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Prevalence of *Sarcoptes scabiei* in domestic canines from Lomas de Sargentillo, Ecuador

Prevalencia de *Sarcoptes scabiei* en caninos domésticos del cantón Lomas de Sargentillo, Ecuador

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ABSTRACT

Sarcoptic mange is a globally distributed ectoparasitosis that affects a wide range of mammalian hosts, including domestic and wild animals, as well as humans, and represents a relevant zoonosis. The objective of this study was to determine the prevalence of Sarcoptes scabiei in domestic canines under the care of an owner in Lomas de Sargentillo, Ecuador. A descriptive cross-sectional study was conducted during April and May of 2025, using a sample of 102 randomly selected canines. Deep skin scrapings were performed for microscopic diagnosis. The observed prevalence was 3.9 %. An association between sex and the presence of the mite was explored; however, no conclusive differences in infection risk were observed according to sex or age. These findings demonstrate the active circulation of *Sarcoptes scabiei* in the urban area of Lomas de Sargentillo, highlighting the importance of strengthening epidemiological surveillance, prevention and control measures, as well as health education strategies directed at dog owners, with relevant implications for public health and zoonotic control.

Key words: *Sarcoptes scabiei*; sarcoptic mange; ectoparasitosis; zoonoses

RESUMEN

La sarna sarcóptica es una ectoparasitosis de distribución mundial que afecta a diversas especies de mamíferos, incluidos animales domésticos, silvestres y el ser humano, y tiene importancia en salud pública por su potencial zoonótico. El presente estudio tuvo como objetivo determinar la prevalencia de Sarcoptes scabiei en caninos domésticos bajo tenencia de un tutor en el cantón Lomas de Sargentillo, Ecuador. Se desarrolló un estudio descriptivo de corte transversal durante los meses de abril y mayo de 2025, con una muestra de 102 caninos seleccionados mediante muestreo aleatorio. Se realizaron raspados cutáneos profundos para el diagnóstico microscópico. La prevalencia encontrada fue del 3,9 %. Se exploró una asociación entre el sexo y la presencia del ácaro; sin embargo, no se observaron diferencias concluyentes en el riesgo de infección según el sexo o la edad. Estos resultados evidencian la circulación activa de *Sarcoptes scabiei* en la zona urbana del cantón Lomas de Sargentillo, lo que resalta la importancia de fortalecer las medidas de vigilancia epidemiológica, prevención y control, así como las estrategias de educación sanitaria dirigidas a los propietarios, con implicaciones relevantes para la salud pública y el control zoonótico.

Palabras clave: *Sarcoptes scabiei*; sarna sarcóptica; ectoparasitosis; zoonosis.

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INTRODUCTION

Sarcoptic mange is a highly contagious cutaneous ectoparasitosis caused by *Sarcoptes scabiei* var. *canis*, a mite that burrows into the epidermis of domestic and wild animals, and even humans, generating significant clinical and zoonotic implications [1, 2, 3].

In dogs (*Canis lupus familiaris*), the condition is characterized by intense pruritus, erythema, crust formation, alopecia, and, in advanced cases, secondary bacterial infections, cachexia, and immunological alterations [4].

From a One Health perspective, scabies is formally recognized by the World Health Organization as a neglected tropical disease and contributes a substantial global burden of skin disease, especially in low- and middle-income settings [5, 6]. Population-level analyses show higher prevalence in many tropical regions, with a marked concentration in children and other vulnerable groups [7, 8]. Close human–dog contact in rural and peri-urban households (e.g., bed sharing, face licking) further elevates zoonotic risk behaviors and underscores the need for coordinated veterinary–public health messaging and control [9].

International Veterinary standards likewise emphasize surveillance, diagnosis, and control of mange in companion animals as part of broader public- and animal-health goals [2].

In Ecuador, the available information on human scabies is limited and is mainly based on clinical records, which may be subject to underreporting [10]. In the case of sarcoptic mange in non-human mammals, no systematic data or reports generated by the public sector have been identified, nor are there specific national surveillance or control programs. This scarcity of information highlights the importance of generating local epidemiological evidence in dogs, with implications for public health and zoonotic control.

