secondary to other conditions like endocrinopathies and skin neoplasms (Mircean *et al.*, 2010) ^[3].

Diagnosing *Malassezia* infections requires yeast presence confirmation through methods like culture analysis, PCR, and cytological examinations of tape and slide impressions (Kumari, 2007) [2]. PCR effectively identifies *Malassezia* species (Guillot *et al.*, 2000) [16]. Sequencing methods, including CHS2, LSU, ITS-1, and IGS-1 regions of ribosomal RNA, analyze genetic diversity among *Malassezia* species (Guillot *et al.*, 1997) [17].

Materials and Methods

A. Location and place of work

The proposed study was carried out for six months i.e., from February 2024 to July 2024 at the Department of Veterinary Medicine, Veterinary Clinical Complex (VCC), College of Veterinary Science and Animal Husbandry, Kamdhenu University, Navsari, Gujarat. Geographically, Navsari is located at 20.95°N 72.93°E. It has an average elevation of 9 meters, or 30 feet, above sea level. The city is located in southern Gujarat and near the Purna River, within a few kilometers of the river's delta, which is west of the city and empties into the Gulf of Khambhat. The climate of the region is humid and tropical with heavy rainfall.

B. Screening

For this study, a total of 895 dogs of either sex, irrespective of breed and age group, brought to the Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Navsari and in and around Navsari were carefully screened based on history and presence of clinical symptoms indicative for *Malassezia* dermatitis viz., erythema, pruritus, hyperpigmentation, offensive odour, scales, crusts, alopecia, lichenification, etc.

Out of 895 dogs, 140 dogs with dermatological disorders were screened for *Malassezia* dermatitis. For confirmation of Malasseziosis, dogs with dermatological disorders were subjected to cytological examination using Acetate tape impressions, and Glass slide impression smears. The prepared smears were then stained for one minute with a drop of new methylene blue by the Diff-Quick method. After that, the stained slides were viewed using an oil immersion objective. The presence of more than five organisms per oil power field (x1000) was considered positive for the study.

C. Statistical analysis

The collected data was analyzed by Chi-square test and Paired t-test using IBM SPSS statistical software version 27.0.

Results and Discussion

A. Overall occurrence

An epidemiological study was conducted on dogs to know the occurrence of *Malassezia* dermatitis in dogs in and around Navsari during a period of six months i.e. from February to July 2024. A total of 895 dogs were presented over the period of time, out of which 140 dogs had a history and signs of pruritus, erythema, alopecia, hyperpigmentation, offensive greasy rancid odour and various visible signs.

The overall occurrence of dermatological disorders among the dog population in and around Navsari was 15.64%. A detailed laboratory investigation did not confirm the causative agent of dermatitis in 75 cases. Out of them, 73 (52.14%) and 2 (1.43%) were suspected of atopic dermatitis and flea allergy dermatitis, respectively, depending on their type and distribution of lesions.

The overall occurrence of *Malassezia* dermatitis was 4.47% among all dogs presented over a period of time, while the

specific occurrence of *Malassezia* dermatitis among dogs with different dermatological disorders was 28.57%. The present study's results are in close agreement with the findings of Kumar *et al.* (2011) [24] and Suresh and Kumar (2017) [11], who reported 30% and 27.78%, respectively. Mircean *et al.* (2010) [3] and Khosravi *et al.* (2008) [18] documented a higher prevalence of 37.6% and 50%, respectively. On the lower side prevalence, Daniel (2021) [7] and Saranya (2011) [9] reported 14.70%, 17.19%, and 17.75%, respectively.

Table 1: Overall occurrence of dermatological disorders in dogs in and around Navsari

Total no of dogs	Dogs with dermatological disorders	Occurrence (%)
895	140	15.64

Table 2: Dermatological disorders in dogs in and around Navsari

Disease	Number screened	Number affected	Percentage (%)
Suspected Atopic Dermatitis	140	73	52.14
<i>Malassezia</i> dermatitis	140	40	28.57
Pyoderma	140	10	07.14
Demodicosis	140	09	06.42
Dermatophytosis	140	04	02.86
Suspected Flea Allergy Dermatitis	140	02	01.43
Sarcoptic Mange	140	02	01.43

Table 3: Overall occurrence of *Malassezia* dermatitis in dogs in and around Navsari

Particulars	Number screened	Number affected	Occurrence (%)
Total dogs	895	40	04.47
Dogs with dermatological disorders	140	40	28.57

B. Age-wise occurrence of *Malassezia* dermatitis in dogs

The age-wise occurrence of *Malassezia* dermatitis in dogs revealed that age had no significant impact on the occurrence of the disease. However, the highest occurrence rate was observed in dogs aged between 1-4 years (35.00%), followed by (27.50%) in 4-8 years of age, (22.50%) in more than 8 years of age, and the lowest 15.00% in less than 1 years of age. The details are outlined in Table 4.

