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# CASE REPORT: CLINICAL MANAGEMENT OF SCABIES COMPLICATE BY *MALLASEZIA* DERMATITIS IN A DOG USING ALTERNATIVE HERBAL THERAPY

## Laporan Kasus: Manajemen Klinis Skabiosis yang Disertai Dermatitis *Malassezia* pada Anjing Dengan Terapi Alternatif Herbal

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**Abstract**

Sarcoptic mange complicated by *Malassezia* dermatitis is a chronic dermatological condition in dogs caused by skin barrier damage and the proliferation of opportunistic yeast. This case report describes the clinical management of a 5-month-old female Mini Pomeranian mix weighing 2.57 kg, presenting with severe pruritus, erythema, alopecia, crusting, and otitis externa with a characteristic odor. The diagnosis was established through a skin scraping examination that identified S. scabiei and an acetate tape cytology preparation that showed proliferation of *Malassezia* spp. Suportif therapy was administered using a herbal combination of turmeric (*Curcuma longa*), honey, and Virgin Coconut Oil (VCO) given orally, along with topical therapy using neem (*Azadirachta indica*) shampoo twice weekly for 8 weeks (56 days). Clinical evaluation showed gradual improvement in the form of a decrease in pruritus scores, resolution of erythema and crusts, anagen phase hair growth, and a decrease in the number of *Malassezia* spp. on cytological examination. These results indicate that combined herbal therapy can serve as a supportive alternative in the management of complex dermatological cases, although clinical monitoring remains necessary to ensure therapeutic success.

Keywords: Dogs, Herbal therapy, *Malassezia* dermatitis, Scabies

**Abstrak**

Skabiosis yang disertai dermatitis *Malassezia* merupakan kondisi dermatologis kronis pada anjing yang terjadi akibat kerusakan barrier kulit dan proliferasi ragi oportunistik. Laporan kasus ini mendeskripsikan manajemen klinis pada seekor anjing ras campuran Mini

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Pomeranian, betina, usia 5 bulan, dengan berat badan 2,57 kg, yang menunjukkan gejala pruritus berat, eritema, alopesia, krusta, serta otitis eksterna dengan bau khas. Diagnosis ditegakkan melalui pemeriksaan skin scraping yang mengidentifikasi *S. scabiei* serta pemeriksaan sitologi *acetate tape preparation* yang menunjukkan proliferasi *Malassezia* spp. Terapi suporitf dilakukan menggunakan kombinasi herbal berupa kunyit (*Curcuma longa*), madu, dan *Virgin Coconut Oil* (VCO) yang diberikan secara oral, serta terapi topikal menggunakan sampo mimba (*Azadirachta indica*) dua kali per minggu selama 8 minggu (56 hari). Evaluasi klinis menunjukkan perbaikan bertahap berupa penurunan skor pruritus, resolusi eritema dan krusta, pertumbuhan rambut fase anagen, serta penurunan jumlah *Malassezia* spp. pada pemeriksaan sitologi. Hasil ini menunjukkan bahwa terapi herbal kombinasi dapat menjadi alternatif suportif dalam manajemen kasus dermatologis kompleks, meskipun pemantauan klinis tetap diperlukan untuk memastikan keberhasilan terapi.

Kata Kunci: Anjing, *Malassezia*, Skabiosis, Terapi herbal

## INTRODUCTION

Skin diseases are among the most frequently encountered cases in small animal veterinary practice, particularly in dogs and cats. Scabies is a parasitic skin disease caused by infestation with the mite *Sarcoptes scabiei* in dogs and has also been reported to infest cats, although cases in cats are less common than in dogs (Arlian and Morgan, 2017). This disease is characterized by intense pruritus, erythema, papules, alopecia, crusting, and skin thickening in chronic cases (Arlian and Morgan, 2017). Scabies is an important concern in small animal practice because it is highly contagious through direct and indirect contact and has zoonotic potential, thereby causing transient dermatitis in humans (Romero *et al.*, 2020). Scabiosis is one of the factors that can reduce animal productivity. This condition leads to decreased body weight, slow growth, reduced immune resistance, and host mortality. Animals infected with scabiosis commonly exhibit emaciation.

Infestation with *S. scabiei* causes damage to the stratum corneum through mite burrowing activity and immune responses to parasitic antigens, thereby disrupting the skin barrier and triggering chronic inflammation. This condition can promote the overgrowth of *Malassezia* spp., which are normal skin yeasts in dogs, leading to secondary dermatitis (Bond *et al.*, 2020). *Malassezia* dermatitis is characterized by pruritus, erythema, greasy skin, hyperpigmentation, lichenification, and a characteristic odor (Jasmin, 2011). The combination of scabies and *Malassezia* dermatitis can exacerbate inflammation, increase the severity of pruritus, and prolong the healing process. In addition, *Malassezia* spp. have the potential to be transmitted through direct contact, particularly in individuals with low immunity (Curtis, 2004; Sudipa *et al.*, 2021).

In the community, scabies remains a frequently encountered dermatological problem in dogs and cats, particularly in animals kept under semi-intensive conditions or with unrestricted access to the outdoor environment. Factors such as population density, poor sanitation, inadequate care, and insufficient ectoparasite control contribute to the high occurrence of this disease (Curtis, 2004). In Indonesia, a study conducted in Bali reported a prevalence of mite infestation of 22%, with *S. scabiei* identified in approximately 10% of the examined dogs, indicating that scabies remains an important skin disorder in local dog populations (Satria *et al.*, 2017). In clinical practice, severe pruritus caused by scabies is often treated with corticosteroids to reduce inflammation and itching. However, the use of steroids requires careful consideration because their immunosuppressive effects may inhibit the elimination of *S. scabiei* and increase the risk of secondary infections, such as *Malassezia* proliferation, which can worsen dermatitis (Curtis, 2004; Bond *et al.*, 2020).