Clinical diagnosis is based on characteristic dermatological signs; however, confirmation requires microscopic observation of mites, eggs, or feces in deep skin scrapings [11]. The sensitivity of this technique may be limited in chronic infections, justifying the complementary use of serological or molecular methods in certain contexts [12].

In Lomas de Sargentillo, a tropical region on Ecuador's coast, environmental conditions combined with poor health control in the canine population could facilitate the spread of this parasitosis [13]. However, no previous studies have documented its prevalence in this geographic area, hindering the implementation of effective preventive and therapeutic strategies.

Similar studies in other regions of Latin America have reported variable prevalence rates, associated with factors such as age, sex, nutritional status, and access to Veterinary services [14, 15, 16]. Therefore, generating local data on the presence of *Sarcoptes scabiei* is essential to guide future veterinary public health interventions [17].

Despite international recognition, surveillance and mapping remain patchy, and scabies is under-diagnosed in many health systems [5]. On the veterinary side, current guidelines still list deep skin scraping with mite demonstration as the diagnostic mainstay, yet its sensitivity may be suboptimal; thus, rigorous site-specific epidemiology in dogs and owner-focused education remain essential to guide pragmatic prevention and control where human–animal contact is intense [2, 18].

The objective of this study was to determine the prevalence of *Sarcoptes scabiei* in domestic canines from Lomas de Sargentillo.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted between April and May 2025 to determine the prevalence of *Sarcoptes scabiei* in domestic canines from Lomas de Sargentillo, located in the province of Guayas, Ecuador. This region has a humid tropical climate, with an average temperature of 27 °C and high relative humidity—conditions that favor the environmental persistence of ectoparasites [13].

For analytical purposes, dogs were classified into life stages according to chronological age categories [19]. Accordingly, animals aged 0 to 5 months were classified as puppies; those older than 6 months and up to 12 months were classified as juveniles; dogs older than 12 and up to 24 months as young adults; individuals older than 2 and up to 6 years as mature adults; dogs older than 7 and up to 11 years as senior; and animals 12 years of age or older as geriatric.

Population and sample

The study population consisted of owned canines residing in the urban area of Lomas de Sargentillo. According to data from the 2022 National Institute of Statistics and Censuses (INEC) [20], a total of 3,014 dogs were registered in this area. A random sampling approach was applied, considering each canine as the sampling unit.

The sample size was calculated using the formula for proportions in a known population [21], based on an expected prevalence of 5.03% [14], a 95% confidence level, and an accepted absolute error of 4%. Based on these parameters, a sample size of 110 domestic canines was determined.

However, due to security restrictions in some predefined urban sectors, access to certain households was not possible during fieldwork. Consequently, the final number of evaluated canines was reduced to 102. To minimize potential selection bias, a replacement strategy was implemented by selecting alternative eligible households within the accessible areas, allowing the final sample size to approach the initially estimated target.

Inclusion and exclusion criteria

Domestic canines of both sexes, older than two months of age, residing in the urban area of Lomas de Sargentillo, whose owners provided informed consent were included. Samples were obtained from dogs that presented and did not present dermatological lesions. Animals without an identified owner,

from other geographical areas, younger than two months of age, or those that had received antiparasitic treatment within 30 days prior to sampling were excluded.

Sample collection

As part of a field-based study conducted in the urban area of Lomas de Sargentillo, Ecuador, sample collection was carried out at the owners' households. Samples were obtained from dogs with and without dermatological lesions. Each animal underwent a deep skin scraping; when dermatological lesions compatible with sarcoptic mange were observed, scrapings were preferentially collected from affected areas (auricular pinnae, elbows, abdomen, or inguinal region) [22], using a sterile scalpel blade and mineral oil. The samples were mounted on microscope slides with coverslips and examined under light microscopy (Better Scientific Q200, Germany; AmScope B120C, China) at 10× and 40× magnification [23]. Deep skin scraping was employed as the diagnostic method because it is a standard, direct, and minimally invasive technique recommended for the detection of *Sarcoptes scabiei* in dogs, through the microscopic identification of adult mites, larvae, nymphs, or eggs, according to the morphological criteria described by Bowman [1] and the WOAH [2], particularly in field-based epidemiological studies. Methods such as skin biopsy or molecular and immunological techniques (Polymerase Chain Reaction, Enzyme-Linked Immunosorbent Assay) are mainly used in complex clinical cases, differential diagnoses, or for advanced diagnostic confirmation and were therefore not considered necessary for the objectives of the present study.