Table 4: Age-wise occurrence of *Malassezia* dermatitis in dogs in and around Navsari

Age group	Number affected	Occurrence (%)	χ^2	p-value
< 1 year	06	15.00	5.99	0.112
1-4 years	14	35.00		
4-8 years	11	27.50		
> 8 years	09	22.50		
Total	40	100		

$p > 0.05$: Non-significant

The findings of the current study align with those of Jeong *et al.* (2005) [19], Girao *et al.* (2006) [20], Saranya (2011) [9], Seetha *et al.* (2018) [10], and Daniel (2021) [7] reported that the majority of dogs affected by *M. pachydermatis* were aged between 1 and 3 years old. In contrast, Suresh and Kumar (2017) [11] reported higher rates of malasseziosis in dogs older than 8 years. Similarly, Dohre *et al.* (2021) [8] also found that the prevalence of *Malassezia* dermatitis increased with age, with higher rates in dogs between 6 and 9 years old. Additionally, Borkar (2014) [21] documented that geriatric animal (over 9 years old) had a 63.30% and 11.09% prevalence of *Malassezia* infection, respectively. However,

Nambi (2002) [22] observed more common *Malassezia* infection in young puppies under one year of age and in geriatric patients, possibly due to poor immune status. On the other hand, found no correlation between *Malassezia* dermatitis and the age of animals. Carlotti (2006) [14] suggested that elevated relative humidity and extreme outside temperature lead to immunosuppression in young dogs followed by an increase in the occurrence of malasseziosis. So, the tropical and humid environment of South Gujarat might affect the occurrence rate in young animals. Apart from this, other factors like seasonal fluctuations, immune status, geographical variations, and management practices could influence the prevalence of malasseziosis in dogs.

C. Gender-wise occurrence of *Malassezia* dermatitis in dogs

Out of the total affected dogs with malasseziosis, 27 (67.50%) were males and 13 (32.50%) were females. A non-significant difference was observed in the gender-wise occurrence of *Malassezia* dermatitis in dogs in and around Navsari. The details are summarized in Table 5.

Table 5: Gender-wise occurrence of *Malassezia* dermatitis in dogs in and around Navsari

Sex	Number affected	Occurrence (%)	χ^2	p value
Male	27	67.50	0.517	0.472
Female	13	32.50		
Total	40	100		

$p > 0.05$: Non-significant

Table 6: Breed wise occurrence of *Malassezia* dermatitis in dogs in and around Navsari

Breed	Number affected	Occurrence (%)	χ^2	P-Value
Labrador retriever	13	32.50	5.052	0.537
German shepherd	08	20.00		
Pug	04	10.00		
Others (American bully, Cocker spaniel, Lhasa apso, Beagle, Bull mastiff, Rottweiler, Saint bernard, Dachshund, Doberman, Pomeranian, Shih tzu, etc.)	06	15.00		
Non-descript	05	12.50		
Golden Retriever	02	05.00		
Cross-breed	02	05.00		
Total	40	--		

$p > 0.05$: Non-significant

The findings of the present study align with those of Kumar *et al.* (2011), Saranya (2011) [9], Suresh and Kumar (2017) [11], and Dohre *et al.* (2021) [8], all of whom reported a higher prevalence of malasseziosis in Labrador Retrievers. However, these results differ from those of Mircean *et al.* (2010) [3], who observed varying prevalence patterns. In contrast, a higher prevalence of malasseziosis in German Shepherds has been reported by Lakshmi and Padmaja (2013) [13], and Daniel (2021) [7]. The variation in prevalence among different breeds might be due to the popularity and distribution of these breeds in the study's geographic area. The higher rates of malasseziosis in Labrador Retrievers observed in this study likely stem from the breed's popularity and increased representation during the study period.

E. Month-wise occurrence of *Malassezia* dermatitis in dogs

Skin infections associated with *Malassezia* dermatitis were reported throughout the year in many part of the world. In the present study, month-wise distribution of malasseziosis revealed no significant variation in the occurrence of disease,

These findings align with previous research by Kumar *et al.* (2011), Suresh and Kumar (2017) [11], Seetha *et al.* (2018) [10], and Dohre *et al.* (2021) [8], all of whom reported a higher occurrence of *Malassezia* dermatitis in male dogs compared to females. Higher concentrations of androgens in male might contribute to increased sebum production and secretion, making male dogs more susceptible to subclinical *Malassezia* infection (Dohre *et al.*, 2021) [8]. Conversely, Mauldin *et al.* (1997), Saranya (2011) [9], and Daniel (2021) [7] observed a higher prevalence of canine malasseziosis in females. However, Nardoni *et al.* (2004) [26], and Girao *et al.* (2006) [20] found no significant difference in the prevalence of *Malassezia* dermatitis between the two sexes.