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The use of steroids without a definitive diagnosis may result in the phenomenon of *masked scabies*, characterized by a temporary reduction in clinical signs without elimination of the causative agent, allowing the infestation to persist subclinically. Long-term use also carries the risk of adverse effects such as immunosuppression, metabolic disturbances, skin thinning, and impaired wound healing (Elkholly *et al.*, 2020. Therefore, a therapeutic approach is needed that not only suppresses pruritus but also improves the skin barrier and controls the causative agents. Natural substances such as turmeric (*Curcuma longa*) as an anti-inflammatory agent, honey as an antimicrobial agent and wound-healing support, and virgin coconut oil (VCO), which contains lauric acid with potential antifungal and skin-protective properties, may serve as supportive therapies to reduce dependence on steroids (Verallo-Rowell *et al.*, 2008; Bond *et al.*, 2020).

Based on the above background, this report presents the diagnosis and management of dermatitis caused by scabies infection accompanied by *Malassezia spp.* through alternative herbal treatment. Therefore, it is expected to provide additional references on the use of herbal therapies in cases of this dermatitis. The use of herbal therapy in this case presents its own challenges because its effectiveness is highly influenced by treatment consistency, dosage, and the individual patient's response. Although substances such as turmeric, honey, and virgin coconut oil (VCO) are known to have potential antifungal, antibacterial, antiparasitic, and anti-inflammatory effects, scientific evidence in animals, particularly in the form of controlled clinical studies, remains limited. In addition, herbal therapies generally act gradually, so clinical improvement does not occur instantly. Therefore, regular evaluation and monitoring of the clinical condition remain necessary to ensure an optimal therapeutic response. Herbal therapy in this case serves as a supportive alternative and does not preclude the need for conventional therapy if the clinical response is inadequate.

## RESEARCH METHODS

### Signalment and Anamnesis

The patient was a mixed-breed Mini Pom dog named Lusi, residing at Jalan Kertapura No. 3. The patient was a 5-month-old female weighing 2.57 kg with a white and brown coat. The patient was brought to the Laboratory of Veterinary Internal Medicine, Faculty of Veterinary Medicine, Udayana University, with complaints of pruritus and severe alopecia throughout the body.

According to the owner, pruritus began in August 2025, and hair loss was first observed in October 2025. Treatment provided to the patient was limited to bathing with a dog-specific shampoo purchased over the counter at a pet shop. Additional information from the owner indicated that the diet consisted of a mixture of rice and boiled chicken. The owner had only one dog, namely the patient, Lusi. The patient was kept confined in the yard and frequently had physical contact with the owner. The patient had never been administered flea medication or deworming medication and had never received vaccination.

### Physical and Laboratory Examination

Physical examination was performed through inspection, palpation, and auscultation. The physical examination began with an assessment of the present status as presented in Table 1. The patient had a Body Condition Score (BCS) of 5/9 (WSAVA, 2020), with a docile and active temperament and a habit of scratching and biting areas of the body. The patient's overall condition was observed, including frequent scratching and biting, with hair absent from almost the entire body. Erythema was also observed on the head, neck, thorax, and abdomen, with these areas feeling warmer upon palpation. The dog's skin condition showed alopecia in the


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head, neck, lateral areas, thorax, and abdomen. On ear examination, palpation revealed reddish ear mucosa, with wet, brownish cerumen present in both ears, accompanied by a strong odor. A small amount of crusted lesions was also found on the head. The level of pruritus was assessed with a score of 8/10. The patient also had a strong odor and greasy skin and coat. Other physical examination findings involving the circulatory, respiratory, digestive, urogenital, musculoskeletal, nervous, lymph node, and ocular systems revealed no abnormalities. The distribution of lesions in the case animal is presented in Figure 1.

### Ancillary Examination

Ancillary examinations were performed, including skin scraping examination, trichogram examination, Acetate tape preparation examination, otic swab examination, and Complete Blood Count (CBC) examination.

## RESULTS AND DISCUSSION

### Results

### Skin Scraping Examination

Examination using the skin scraping method (*superficial and deep skin scraping*) was performed by collecting samples from crusted lesions, scales, or hyperkeratotic areas. The samples were then treated with KOH solution and microscopically observed (Yudhana, 2023). The results revealed *Sarcoptes sp.* and its eggs, with characteristic microscopic morphology, namely adult female *S. scabiei* measuring approximately 0.3–0.5 mm in length and 0.3 mm in width, whereas males measure approximately 0.25 mm in length and 0.2 mm in width (Arlian and Morgan, 2017). The body is oval and flattened. The adult stage has four pairs of legs, with two pairs being the anterior legs and the other two pairs being the posterior legs. Gravid female *S. scabiei* seek a site in the skin layer (*stratum corneum*) to deposit their eggs by creating tunnels while laying eggs. *S. scabiei* eggs in dogs are oval to elongated in shape, thin- and smooth-walled, transparent, with an average size of approximately 150–200 µm × 90–120 µm, and are usually found within the stratum corneum tunnels where female mites lay their eggs (Arlian and Morgan, 2017; Curtis, 2004). The skin of dogs becomes itchy, causing the dog to scratch and resulting in lesion formation. These lesions become reddish in association with the process of crust formation. These signs are also accompanied by alopecia and may result in weight loss (Bandi and Saikumar, 2013) in Figure 2.

### Trichogram Examination

Trichogram examination was performed by plucking hair (*hair plucking*) using a *needle holder* to ensure that the hair roots were not cut. The obtained hair was immediately placed on a glass slide (USAMV Bucharest Dermatology Service, 2021). The hair preparation was then treated with 10% KOH solution on the glass slide to dissolve interfering keratin, allowing the hair shaft and root structures to be clearly observed during microscopic examination (Berglund and Rollman, 2021). The examination aimed to identify fungal infections, bacterial agents, or parasites. The identification results showed the presence of *Sarcoptes sp.*, incomplete medullary hair structures, regular hair breakage, and the telogen hair phase, as shown in Figure 3.

