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Prevalence of sarcoptic mange in camels in the area of Nagaur district of Rajasthan

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Abstract

The present study was designed with the objective to determine prevalence of *Sarcoptic* mange in the camel of Nagaur district of Rajasthan. A total of 165 one-humped camels (*Camelus dromedarius*) were examined for skin lesion from different villages of Nagaur, Rajasthan. Out of 165 camels, 65 were having skin lesion. Deep skin scrapping collected from the lesion and examined under microscope revealed presence of *Sarcoptes scabiei* var. *cameli* in 21 camels. The overall prevalence of sarcoptic mange was 32.3%. The present study showed that higher prevalence was observed in the young camels and female camels. Study revealed that further studies and strategic control measures are recommended to reduce the effects of mange mite infestation on camel.

Keywords: Camel, mange and *Sarcoptes scabiei* var. *cameli*

Introduction

One-humped camels (*Camelus dromedarius*) are an important component of desert and non-desert ecosystems because of their diverse physiological traits and anatomical characteristics (Hoter *et al.*, 2019) [11]. There are many ways in which camels have been considered an aid to mankind over the centuries, including their role in providing food, milk, leather, fuel, fibre, transport and racing (Solanki *et al.*, 2013) [19]. Camels are affected by a substantial infectious and debilitating skin disease called mange (Parsani *et al.*, 2008) [17]. The disease is caused by a parasitic mite that lives on camels. Among camel diseases, sarcoptic mange is the most common (Salah, 1961) [18]. As a notifiable disease, *Sarcoptes* mange occupies a significant economic position because of its prevalence (Gill *et al.*, 1989) [10]. Especially in areas with other threats, mange has caused extinctions in local populations (Escobar *et al.*, 2021) [6]. Mange mite infestations were also indicated as the second most important camel disease after trypanosomiasis (surra) in terms of affecting camel production (Mochabo *et al.*, 2005) [15]. Besides being zoonotic, sarcoptic mange also has an infectious component (Parsani *et al.*, 2008) [17]. There are several symptoms of camel mange, including scab formation, thickening of the skin, pruritic dermatitis, dryness and hair loss. Ivermectin used at a dose rate of 200 µg per kg body weight for the treatment of *Sarcoptic* mange in the camel (Fowler, 2010; Palanivelrajan *et al.*, 2015) [8, 16] with vitamin and mineral supplements given orally as a supportive treatment therapy (Fassi-Fehri, 1987) [7].

Materials and Methods

Animals

The present research was carried out at villages adjacent to Nagaur, Rajasthan where the camels were managed traditionally, during the period from November 2021 to January 2022. A total of 165 one humped-camels of different sex and ages (between 4 month to 14 years) were examined, 65 camels were having skin lesion on it.

Collection of skin scrapings

The animals were clinically examined. Camels infested with skin lesions like alopecia, erythema, intense pruritus, debility were investigated. From affected camels (Fig.2), skin scrapings were collected with a blunt scalpel, particularly from the advancing border of skin lesions. Deep skin scrapings until bleeding of skin lesions at periphery were taken and then processed with 10% KOH solution and were examined as per routine parasitological procedures (Soulsby, 1982) [20].

Diagnosis

Based on their morphological characteristic of mites such as a circular outline and four pairs of short in which neither the third nor the fourth legs extend beyond the body margins, stumpy legs. They were identified as *Sarcoptes scabiei* var *cameli* mites (Georgi, 1985; Arora, 2003)^[9, 1] (Fig.1)

Result and discussion

Out of 65, total 21 camels were found positive for **Sarcoptic**

mange indicating an overall prevalence of 32.3 per cent.

Gender wise prevalence of Sarcoptic mange

The present study showed that 44.82 per cent females were infected, while 22.22 per cent of male were found infected with mange which was similar to Awol *et al.* (2014)^[3] (Table.1). Female camels may be more prone to infestations of mange mites due high levels of prolactin and progesterone hormones (Lloyd *et al.*, 1983)^[13].

Table 1: Gender wise prevalence of Scarcoptic mange in camel

Sex	Male	Female
No. of camels Examined having skin lesion	36	29
No. of mange infected camels	8	13
Percentage	22.22	44.82

Age wise prevalence of Sarcoptic mange

Amongst 21 *Sarcoptes* infected camels, prevalence was more in 0-4 years age group followed by 10-14 years camels and least in 5-9 years (Table.2). As a result of close contact between camels and other animal species, there is a risk of transmission from other animal species to camels (El-Khodery *et al.*, 2009)^[5]. Present study was agreed with Dinka *et al.* (2010)^[4] and Ashraf *et al.* (2014)^[2]. They reported that

both very young and very old camels are highly susceptible to mange infestation while Megersa *et al.* (2012)^[14]; Awol *et al.* (2014)^[3]; Kotb and Abdel-Rady. (2015)^[12] found that Sarcoptic mange and camel age do not show any significant correlation. There was a slight increase in mite infestation in camels aged 14 years and younger than in older camels, perhaps because young camels lack acquired immunity.

Table 2: Age wise prevalence of Sarcoptic mange in camel

Age	0-4 years	5-9 years	10-14 years
No. of camels Examined having skin lesion	14	29	22
No. of mange infected camels	6	7	8
Percentage	42.85	24.13	36.36



Fig 1: *Sarcoptes scabiei* var *cameli*



Fig 2: Camels showing signs of mange

Conclusion

The results of present study showed *Sarcoptes scabiei* var. *cameli* is the main causative agent of mange of camels in Nagaur district. It is a zoonotic disease that affects camel production and productivity. So, additional studies are needed to identify the epidemiology and economic impact of this disease condition to improve camel productivity.

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