D. Breed-wise occurrence of *Malassezia* dermatitis in dogs

The occurrence of *Malassezia* dermatitis was examined in various dogs in and around Navsari. Statistically, no significant difference was observed between breeds in relation to the occurrence of malasseziosis in dogs. The highest prevalence was observed in Labrador Retrievers (32.5%), German Shepherds (20.00%) and other breeds (15.00%) (Including American Bully, Cocker Spaniel, Lhasa Apso, Beagle, Bull Mastiff, Rottweiler, Saint Bernard, Dachshund, Doberman, Pomeranian, Shih Tzu, etc.). Non-descript breeds (12.50%), Pugs (10.00%) and the lowest prevalence were recorded in Golden Retrievers and Cross-breeds (5.00% each), both at 5.00 percent (2 out of 40). The detailed data are presented in Table 6.

however, the highest prevalence of *Malassezia* dermatitis was observed in July (32.50%), followed by February (17.50%), June (20.00%), and May (15.00%). The lowest occurrences were recorded in March and April (7.50% each). The detailed data are presented in Table 7.

Table 7: Month-wise occurrence of *Malassezia* dermatitis in dogs

Month	Number affected	Occurrence (%)	χ^2	P-Value
February	07	17.50	9.966	0.076
March	03	07.50		
April	03	07.50		
May	06	15.00		
June	08	20.00		
July	13	32.50		
Total	40	100		

$p > 0.05$: Non-significant

The findings of the present study are consistent with previous reports by Daniel (2021) [7], Suresh and Kumar (2017) [11], Saranya (2011) [9], all of whom reported a higher prevalence of *Malassezia* dermatitis during the summer months. In contrast, observed a relatively higher prevalence of

Malassezia dermatitis/otitis in autumn, with rates as high as 52.6%. As discussed earlier, increased relative humidity and environmental temperature provide suitable conditions for the proliferation of yeast. Navsari city is situated in a tropical area just 12 km away from sea and monsoon starts here at the end of June, so an increase in humidity along with warm environmental temperature favours the high occurrence of disease in July month.

Conclusions

The overall incidence of *Malassezia* dermatitis in dogs in and around Navsari was 4.47%, while the occurrence of dermatological disorders in the screened population was 15.64%. No significant variation between age, sex, breed, and month was observed for the occurrence of *Malassezia* dermatitis. However, dogs aged between 1-4 years, Labrador Retrievers and male dogs had higher occurrence of disease.

Future Scope

The current study provides valuable insights into the prevalence of *Malassezia* dermatitis in dogs in Navsari, Gujarat. Future research could focus on examining the association between various risk factors and the zoonotic potential of *Malassezia* dermatitis. Further comprehensive investigations would help deepen our understanding of this condition and its implications for both canine and human health.