### Acetate tape preparation Examination

Ancillary skin cytology examination was performed using clear acetate tape pressed onto several dry lesion sites that were difficult to reach, such as the interdigital spaces and facial/pinna areas. The tape was then attached to a glass slide and stained using *Diff-Quik* (a modified *Wright–Giemsa* staining method) before being examined under a microscope. The


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results showed the presence of *Malassezia spp.* (Figure 4), characterized morphologically by small oval to round cells with thick walls and unipolar or broad-based budding, in which the bud is broadly attached to the mother cell. Its characteristic shape is often described as shoe- or peanut-shaped ("*peanut-shaped*"), a morphology that distinguishes it from other yeast fungi on the skin surface (Guillot and Bond, 2020), with the results shown in Figure 4.

**Otic Swab Examination**

The *otic swab* examination method was performed by smearing a *cotton bud* containing the patient's ear cerumen onto an *object glass*, followed by the addition of 10% KOH (potassium hydroxide) and covering with a *cover glass*. The preparation was then examined under a microscope at 10× magnification.

The *otic swab* cytological examination was performed by smearing the *ear swab cotton bud* onto an *object glass*, followed by staining using Diff-Quik stain. The stained preparation was then examined under a microscope at 1000× magnification. In this examination, cytological evaluation of the ear cerumen revealed a large number of *Malassezia sp.* fungi, as shown in Figure 5.

**Complete Blood Count (CBC) Examination**

Hematological examination was performed using an *automatic hematology analyzer*, with the results presented in Table 2. The results showed anemia characterized by decreased red blood cell counts and hemoglobin levels, as well as granulocytopenia accompanied by relative lymphocytosis, indicating a chronic infection or inflammatory condition of sufficiently long duration.

**Diagnosis and Prognosis**

Based on the clinical signs and the results of ancillary examinations, including ATP, trichogram, and *skin scraping*, the patient was diagnosed with scabiosis accompanied by malasseziosis. Considering that the patient remained active, had a good appetite, and showed no significant impairment of other body functions, the prognosis for recovery in this case was considered favorable.

In cases of alopecia in young dogs, differential diagnoses that should be considered include demodicosis, dermatophytosis, bacterial folliculitis, and follicular dysplasia. However, based on the skin scraping examination, *Demodex spp.* were not detected, allowing demodicosis to be ruled out. In addition, the detection of *S. scabiei* in the skin scraping examination supported the diagnosis of scabiosis.

Skin cytology examination showed the presence of *Malassezia spp.* in numbers consistent with those reported in the literature (≥2 cells/HPF), thereby supporting a definitive diagnosis of *Malassezia* dermatitis and indicating significant yeast proliferation.

**Treatment**

Treatment in this case was performed using an alternative approach utilizing herbal ingredients administered systemically and topically. Herbal therapy was selected as an alternative treatment by considering its antifungal, anti-inflammatory, antimicrobial, antiparasitic properties and long-term safety of use.

Systemic therapy was administered using a combination of herbal ingredients given orally, namely turmeric powder (*Curcuma longa*) at 1 teaspoon/3.6 grams, honey at ¼ teaspoon/administered using a 1.3 mL syringe once daily (Governa *et al.*, 2019), and VCO (*Virgin Coconut Oil*) at 1.95 mL/kg BW/day, while for the dog weighing 2.57 kg, 5 mL per


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day, equivalent to 1 teaspoon, was administered orally (Chew *et al.*, 2019). In addition to oral therapy, topical therapy was performed by bathing the dog with neem (*Azadirachta indica*) shampoo or *neem tree oil* (Pet Kingdom, PT Graha Satwa Paramita) twice a week throughout the treatment period to help reduce the population of infectious agents and improve the condition of the skin lesions.

**Evaluation**

The parameters observed to evaluate the treatment were pruritus score, skin lesions, increase in patient body weight, CBC, trichogram, and ATP. Hematological examination showed relative lymphocytosis and granulocytopenia as a result of ongoing adaptive immune activity to combat the concurrent infections. Similar findings were also described by (Majewska *et al.*, 2016), who explained that chronic skin disease in dogs can cause antigenic stimulation and skin inflammation, resulting in a significant increase in T lymphocytes in peripheral blood. The results of the evaluation of the patient's clinical development are presented in Table 3.

**Discussion**

In cases of scabies, the initial symptoms are usually severe itching that appears approximately 2–6 weeks after the initial infestation, as the body requires time to develop a hypersensitivity reaction to the *S. scabiei* mite (Arlian and Morgan, 2017). In cases of reinfestation, itching may appear more rapidly, even within 1–4 days. If not treated promptly, within 3–4 weeks after the onset of pruritus, animals begin to develop lesions such as erythema, crusts, and alopecia due to continuous scratching (Mueller *et al.*, 2020). If this condition persists for more than 1–2 months without adequate therapy, skin inflammation becomes chronic and is characterized by lichenification, hyperpigmentation, and skin barrier damage. In *S. scabiei* infestation, the immune response involves type I and IV hypersensitivity reactions that trigger persistent release of pro-inflammatory cytokines. If this condition persists, the body may experience immunological exhaustion (*immune exhaustion*), which in some cases contributes to decreased production or increased destruction of white blood cells (Arlian & Morgan, 2017). Therefore, the combination of chronic inflammation, secondary infection, and therapeutic factors may contribute to granulocytopenia in chronic dermatological cases.

Prolonged skin damage causes disruption of the skin barrier. When the protective layer of the skin is damaged, opportunistic microorganisms such as *Malassezia spp.* can more easily proliferate excessively. Under normal conditions, *Malassezia* can be found on the skin of dogs as normal flora; however, when chronic inflammation, increased moisture, and alopecia or wounds caused by scratching occur, the growth of these yeasts becomes uncontrolled and triggers secondary dermatitis. Secondary infection by *Malassezia* usually develops after chronic inflammation has persisted for several weeks to months, particularly when the primary agent (scabies) has not been completely controlled (Bond *et al.*, 2020). Thus, from the initial onset of scabies-related itching to the development of chronic lesions accompanied by secondary *Malassezia* infection, the process may take approximately 1–3 months depending on the animal's immune status, infestation severity, and appropriateness of the therapy administered.