Statistical analysis

Data were recorded in Microsoft Excel® 2016 and processed using IBM SPSS® version 25. Descriptive statistics were applied to estimate overall prevalence. Associations between categorical variables (sex, age, and life stage) and the presence of the ectoparasite were evaluated using Pearson's chi-square test or the likelihood ratio test, as appropriate, to explore potential associations.

Additionally, a spatial distribution map of the sampled animals was generated using QGIS version 3.40.6, based on the georeferencing of locations reported during the survey and sample collection.

Ethical considerations

All procedures were conducted in accordance with the current ethical and legal standards in Ecuador for research involving animals, and informed consent was obtained from all dog owners prior to participation. Although certain diagnostic procedures may require invasive approaches under specific clinical circumstances, in the present field-based prevalence study only minimally invasive procedures were performed, as the diagnostic approach was limited to deep skin scraping, which does not compromise animal welfare. No procedures causing unnecessary pain or suffering were carried out during the study.

RESULTS AND DISCUSSION

A total of 102 domestic canines were evaluated for the detection of *Sarcoptes scabiei*. Of these, 4 animals tested positive, representing a prevalence of 3.9 %. The remaining 98 individuals (96.1 %) tested negative for the parasite (TABLE I). These results reflect the presence of cases within the canine population evaluated during the study period.

TABLE I
Overall prevalence of Sarcoptes scabiei in domestic dogs from Lomas de Sargentillo, Ecuador

Cases	n	%	95 % CI
Positive	4	3.9	0.015 – 0.096
Negative	98	96.1	0.903 – 0.984
Total	102	100	

n: number of dogs; %: percentage; 95 % CI: confidence interval for the proportion (Wilson score method). Positive: dogs with *Sarcoptes scabiei* confirmed by light microscopy of deep skin scrapings; Negative: dogs with no mites detected.

Positive cases were distributed across specific locations, with no evident spatial clustering or concentration in a defined area. The location of infected animals does not suggest a defined geospatial pattern, which may indicate sporadic or low-intensity transmission (FIG. 1).

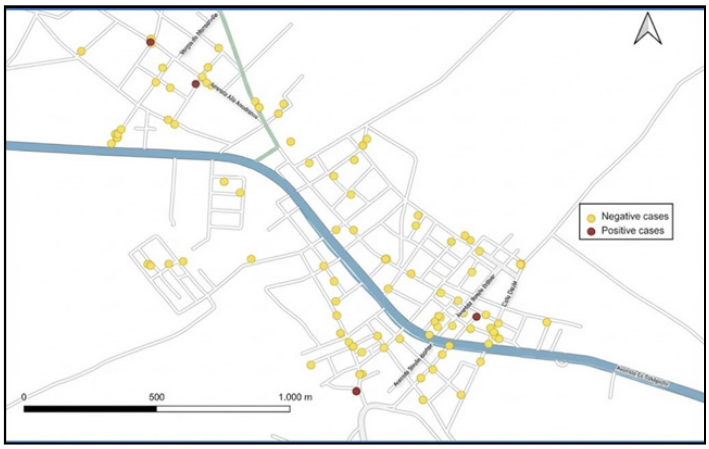

FIGURE 1. Geospatial distribution of sampled domestic dogs in the urban area of Lomas de Sargentillo, Ecuador, showing positive (red dots) and negative (yellow dots) cases of *Sarcoptes scabiei* confirmed by light microscopy.

