



# Effect of Ivermectin against *Psoroptis* mange in rabbits

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## Abstract

The present report is on *Psoroptis* mange infestation in rabbits. Out of 126 rabbits in a farm 34 were infested. Observed clinical signs were alopecia, crusts formation, superficial and deep skin fissures and itching. Distribution of lesions was noticed around the base of ears, margins of the ears and face. Skin scrapings from infested rabbits were examined and eggs, larvae, nymphs and adult mites were recovered. The infested rabbits were treated with ivermectin @ 200µg/kg body weight first day subcutaneously followed by orally once in 48 hours along with antibiotic and supportive therapy. Improvement in the condition was noticed after 4<sup>th</sup> day of therapy.

**Keywords:** *Psoriatic mange, Rabbits, Ivermectin.*

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## 1. Introduction

*Psoroptis* mange occurs in the ears of domestic and wild animals, particularly in the ears of rabbits. It is caused by *Psoroptes cuniculi*. It is a common parasitic disease problem in both pet and commercial rabbits. These ear mites do not burrow, they feed on skin tissue, which irritates the skin and causes lesions. The developed lesions produces the scabs, the scabs protect the mites from the environment and shield them from removal by the animal when it scratches. In India with hot and humid climate, the incidence of the skin infections especially mange in the rabbits is very high [1]. Mange leads to listlessness, anorexia, emaciation and even death [2]. This mange may lead to further complication of middle or inner ear, wry neck and deaths resulting in considerable economic losses. Ivermectin, one of the avermectin family compounds, is used as a broad spectrum parasiticide in domestic animals and is also recommended for treatment of ear mange in rabbits. Previously different studies were done on the dose levels and duration in rabbits affected with ear mange [3, 4 &5]. But all the studies were done with parenteral administration of ivermectin. But, the present study was carried out to know about the effect of parenteral followed by oral administration of ivermectin against *Psoroptis* mange in rabbits.

## 2. Materials and methods

The present study was carried out on New Zealand White rabbits of both sex and aged between 4 months to 2 years in a farm of 126 rabbits at Yerraguntla, Y.S.R.District. Out of 126 rabbits, 34 had the problem of ear canker. Affected rabbits had the history of scratching of ears, shaking of their head and tensing of neck muscles. Up on clinical examination rabbits revealed the loose crusts at the margins of ears, brown wax and scabs with unpleasant odour inside the ears. Hyperkeratosis along with the scales formation was also noticed (Fig.1). Superficial and deep skin scrapings were taken from the margins of ears, using a blunt scalpel blade dipped in liquid paraffin. The collected sample includes dermis, epidermis, scales and hair. All samples were examined by direct microscopic method to know the vitality of the organisms and each sample was also dissolved in 5ml of a 10% solution of sodium hydroxide. The mixture was boiled, centrifuged and the sediment was examined using a light microscope under 10X and 40X magnification to identify the

causative organism. Examination of the materials revealed presence of the different stages of *Psoroptes spp.* mange mites.

Infected rabbits were isolated from the other healthy rabbits to prevent the spread of infection. Infected rabbits were treated with oxytetracyclin BID, PO @ 20 mg/kg body weight for five days, first day subcutaneous ivermectin @ 200 µg/ kg body weight was given, followed by oral administration of ivermectin @ 200 µg/ kg body weight once in 48 hours. Rabbits were daily supplemented with liv-52, PO @ 2ml per day. Weekly once disinfection of the nest areas and surroundings of the sheds with cypermethrin @ 2ml per 1 liter of water was advised. Clinical and parasitological examination were carried out on 7<sup>th</sup>, 14<sup>th</sup> and 21<sup>st</sup> day of post treatment to observe the intensity of itching, crusts formation. Microscopic examination of live and dead mites and number of mites per field was also carried out to know about the clinical as well as laboratory cure.

### 3. Results and discussion

34 rabbits (26.9%) out of 126 rabbits were found to be infested with *Psoroptes* mange mites. Hyperkeratosis of ear margins, nasal bridge, brown wax in the ears and intense pruritus were the common signs observed in all infected rabbits. Microscopic evaluation of the scrapings revealed the presence of eggs and adult stages of mites. The pedicels of the mites were long and segmented. The tarsal suckers were observed on the pedicels of the first, second, and third pairs of legs in the male mite and on the first, second, and fourth pairs of legs in the adult female mite (Fig.2). Based on the morphology these mites were identified as *Psoroptes spp.* [6]. In the present study no other ectoparasites were observed. Successful recovery was recorded with ivermectin administration @ 200 µg/kg body weight along with supportive therapy.

Post treatment clinical examination of rabbits on 7<sup>th</sup> day revealed that there was slight improvement in the skin lesions by disappearance of scales and scrapings from the same area revealed the presence of live and dead mites. But numbers of mites were decreased per field of examination. On 14<sup>th</sup> day of examination, rabbits were free from itching and alopecia along with the presence of dead mites in scrapings and complete disappearance of scales was observed. On 21<sup>st</sup> day of therapy, all rabbits were free from eggs and adult stages of mites. After disappearance of crusts, hair growth in previously infested areas was observed in all infested rabbits. Complete cure was noticed clinically and microscopically after completion of the single dose of subcutaneous ivermectin followed by ten doses of oral ivermectin. No adverse clinical reactions were recorded following the administration of ivermectin orally during the study period which is in consonance with the findings of Reddy and Kumari [7]. In recent reports *Sarcoptic* mange in rabbits was also successfully treated with oral ivermectin without any clinical side effects [8].



Fig. 1: Rabbit with ear canker and ear marginal crusts.



Fig. 2: Adult *Psoroptes* mites in skin scrapings (40 x).

## 4. Conclusion

In the present study rabbits infested by the *Psoroptes cuniculi* mange mites were successfully cured by using single dose of subcutaneous ivermectin along with ten doses of oral ivermectin @ 200 µg/ kg body weight. Antibiotic therapy was initiated to control the secondary bacterial infections associated with ear canker.

## Acknowledgements

First author thank full to Mr. S.Sadasiva Reddy (Reporter) for his help while collecting the clinical samples regularly.

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