The prolonged chronic inflammatory process is not limited to the skin but also triggers a systemic response, as reflected in the results presented in Table 2. The release of inflammatory cytokines such as interleukins and tumor necrosis factor (TNF-α) can inhibit erythropoiesis in the bone marrow and disrupt iron metabolism, thereby causing decreases in erythrocyte count, hemoglobin, and hematocrit, which manifest as anemia. In addition, persistent chronic inflammation of the skin triggers a systemic response through the release of pro-inflammatory


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cytokines into the circulation. Cytokines such as interleukin (IL-1, IL-6) and tumor necrosis factor-alpha (TNF-α) are known to inhibit erythropoiesis in the bone marrow by suppressing erythropoietin production and interfering with iron utilization. This mechanism causes a reduction in red blood cell production, so CBC examination shows decreased RBC, hemoglobin, and hematocrit levels, indicating anemia of chronic disease (*anemia of chronic disease*) (Weiss & Goodnough, 2005; Ganz, 2019).

The prolonged inflammatory process causes increased migration of inflammatory cells, particularly neutrophils, from the circulation to lesioned skin tissues. Neutrophils act as a major component of innate immunity through phagocytosis and the release of inflammatory mediators to combat infectious agents, including parasites and opportunistic microorganisms. Continuous activation and recruitment of neutrophils during chronic inflammation can alter the peripheral leukocyte profile due to increased demand for immune cells in inflamed tissues (Kolaczkowska & Kubes, 2013). On the other hand, an increased proportion of lymphocytes reflects ongoing activation of the adaptive immune system due to chronic antigen exposure from *S. scabiei* and *Malassezia* spp. T lymphocytes play an important role in cellular immune responses and hypersensitivity reactions to persistent antigens; therefore, increased lymphocyte activity may be observed in chronic inflammatory conditions (Arlian & Morgan, 2017; Bond *et al.*, 2020).

On examination of the praesens status, an increased respiratory frequency (35 times/minute) was observed, indicating tachypnea. This occurred as a response to severe pruritus and chronic inflammation caused by *S. scabiei* infestation and secondary *Malassezia spp.* infection, which triggered the release of inflammatory mediators and physiological stress. In addition, anemia, as indicated by decreased RBC, hemoglobin, and hematocrit levels, resulted in reduced oxygen-carrying capacity, causing the body to compensate by increasing respiratory frequency. Thus, tachypnea in this case was caused by a combination of inflammatory factors, stress, and anemia (Arlian & Morgan, 2017; Mueller *et al.*, 2020; Bond *et al.*, 2020).

Supportive therapy using traditional medicines derived from plants and pure natural ingredients is believed to have lower side effects, risk levels, and hazards compared with chemically derived drugs (Hamka dan Irwan, 2025). Herbal therapy was used as an alternative, with turmeric (*Curcuma longa*) administered orally because it contains active compounds such as curcumin, essential oils, phenols, flavonoids, alkaloids, terpenoids, and tannins (Hamka & Irwan, 2025). Curcumin has anti-inflammatory, antimicrobial, and antifungal activities. The most important curcuminoid is curcumin, which acts by inhibiting inflammatory pathways such as NF-κB and disrupting fungal cell membrane integrity, thereby suppressing the growth of pathogenic microorganisms (Hewlings and Kalman, 2017). According to Martins *et al.*, (2009), curcumin exhibits antifungal activity against various yeast species, supporting its use in cases of *Malassezia*-associated dermatitis. The oral dose of turmeric administered to the dog in this case was 6% of the solution or 3.6 grams/1 teaspoon to control systemic inflammation through its hepatoprotective activity.

Honey was added to the therapy because it has antibacterial, anti-inflammatory, and antioxidant effects and enhances the immune system. The antimicrobial activity of honey results from a combination of low pH, high osmotic pressure, hydrogen peroxide production, and phenolic compounds. Research by Al-Waili *et al.*, (2011) showed that honey is effective in accelerating wound healing, reducing inflammation, and preventing secondary infection, making it highly beneficial for skin lesions caused by repeated scratching. Honey has properties as a causative, symptomatic, and supportive therapy. Causative therapy is therapy aimed at treating the causative agent of disease, such as skin diseases caused by bacteria and fungi. Symptomatic

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therapy is therapy aimed at reducing complaints without addressing the underlying disease causing the complaints, such as suppressing symptoms of pruritus or itching in dogs. Supportive therapy is supportive treatment aimed at improving the skin condition of dogs suffering from atopic dermatitis (Purwanti *et al.*, 2022). According to Governa *et al.*, (2019), honey therapy at a dose of 0.1 mg/mL was able to heal wounds compared with controls, with a healing rate of 27%–52%. Honey was administered orally at a dose of 0.5 mL/kg BW/day (equivalent to 1.3 mL/day for a patient weighing 2.57 kg), referring to the supportive dose reported in dogs with dermatitis (Purwanti *et al.*, 2022). The dose was adjusted according to the patient's body weight and gastrointestinal tolerance.

Coconut oil or VCO (*Virgin Coconut Oil*) has anti-inflammatory, antibacterial, and emollient properties, which can help improve the skin barrier and reduce skin dryness (Evangelista *et al.*, 2014). The use of coconut oil in the treatment of atopic dermatitis is important because coconut oil has the ability to moisturize and improve the skin. However, despite these benefits, coconut oil cannot inhibit histamine or prevent histamine release, and therefore is not effective for allergic reactions compared with histamine (Verallo-Rowell *et al.*, 2008). *Virgin Coconut Oil* (VCO) was used because of its lauric acid and capric acid content, which have antifungal activity against *Malassezia spp.* The fatty acids in VCO can damage fungal cell membranes and inhibit their growth. Lauric acid in the body is metabolized into monolaurin, a compound known to have antimicrobial activity against various pathogenic microorganisms (Verallo-Rowell *et al.*, 2008). In addition, VCO functions as a natural emollient that helps improve skin barrier function and reduce skin dryness. According to Verallo-Rowell *et al.*, (2008), the study reported that VCO was effective in improving dermatitis conditions and reducing microbial colonization of the skin. Oral administration of VCO can also improve skin nutritional status, increase skin moisture from within, and strengthen skin barrier function, thereby helping reduce recurrence of dermatitis (Verallo-Rowell *et al.*, 2008). In the study by Chew *et al.*, 2019, coconut oil or VCO was administered orally at 5 mL/day mixed with food, and the results showed no significant decrease in IgE levels, indicating that the immunomodulatory effect of VCO in allergic dermatitis in dogs remains unclear.