Regarding the sex variable, four positive cases were identified in males (10.3 %), while no positive cases were observed in females (0 %). Although the likelihood ratio test yielded a P value of 0.047, the odds ratio showed wide confidence intervals. Risk analysis using the odds ratio (OR), adjusted with Haldane's correction, showed wide confidence intervals including the null value (OR = 0.167; 95 % CI: 0.009–3.05), indicating that no conclusive differences in infection risk between sexes could be established (TABLE II).

TABLE II
Association between sex and Sarcoptes scabiei positivity in dogs from Lomas de Sargentillo, Ecuador

Sex	n	Positive	Prevalence (%)	P	OR	95% CI
Male	39	4	10.3	0.047	Ref.	–
Female	63	0	0	0.047	0.167	0.009–3.05
Total	102	4	3.9	–	–	–

n: number of dogs; Positive: dogs with *Sarcoptes scabiei* confirmed by light microscopy; Prevalence (%): Positive/n × 100; P: likelihood-ratio test P-value; OR: odds ratio (Haldane´s correction); 95 % CI: 95 % confidence interval; Ref.: reference category (male); –: non-estimable.

Regarding life stage, positive cases of Sarcoptes scabiei were observed among juvenile (7.1 %), mature adult (2.9 %), and senior dogs (5.9 %). No statistically significant differences were found between life stages (Pearson's chi-square test = 2.119; P = 0.832), suggesting a homogeneous distribution of the parasite in relation to age (TABLE III).

TABLE III
Prevalence of Sarcoptes scabiei according to life stage in dogs from Lomas de Sargentillo, Ecuador

Life stage	n	Positive	Prevalence (%)
Puppy	12	0	0.0
Juvenile	14	1	7.1
Young adult	1	0	0.0
Mature adult	34	1	2.9
Senior	34	2	5.9
Geriatric	7	0	0.0
Total	102	4	3.9

n: number of dogs; Positive: dogs with *Sarcoptes scabiei* confirmed by light microscopy; Prevalence (%): Positive/n × 100 by life stage; P = 0.832 (Pearson's chi-square test for association across life stages). Life stage classification was based on chronological age as follows: puppies (0–5 months), juvenile (older than 6 and up to 12 months), young adults (older than 12 and up to 24 months), mature adults (older than 2 and up to 6 years), seniors (older than 7 and up to 11 years), and geriatric dogs (12 years of age or older)

The prevalence of *Sarcoptes scabiei* found in this study was 3.9 %, a proportion consistent with various global studies. In China, Chen *et al*. [24] reported a prevalence of 5.26 % in domestic canines. In Nigeria, Omonijo and Sowemimo [25] identified 7 % prevalence, and in Egypt, Zineldar *et al*. [26] reported 6 %. These studies highlighted that poor hygiene and rural environments could increase exposure to the parasite [27].

Regionally, Martins-da Silva *et al*. [28] in Brazil recorded a 2.54 % prevalence of Sarcoptes scabiei in domestic canines. These data are comparable to the findings of the present study, suggesting a stable presence of the parasite in tropical and rural settings. In Ecuador, circulation has also been documented: Jara [15] in Machala reported a prevalence of 5.03%, Murillo-Álava [16] in Baba reported 10 %, and Alburqueque-Mañay [29] in Ventanas reported 6 %, although in the latter case, the studied population consisted exclusively of canines showing dermatological symptoms, which may have led to an overestimation of the prevalence.

Although no statistically significant differences were found between life stages in this study, positive cases were observed among juvenile, mature adult, and senior dogs. This aligns with previous observations suggesting greater immunological susceptibility in animals at early or advanced stages of life [30, 31]. However, larger sample sizes are needed to confirm this trend.