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Conflict of Interest

Not available

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Reference

- Muller GM, Kirk RW, Scott DW. *Malassezia* dermatitis. In: Muller & Kirk's Small Animal Dermatology. 7th Ed. Philadelphia: Elsevier Saunders, 2013, p. 478-80. Available from: <https://shop.elsevier.com/books/muller-and-kirks-small-animal-dermatology/miller/978-1-4160-0028-0>
- Kumari KN. Malassezian infections in dogs: A review. *Intas Polivet*. 2007;8(1):20-29. Available from: <https://www.indianjournals.com/ijor.aspx?target=ijor:ipo&volume=8&issue=1&article=004&type=pdf>
- Mircean V, Titilincu A, Mircean M, Magdaş C. *Malassezia* pachydermatis infection in dogs: A retrospective of its epidemiology, clinical and cytological results in Cluj, Romania. *Scientia Parasitologica*. 2010;11(3):153-163. Available from: https://zooparaz.net/scientia/2010_11_03/sp2010-pp153-163%20-%20Mircean.pdf
- Nardoni S, Mancianti F, Corazza M, Rum A. Occurrence of *Malassezia* species in healthy and dermatologically diseased dogs. *Mycopathologia*. 2004;157:383-8. Available from: <https://link.springer.com/article/10.1023/B:MYCO.0000030416.36743.dd>
- Kumar KS, Selvaraj P, Vairamuthu S, Nagarajan B, Nambi AP, Parthaban S. Survey of fungal isolates from canine mycotic dermatitis in Chennai. *Tamil Nadu J Vet Anim Sci*. 2011;7(1):48-50.
- Suresh R, Kumar KS. Prevalence of *Malassezia* pachydermatis in dogs. *Int J Livest Res*. 2017;7(9):205-11.
- Daniel AK. Diagnosis and therapeutic evaluation of malasseziosis in dogs [M.V.Sc. thesis]. Wayanad: Kerala Veterinary and Animal Sciences University; 2021.
- Dohre K, Dhoot VM, Bhojne GR, Panchbhair CG, Upadhye SV, Chaudhari SP, *et al*. Prevalence of *Malassezia* infection in dogs of Nagpur city. *Int J Curr Microbiol Appl Sci*. 2021;10(2):2269-73.
- Saranya MG. Epidemiology and clinico-therapeutic studies of *Malassezia* dermatitis in dogs [M.V.Sc. thesis]. Wayanad: Kerala Veterinary and Animal Sciences University, 2011.
- Seetha U, Kumar S, Pillai RM, Srinivas MV, Antony PX, Mukhopadhyay HK. *Malassezia* species associated with dermatitis in dogs and their antifungal susceptibility. *Int J Curr Microbiol Appl Sci*. 2018;7(6):1994-2007.
- Suresh R, Kumar KS. Prevalence of *Malassezia* pachydermatis in dogs. *Int J Livest Res*. 2017;7(9):205-11.
- Balappanavar BR, Vasanth MS. Clinico-diagnostic and therapeutic management of canine malasseziosis. *Intas Polivet*. 2013;14(2):353-357.
- Lakshmi K, Padmaja K. A clinic microbiological and in-vitro sensitivity study of canine *Malassezia* pachydermatis. *Intas Polivet*. 2013;14(2):350-352.
- Carlotti DNC. Canine microbial overgrowth. Available from: <https://www.cabidigitallibrary.org/doi/pdf/10.5555/20073085365#page=4.35>
- Ganguly C, Nambi AP, Srinivasan SR, Kavitha S, Balachandran C. Pulse administration of itraconazole for the treatment of *Malassezia* dermatitis in dogs. *J Vet Pharmacol Ther*. Available from: <http://krishikosh.egranth.ac.in/handle/1/69017>
- Guillot J, Deville M, Berthelemy M, Provost F, Gueho E. A single PCR-restriction endonuclease analysis for rapid identification of *Malassezia* species. *Lett Appl Microbiol*. 2000;31(5):400-3. DOI: 10.1046/j.1472-765x.2000.00839.x
- Guillot J, Gueho E, Chevrier G, Chermette R. Epidemiological analysis of *Malassezia* pachydermatis isolates by partial sequencing of the large subunit ribosomal RNA. *Res Vet Sci*. 1997;62:22-25. DOI: 10.1016/S0034-5288(97)90174-0
- Khosravi AR, Eidi S, Ziglari T, Bayat M. Isolation and differentiation of *Malassezia* species isolated from healthy and affected small animals, ear and skin. *World J Zool*. 2008;3(2):77-80. Available from: <https://www.researchgate.net/publication/237632365>
- Jeong JA, Hoh HW, Jeong JH, Eom EK, Lee LK, Oh OT. Efficacy of itraconazole in 18 cases of *Malassezia* dermatitis in dogs. *J Vet Clin*. Available from: <https://www.cabidigitallibrary.org/doi/full/10.5555/20053140540>
- Girao MD, Prado MR, Brilhante RSN, Cordeiro RA, Monteiro AJ, Sidrim JJC, *et al*. *Malassezia* pachydermatis isolated from normal and diseased external ear canals in dogs: A comparative analysis. *Vet J*. 2006;172:544-8. doi:10.1016/j.tvjl.2005.07.004

21. Borkar R, Roy K, Shukla PC, Gupta D. Therapeutic management of *Malassezia* dermatitis in dogs. *Haryana Vet.* 2014;53(2):106-109. Available from: <https://www.luvax.edu.in/haryana-veterinarian/download/harvet-Dec2014/7.pdf>
22. Nambi AP. *Malassezia* dermatitis in dogs. *Intas Polivet.* 2002;3:202-5. Available from: <https://www.cabidigitallibrary.org/doi/pdf/10.5555/20053131364>
23. Scott DW, Miller WH, Griffin CE. *Small Animal Dermatology*. 6th Ed, 2005, p. 543-666.
24. Kumar KS, *et al.* Dogs diagnosed with *Malassezia* dermatitis commonly exhibit yeast infections on their back, limbs, face, neck region, ears, and interdigital spaces, 2011.
25. Conková E, Sesztáková E, Páleník Ľ, Smrco P, Bílek J. Prevalence of *Malassezia pachydermatis* in dogs with suspected *Malassezia* dermatitis or otitis in Slovakia. *Acta Vet Brno.* 2011;80(3):249-254. DOI: 10.2754/avb201180030249
26. Nardoni S, Mancianti F, Corazza M, Rum A. Occurrence of *Malassezia* species in healthy and dermatologically diseased dogs. *Mycopathologia.* 2004;157:383-3588. Available from: <https://link.springer.com/article/10.1023/B:MYCO.0000030416.36743.dd>

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