Subsequently, topical therapy using neem (*Azadirachta indica*) shampoo was performed to help control scabiosis infestation and reduce the population of *Malassezia* on the skin surface. Neem (*Azadirachta indica*) is a plant classified as a shrub or herbaceous plant that grows well in Indonesia (Subiyakto, 2009). In Bali, the neem plant is known as “intaran.” Neem leaf extract contains several active compounds such as alkaloids, flavonoids, triterpenoids, carotenoids, steroids, and ketones. Neem contains active compounds such as azadirachtin, which has antiparasitic, antifungal, and anti-inflammatory properties. A study by Biswas *et al.*, (2002) showed that neem has broad biological activity against parasites and pathogenic microorganisms, making it effective for use as a topical therapy for skin diseases.

The antifungal activity is attributed to the sulfur, flavonoid, and tannin content of neem leaves. Flavonoids are a group of secondary metabolites found in plants. The mechanism by which flavonoids inhibit fungal growth involves disruption of fungal cell membrane permeability. The hydroxyl groups present in flavonoid compounds cause changes in organic components and nutrient transport, ultimately resulting in toxic effects on fungi. Tannins are phenolic derivatives that are lipophilic and therefore readily bind to fungal cell walls, resulting in damage to the fungal cell wall. In addition, tannins can inhibit chitin synthesis, which is an important component of the fungal cell wall. Inhibition of chitin synthesis also inhibits fungal hyphal growth.

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Therapy was administered for one month with a consistent frequency of administration. The use of a combination of natural ingredients in this case was intended to help reduce itching, suppress inflammation, and support recovery of the skin condition. The curcumin content of turmeric has anti-inflammatory activity that can help inhibit inflammatory mediators, while honey plays a role in accelerating tissue repair, reducing inflammation, and helping prevent secondary infection. In addition, VCO, through its lauric acid and capric acid content, has antimicrobial potential against *Malassezia* spp. and functions as an emollient to help improve skin barrier function.

Topical therapy using neem shampoo also played a role in helping maintain skin cleanliness and control the population of causative agents. The azadirachtin, flavonoid, and tannin contents of neem have antiparasitic, antifungal, and anti-inflammatory activities that support the process of skin lesion recovery. However, the therapy administered in this case focused more on controlling clinical signs, particularly reducing pruritus intensity and improving skin condition, because the presence of primary agents such as *S. scabiei* and *Malassezia* spp. still requires clinical evaluation and ancillary examinations to ensure complete elimination.

## CONCLUSION AND SUGGESTIONS

### Conclusion

Based on the results of clinical observations and ancillary examinations, it can be concluded that the management of scabiosis accompanied by malasseziosis in dogs showed gradual clinical improvement. Based on the results of case management, the administration of herbal therapy in the form of turmeric (*Curcuma longa*), honey, VCO (*Virgin Coconut Oil*), as well as the use of neem (*Azadirachta indica*) shampoo may help reduce the clinical signs of scabiosis accompanied by *Malassezia* dermatitis, particularly in reducing the level of pruritus (itching), skin inflammation, and supporting improvement of the *skin barrier* condition. The therapy administered was supportive in nature to control clinical manifestations and help inhibit the development of accompanying agents, but was not intended as a therapy for complete elimination of *S. scabiei* and *Malassezia* spp. Successful case management still requires specific control of the causative agents and regular clinical evaluation.

### Suggestions

Owners are advised to pay attention to the sanitation conditions of the animal's enclosure and surrounding environment, where the enclosure should be maintained to prevent excessive moisture, as well as maintaining animal hygiene by bathing with specialized antifungal and antiparasitic shampoo as needed. In addition, owners are advised to implement routine preventive programs, such as vaccination, deworming, and ectoparasite control, to prevent recurrence of the disease and other diseases. Further studies are recommended to use larger sample sizes with a control group. In addition, further research on the mechanisms of action of herbal therapies and long-term monitoring is needed to evaluate their effectiveness and the risk of recurrence.

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## REFERENCES

Arlian, L. G., & Morgan, M. S. (2017). A review of *S. scabiei*: Past, present and future. *Parasites & Vectors, 10*, 297. https://doi.org/10.1186/s13071-017-2234-1

Al-Waili, N., Salom, K., Al-Ghamdi, A., & Honey, H. (2011). Honey for wound healing, ulcers, and burns; Data supporting its use in clinical practice. *The Scientific World Journal, 11*, 766–787. https://doi.org/10.1100/tsw.2011.78

Berglund, L., & Rollman, O. (2021). Laboratory diagnosis of dermatophytosis. In A. Yamada, T. Kanae, & M. A. Ghannoum (Eds.), *Dermatophytes and dermatophytoses* (pp. 355–372). Springer.

Biswas, K., Chattopadhyay, I., Banerjee, R. K., & Bandyopadhyay, U. (2002). Biological activities and medicinal properties of neem (*Azadirachta indica*). *Current Science, 82*(11), 1336–1345.

Bond, R., Morris, D. O., Guillot, J., Bensignor, E., Robson, D., Mason, K. V., & Hill, P. B. (2020). Biology, diagnosis and treatment of *Malassezia* dermatitis in dogs and cats. *Clinical Microbiology Reviews, 33*(2), e00069-18. https://doi.org/10.1128/CMR.00069-18

California Veterinary Emergency Team, University of California, Davis. (2024). *Normal vital signs – dogs and cats*. University of California, Davis.