A relevant limitation of this study was the low number of positive cases, which reduced the statistical power to establish robust associations between risk variables. This outcome may also be related to sociocultural factors, such as reluctance or limited willingness among some pet owners to allow their animals to participate in clinical studies. This situation may reflect a limited familiarity with veterinary research in certain sectors of the community. Additionally, fieldwork was conducted at the household level as part of this field-based study. However, access to certain neighborhoods within some of the predefined sampling areas was restricted due to security concerns, which limited on-site visits to specific sectors. As a result, the sample size was slightly reduced. To address this limitation, a replacement strategy was implemented by selecting alternative eligible households within accessible areas, allowing the final number of samples to approach the initially estimated target.

CONCLUSIONS

The prevalence of *Sarcoptes scabiei* in domestic canines from Lomas de Sargentillo was 3.9 %, indicating active circulation of the ectoparasite in this urban coastal region of Ecuador. This finding is particularly relevant to public health due to the zoonotic potential of the mite, which can be transmitted to humans, especially in communities with close contact between people and animals.

Statistical analysis suggested a possible association between sex and parasite presence; however, given the low number of positive cases, this finding should be interpreted with caution and considered exploratory rather than conclusive. No relevant differences were found by age. These results underscore the importance of implementing epidemiological surveillance, early diagnosis, and control strategies in vulnerable canine populations.

In this context, strengthening health education programs for pet owners should be considered a key preventive action, with emphasis on early recognition of clinical signs, timely veterinary diagnosis, and the adoption of preventive practices aimed at reducing transmission and controlling sarcoptic mange as a zoonosis of public health importance. Despite the limited number of positive cases, the data gathered provide a valuable foundation for future research on risk factors, management practices, and zoonotic implications.

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Author contributions

All authors actively contributed to the development of the study. E.S.R. was responsible for the project design, statistical analysis, and manuscript writing. D.E.E., S.D.G., and G.P.L.

participated in data collection and critical content review. M.X.S. supervised the statistical analysis and performed the final revision of the manuscript. All authors read and approved the final version of the article.

Conflict of interest

The authors declare no economic, personal, or academic conflicts of interest that could have influenced the results or interpretation of this study.

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BIBLIOGRAPHIC REFERENCES

[1] Bowman DD. Georgis' Parasitology for Veterinarians. 11th ed. St. Louis, Misuri: Elsevier; 2021.

[2] World Organisation for Animal Health (WOAH). Chapter 3.10.6. Mange. In: Manual of Diagnostic Tests and Vaccines for Terrestrial Animals. [Internet]. Paris: WOAH; 2022 [cited 02 Sep 2025]. Available in: https://goo.su/riHGe

[3] Morelli S, Diakou A, Di Cesare A, Colombo M, Traversa D. Canine and feline parasitology: analogies, differences, and relevance for human health. Clin. Microbiol. Rev. [Internet]. 2021; 34(4):e00266-20. doi: https://doi.org/qmqn

[4] Colombo M, Morelli S, Sacra M, Trezza G, Paoletti B, Traversa D, Di Cesare A. An uncommon and severe clinical case of *Sarcoptes scabiei* infestation in a cat. Pathogens. [Internet]. 2023; 12(1):62. doi: https://doi.org/qmqp

[5] World Health Organization (WHO). Scabies. [Internet]. Geneva: WHO; 2023 [cited 03 Sep 2025]. Available in: https://goo.su/ZGlL

[6] El-Moamly AA. Scabies as a part of the World Health Organization roadmap for neglected tropical diseases 2021–2030: what we know and what we need to do for global control. Trop. Med. Health. [Internet]. 2021; 49:64. doi: https://doi.org/qmqq

[7] Karimkhani C, Colombara DV, Drucker AM, Norton SA, Hay R, Engelman D, Steer A, Whitfeld M, Naghavi M, Dellavalle RP. The global burden of scabies: a cross-sectional analysis from the Global Burden of Disease Study 2015. Lancet Infect. Dis. [Internet]. 2017; 17(12):1247–1254. doi: https://doi.org/gghjmc

[8] Romani L, Whitfeld MJ, Kaldor JM, Steer AC. Prevalence of scabies and impetigo worldwide: a systematic review. Lancet Infect. Dis. [Internet]. 2015; 15(8):960–967. doi: https://doi.org/f3htwx