Chew, Y. L. (2019). The beneficial properties of virgin coconut oil in management of atopic dermatitis. *Pharmacognosy Reviews, 13*(25), 24–27. https://doi.org/10.4103/phrev.phrev_29_18

Curtis, C. F. (2004). Current trends in the treatment of *S. scabiei* infestations in dogs. *Veterinary Dermatology, 15*(2), 108–114. https://doi.org/10.1111/j.1365-3164.2004.00395.x

Elkholly, D. A., Brodbelt, D. C., Church, D. B., Pelligand, L., Mwacalimba, K., Wright, A. K., & O'Neill, D. G. (2020). Side effects to systemic glucocorticoid therapy in dogs under primary veterinary care in the UK. *Frontiers in Veterinary Science, 7*, 539580. https://doi.org/10.3389/fvets.2020.539580

Evangelista, M. T. P., Abad-Casintahan, F., & Lopez-Villafuerte, L. (2014). The effect of topical virgin coconut oil on SCORAD index, transepidermal water loss, and skin capacitance in mild to moderate pediatric atopic dermatitis: A randomized, double-blind, clinical trial. *International Journal of Dermatology, 53*(1), 100–108. https://doi.org/10.1111/ijd.12339

Ganz, T. (2019). Anemia of inflammation. *New England Journal of Medicine, 381*(12), 1148–1157. https://doi.org/10.1056/NEJMra1804281

Governa, P., Carullo, G., Biagi, M., Rago, V., & Aiello, F. (2019). Evaluation of the in vitro wound-healing activity of Calabrian honeys. *Antioxidants, 8*(2), 36. https://doi.org/10.3390/antiox8020036

Guillot, J., & Bond, R. (2020). *Malassezia* yeasts in veterinary dermatology: An updated overview. *Frontiers in Cellular and Infection Microbiology, 10*, 79. https://doi.org/10.3389/fcimb.2020.00079

Hamka, A. Z., & Irwan, A. A. (2025). Uji efektivitas antijamur ekstrak kunyit (*Curcuma domestica* Val.) terhadap jamur *Malassezia furfur* secara in vitro. *UMI Medical Journal, 10*(1), 18–27.

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https://doi.org/10.24843/bulvet.2026.v18.i04.p11

Hewlings, S. J., & Kalman, D. S. (2017). Curcumin: A review of its effects on human health. *Foods, 6*(10), 92. https://doi.org/10.3390/foods6100092

Jasmin, P. (2011). *Clinical handbook on canine dermatology: Sharing the power of innovative solutions* (3rd ed.). Virbac.

Kolaczkowska, E., & Kubes, P. (2013). Neutrophil recruitment and function in health and inflammation. *Nature Reviews Immunology, 13*(3), 159–175. https://doi.org/10.1038/nri3399

Martins, C. V. B., da Silva, D. L., Neres, A. T. M., Magalhães, T. F. F., Watanabe, G. A., Modolo, L. V., Sabino, A. A., & de Fátima, Â. (2009). Curcumin as a promising antifungal of clinical interest. *Journal of Antimicrobial Chemotherapy, 63*(2), 337–339. https://doi.org/10.1093/jac/dkn488

Mueller, R. S., Rosenkrantz, W., Bensignor, E., Karaś-Tęcza, J., Paterson, T., & Shipstone, M. A. (2020). Diagnosis and treatment of demodicosis in dogs and cats: Clinical consensus guidelines of the World Association for Veterinary Dermatology. *Veterinary Dermatology, 31*(1), 4–e2. https://doi.org/10.1111/vde.12864

Purwanti, N. L. L., Suartha, I. N., & Suarsana, I. N. (2022). Laporan kasus: Penyembuhan lesi makroskopik anjing kacang penderita dermatitis atopik pascaterapi madu trigona selama 30 hari. *Indonesia Medicus Veterinus, 11*(4), 493–506.

Satria, J., Oka, I. B. M., & Dharmawan, N. S. (2017). Prevalensi infestasi tungau kudis pada anjing di kawasan wisata di Bali. *Indonesia Medicus Veterinus, 6*(3), 238–245.

Subiyakto. (2009). Ekstrak biji mimba sebagai pestisida nabati: Potensi, kendala, dan strategi pengembangannya. *Perspektif, 8*(2), 108–116.

Sudipa, P. H., Gelgel, K. T. P., & Jayanti, P. D. (2021). *Malassezia* sp. infection prevalence in dermatitis dogs in Badung area. *Advances in Tropical Biodiversity and Environmental Sciences, 5*(2), 45–49.

Verallo-Rowell, V. M., Dillague, K. M., & Syah-Tjundawan, B. S. (2008). Novel antibacterial and emollient effects of coconut and virgin coconut oils in adult atopic dermatitis. *Dermatitis, 19*(6), 308–315. https://doi.org/10.2310/6620.2008.08020

Weiss, G., & Goodnough, L. T. (2005). Anemia of chronic disease. *New England Journal of Medicine,352*(10),1011–1023. https://doi.org/10.1056/NEJMra041809

Yudhana, A., Praja, R. N., Pratiwi, A., & Islamiyah, N. (2023). Diagnosis dan observasi terapi infestasi ektoparasit *Notoedres cati* penyebab penyakit skabiosis pada kucing peliharaan. *Jurnal Kedokteran Hewan Universitas Airlangga*.

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**Tables**

Table 1. Results of the Patient's Present Status Examination

| No. | Type of Examination | Value | Reference Value *) | Remarks |
|---|---|---|---|---|
| 1. | Heart rate (beats/minute) | 128 | 100–140 | Normal |
| 2. | Pulse rate (beats/minute) | 124 | 100–140 | Normal |
| 3. | Capillary Refill Time (seconds) | <2 | <2 | Normal |
| 4. | Respiration rate (breaths/minute) | 35 | 20–30 | Abnormal |
| 5. | Temperature (Cº) | 39.0 | 37.8–39.2 | Normal |

Remarks: *) Source: California Veterinary Emergency Team (2024)