[9] Overgaauw PAM, Vinke CM, Hagen M, Lipman LJA. A One Health perspective on the human–companion animal relationship with emphasis on zoonotic aspects. Int. J. Environ. Res. Public Health. [Internet]. 2020; 17(11):3789. doi: https://doi.org/gpfvt8

[10] Ministerio de Salud Pública del Ecuador. Boletines epidemiológicos. [Internet]. Quito, Ecuador: Ministerio de Salud Pública; 2022 [cited 02 Sep 2025]. Available in: https://goo.su/6lkTz9

[11] Elsheikha H, Wright I. Biology, diagnosis and management of sarcoptic mange. Vet. Nurse. [Internet]. 2015; 6(5):260–265. doi: https://doi.org/qmqr

[12] Nwufoh OC, Sadiq NA, Fagbohun O, Adebiyi A, Adeshina R, Emmanuel E, Emikpe BO. Molecular detection and characterization of Sarcoptes scabiei var canis using skin scrapings and skin biopsies. J. Parasit. Dis. [Internet]. 2021; 45(1):258–262. doi: https://doi.org/qmqs

[13] Prefectura del Guayas. Lomas de Sargentillo. [Internet]. Guayaquil, Ecuador: Prefectura del Guayas; 2025 [cited 02 Sep 2025]. Available in: https://goo.su/Y3BR5

[14] Harvey ND. How old is my dog? Identification of rational age groupings in pet dogs based upon normative age-linked processes. Front. Vet. Sci. [Internet]. 2021; 8:643085. doi: https://doi.org/qmqt

[15] Jara S. Determinación del índice de prevalencia de *Sarcoptes scabiei* en caninos en la ciudad de Machala [Tesis de Pregrado en Internet]. Machala, Ecuador: Universidad Técnica de Machala; 2014 [cited 02 Sep 2025]; 64 p. Available in: https://goo.su/C7ywR

[16] Murillo-Álava EJ. Determinación de la presencia de Sarcoptes scabiei en perros (*Canis lupus familiaris*) en la ciudadela Las Malvinas del cantón Baba [Tesis de Pregrado en Internet]. Babahoyo, Ecuador: Universidad Técnica de Babahoyo, Facultad de Ciencias Agropecuarias; 2025 [cited 02 Sep 2025]; 59 p. Available in: https://goo.su/VHk1O

[17] Nuñez-Zegarra Z. Prevalencia de escabiosis (*Sarcoptes scabiei* var. *canis*) y demodicosis (*Demodex canis*) en caninos del sector Atumpampa – distrito de Morales, San Martín. [Tesis de Pregrado en Internet]. Tarapoto, Perú: Universidad Nacional de San Martín. Facultad de Ciencias Agrarias, Escuela Profesional de Medicina Veterinaria; 2024 [cited 02 Sep 2025]. 65 p. Available in: https://goo.su/LaEz3ho

[18] Widaty S, Miranda E, Cornain EF, Rizky LA. Scabies: update on treatment and efforts for prevention and control in highly endemic settings. J. Infect. Dev. Ctries. [Internet]. 2022; 16(2):244–251. doi: https://doi.org/qmqv

[19] Engelman D, Yoshizumi J, Hay RJ, Osti M, Micali G, Norton S, Walton S, Boralevi F, Bernigaud C, Bowen AC, Chang AY, Chosidow O, Estrada-Chavez G, Feldmeier H, Ishii N, Lacarrubba F, Mahé A, Maurer T, Mahdi MMA, Murdoch ME, Pariser D, Nair PA, Rehmus W, Romani L, Tilakaratne D, Tuicakau M, Walker SL, Wanat KA, Whitfeld MJ, Yotsu RR, Steer AC, Fuller LC. The 2020 International Alliance for the Control of Scabies (IACS) Consensus Criteria for the Diagnosis of Scabies. Br. J. Dermatol. [Internet]. 2020; 183(5):808–820. doi: https://doi.org/grkftd