Table 2. Results of Hematological Examination

| Parameter | Result | Unit | Normal Reference | Remarks |
|---|---|---|---|---|
| WBC | 6.13 | 10^3/uL | 6–17 | Normal |
| LYM# | 4.18 | 10^3/uL | 0.8–5.1 | Normal |
| MID# | 0.44 | 10^3/uL | 0–1.8 | Normal |
| GRA# | 1.51 | 10^3/uL | 4–12.6 | Decreased |
| LYM% | 68.1 | % | 12–30 | Increased |
| MID% | 7.1 | % | 2–9 | Normal |
| GRA% | 24.8 | % | 60–83 | Decreased |
| RBC | 3.93 | 10^6/uL | 5.5–8.5 | Decreased |
| HGB | 9 | g/dL | 11–19 | Decreased |
| MCHC | 34.6 | g/dL | 30–38 | Normal |
| MCH | 22.8 | Pg | 20–25 | Normal |
| MCV | 66 | fL | 62–72 | Normal |
| RDWCV | 12.3 | % | 11–15.5 | Normal |
| RDWSD | 37.5 | fL | 35–56 | Normal |
| HCT | 25.9 | % | 39–56 | Decreased |
| PLT | 151 | 10^3/uL | 117–460 | Normal |
| MPV | 7.8 | fL | 7–12.9 | Normal |
| PDW | 13.1 | fL | 10–18 | Normal |
| PCT | 0.117 | % | 0.1–0.5 | Normal |
| P-LCR | 6.4 | % | 13–43 | Decreased |

Abbreviations: WBC (White Blood Cell), LYM# (Lymphocyte), MID# (Mid Size Cell), GRA# (Granulocyte), LYM% (Lymphocyte), MID (Mid Size Cell), GRA (Granulocyte), RBC (Red Blood Cell), HGB (Hemoglobin), MCHC (Mean Corpuscular Hemoglobin Concentration), MCH (Mean Corpuscular Hemoglobin), MCV (Mean Corpuscular Volume), RDWCV (Red Cell Distribution Width Coefficient of Variation), RDWSD (Red Cell Distribution Width Standard Deviation), HCT (Hematocrit), PLT (Platelet), MPV (Mean Platelet Volume), PDW (Platelet Distribution Width), PCT (Plateletcrit), P-LCR (Platelet Large Cell Ratio).


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Table 3. Results of the Evaluation of the Patient's Clinical Progress

| Week | Pruritus | Crusts | Erythema | Hair Condition | Additional Remarks |
|---|---|---|---|---|---|
| 0 | Frequent scratching with a pruritus score of 8/10 | Visible on the head | Clearly visible on the body area | Experiencing hair loss | Clinical condition with a rancid odor and patient BW of 2.57 kg |
| 7 | Still frequently scratching with a pruritus score of 8/10 | Still visible on the head | Still visible on the body area | Still experiencing hair loss | No clinical changes yet, with a rancid odor and patient BW of 2.57 kg |
| 14 | Still frequently scratching, pruritus score of 6/10 | Still visible on the head | Still visible on the body area | Hair has not yet regrown | Initial therapeutic response and presence of a rancid odor |
| 21 | Beginning to decrease, but occasional scratching was still observed, with a pruritus score of 4/10 | Beginning to dry | Still visible on the body area | Hair beginning to regrow | Clinical condition improving and a rancid odor still present |
| 28 | Rarely scratching, pruritus score of 4/10 | Residual marks still visible | Beginning to fade | Hair beginning to grow slightly thicker | Signs of clinical improvement and no longer any rancid odor |
| 35 | Very rarely scratching, with a pruritus score of 2/10 | Residual marks have faded | Beginning to fade | Hair beginning to grow slightly thicker | Clinical improvement was beginning to become apparent or significant, no odor, patient BW 4.65 kg, ATP (-), and trichogram: anagen phase, no hair breakage, and intact medulla |


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**Figures**

Figure 1. Patient's condition on day 1 (A) Dog showing alopecia, (B) crusts on the head and neck, and erythema found on the body.

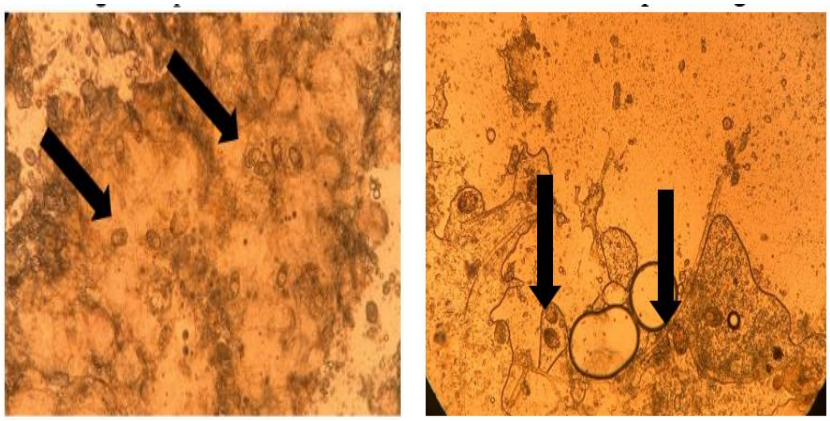

Figure 2. Microscopic examination of skin scraping showing the presence of *Sarcoptes sp.* and its eggs (40×) (Black arrow).

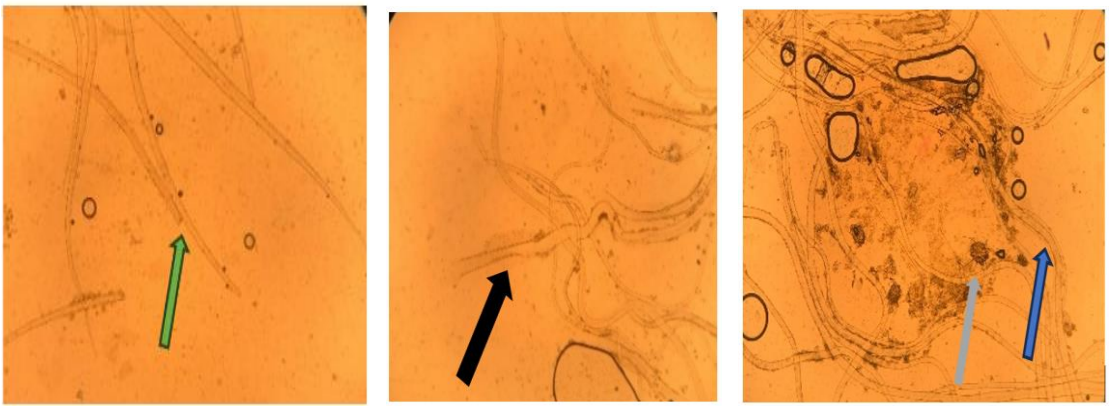

Figure 3. Microscopic examination of trichogram showing incomplete hair medulla structure (blue arrow), regular hair breakage (green arrow), telogen hair phase (black arrow), and the presence of *Sarcoptes sp.* (gray arrow) (40×).