[20] Instituto Nacional de Estadística y Censos (INEC). Censo Ecuador 2022. Hogares por tenencia y número de perros por hogar, según provincia, cantón y área de residencia. [Internet]. Quito, Ecuador: INEC; 2022 [cited 02 Sep 2025]. Available in: https://goo.su/zXJz6B

[21] Alcoba-Zenteno RA. Tamaño de la muestra: Alternativas de selección. Rev. Invest. Desarr. [Internet]. 2023; 6(9):62-72. [cited 02 Sep 2025]. Available in: https://goo.su/yGzDPbi

[22] Becskei C, Liebenberg J, Fernandes T, Borowski S, D'Hanis L, Mahabir SP. Efficacy of a chewable tablet containing sarolaner, moxidectin, and pyrantel (Simparica Trio®) in the treatment of sarcoptic mange caused by *Sarcoptes scabiei* mite infestations in dogs. Parasit. Vectors. [Internet]. 2023; 16:441. doi: https://doi.org/qmtv

[23] Chocontá-Gil MI. Manual de pruebas dermatológicas del Laboratorio de Salud Animal de la Universidad Cooperativa de Colombia sede Ibagué–Espinal [Tesis de Pregrado en Internet]. Ibagué, Colombia: Universidad Cooperativa de Colombia, Facultad de Medicina Veterinaria y Zootecnia; 2021 [cited 02 Sep 2025]. 63 p. Available in: https://goo.su/AH6p5sV

[24] Chen YZ, Liu GH, Song HQ, Lin RQ, Weng YB, Zhu XQ. Prevalence of Sarcoptes scabiei infection in pet dogs in southern China. Sci. World J. [Internet]. 2014; 2014:718590. doi: https://doi.org/gb5392

[25] Omonijo AO, Sowemimo OA. Prevalence of ectoparasites of dogs and cats in Ijero and Moba LGAs, Ekiti State, Nigeria. Nig. J. Parasitol. [Internet]. 2017; 38(2):278–283. doi: https://doi.org/qmt3

[26] Zineldar H, Abouzeid N, Eisa M, Bennour E, El Neshwy W. Prevalence, clinical presentation, and therapeutic outcome of ectoparasitic infestations in dogs in Egypt. Open Vet. J. [Internet]. 2023; 13(12):1631–1644. doi: https://doi.org/g89n52

[27] Gupta S, Thornley S, Morris A, Sundborn G, Grant C. Prevalence and determinants of scabies: a global systematic review and meta-analysis. Trop. Med. Int. Health. [Internet]. 2024; 29(12):1006–1017. doi: https://doi.org/qmt4

[28] Martins-da Silva TR, Schimmunech MS, Pott-Kirchhoff PJ, Alves-Sobrinho AV, Gomes-de Oliveira P, Couto-do Amaral AV, Saturnino KC, Romani AF, de Souza-Ramos DG. Mange skin diseases in dogs and cats in Jataí, Brazil: a retrospective study with notes on zoonotic aspects. Res. Soc. Dev. [Internet]. 2021; 10(1):e10610111417. doi: https://doi.org/qmqk

[29] Alburqueque-Mañay G. Determinación de Sarcoptes scabiei en caninos con dermatitis en el Cantón Ventanas [Tesis de Pregrado en Internet]. Babahoyo, Ecuador: Universidad Técnica de Babahoyo; 2024 [cited 03 Sep 2025]. 52 p. Available in: https://goo.su/QpQJ4

[30] Bhowmik P, Neog R, Bhattacherjee K, Islam S, Tamuli SM, De A. A survey on Sarcoptes scabiei var canis infestation in dogs in Guwahati, Assam, India. Explor. Anim. Med. Res. [Internet]. 2024; 14(S1):70–74. doi: https://doi.org/qmt6

[31] Næsborg-Nielsen C, Wilkinson V, Mejia-Pacheco N, Carver S. Evidence underscoring immunological and clinical pathological changes associated with Sarcoptes scabiei infection: synthesis and meta-analysis. BMC Infect. Dis. [Internet]. 2022; 22:658. doi: https://doi.org/qmt8