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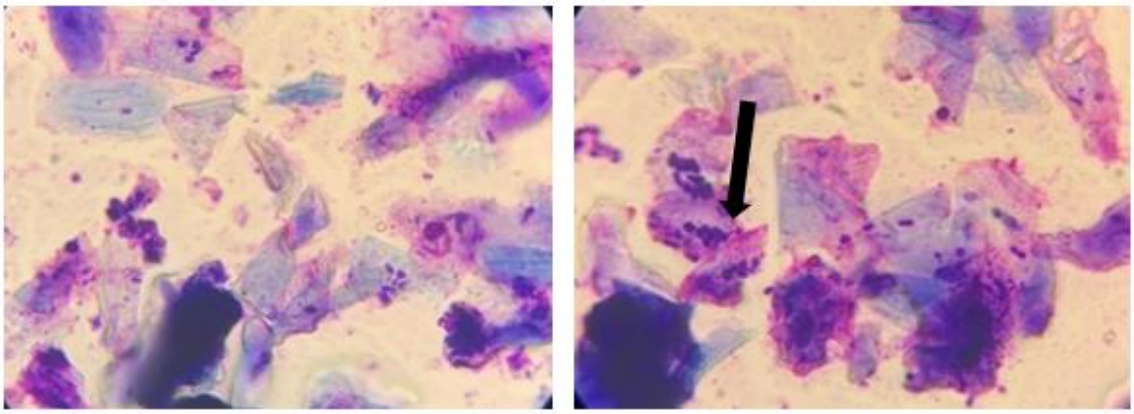

Figure 4. Microscopic examination of acetate tape preparation showing the presence of *Malassezia* infection (1000×) (Black arrow).

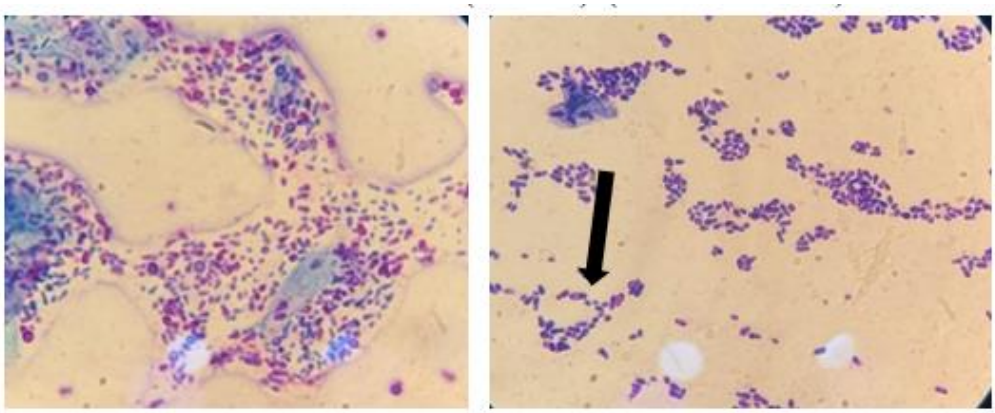

Figure 5. Otic swab examination showing the presence of *Malassezia spp.* fungi (black arrow) (1000×).

Figure 6. Evaluation of the patient's condition after herbal therapy on day 35 showed that the lesions were no longer present.


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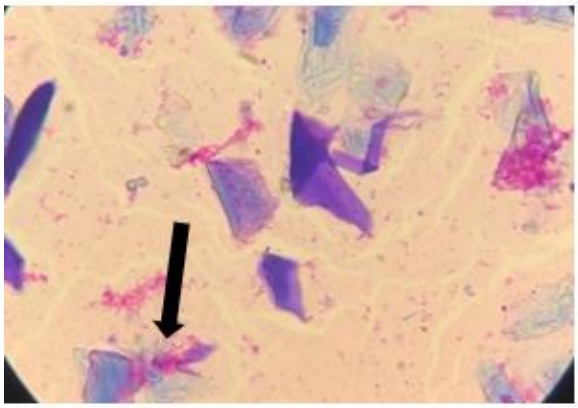

Figure 7. Evaluation of the microscopic acetate tape preparation examination showed a reduction in the number of *Malassezia spp.* on day 35 (1000×).

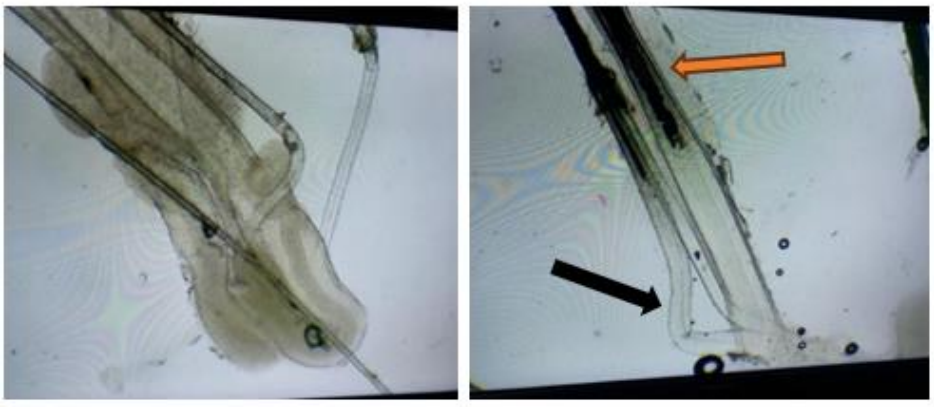

Figure 8. Evaluation of the trichogram examination showed hair roots in the anagen phase (blue arrow), with no hair breakage and an intact hair medulla structure on day 35 (red arrow) (40×).


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