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## Prevalence and therapeutic management of subclinical mastitis in goats

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#### Abstract

The present study was undertaken to evaluate the therapeutic management of SCM in goats. About 150 milk samples were collected from goats in and around Bidar, Karnataka and screened for SCM by California Mastitis Test and Electrical conductivity. The percentage prevalence of SCM based on CMT and EC, was 30.00 and 48.66 per cent respectively. Treatment of SCM goats with Ceftizoxime was found to be more efficient than that of Marbofloxacin.

Keywords: Prevalence, subclinical mastitis, treatment, electrical conductivity, california mastitis test

#### Introduction

Goat is a versatile animal and known as poor man's cow. Goats are main source of meat and dairy products among the domestic animals. Goat thrives well on poor agricultural lands, where they browse on incidental vegetation. Goat milk is recommended for use in dyspepsia, peptic ulcer, pyloric stenosis, liver dysfunction, jaundice, biliary disorders, acidosis and insomnia (Pirzada *et al.*, 2016) <sup>[10]</sup>. Worldwide, the mammary pathology in goat remains insufficient and marginal compared to that of bovine mastitis. Subclinical mastitis (SCM) is a crucial economic and hygienic problem in dairy goats, studies showed that subclinical mastitis reduces dairy production and modifies milk composition. (Bourabah *et al.*, (2013) <sup>[2]</sup>. Mastitis is usually classified into two forms viz., clinical and subclinical. Subclinical form of mastitis in goats is considered as great threat as it causes great reduction in milk production and also causes kid mortality due to feeding of mastitis milk. (Mhase *et al.*, 2007) <sup>[8]</sup>. Subclinical mastitis is difficult to detect due to the absence of any visible indications in the mammary glands and in milk (Mohammadian, 2011) <sup>[9]</sup>. The present study was undertaken to study the prevalence of subclinical mastitis and therapeutic efficacy of ceftizoxime and marbofloxacin in subclinical mastitis.

#### **Materials and Method**

A Total of 150 milk samples from goats were collected from various demographic locations in and around Bidar followed by cleaning the teat by disinfectant (Potassium Permanganate) and discarding the first milk jets. The relevant information with respect to parity and stage of lactation were also collected. Approximately 20 ml of milk was collected in sterile strict aseptic conditions and was immediately transported to laboratory on ice. To study the prevalence of SCM in goats, animals were grouped based on parity (lactation number) and lactation stage. Average lactation length of 120 days was divided into three stages viz., early stage (0-40 days), mid stage (41-80 days) and late stage (81-120 days) lactation (Shettar., 2011)<sup>[12]</sup>.

The goats positive for SCM were divided into two groups consisting of 10 goats in each group. First group received single dose of marbofloxacin @ 8 mg/kg, b.wt, i/m and second group received single dose of ceftizoxime @ 7.5 mg/kg, b.wt, i/m. After treatment samples were collected on 0<sup>th</sup>, 3<sup>rd</sup> and 7<sup>th</sup> day. Drug's efficacy was calculated using below formula:

Number of goats or quarters negative after treatment

Drug efficacy (%) =

Number of goats or quarters treated

 $\times 100$ 

~ 2041 ~

#### **Results and Discussion**

The results were depicted in the table 1, 2, 3 & 4. The over all prevalence of SCM in goats based on EC as diagnostic test was highest in seventh parity and least in third parity and the results were correlating with the findings of Halmandge  $(2016)^{[4]}$ , Amin *et al.*  $(2011)^{[1]}$ , Sanchez *et al.*  $(1999)^{[11]}$ , and Kostelic *et al.*,  $(2009)^{[5]}$  who concluded that SCM is increased with increasing parity due to mechanical irritation of the teat canal and entire udder, due to nursing of kids. The percent prevalence of SCM in goats was highest during early and mid lactation stage and least in late lactation as detected by EC.

Twenty goats which were first positive for SCM based on CMT and EC values were randomly allocated into two groups namely group I (marbofloxacin), group II (ceftizoxime), with each group comprising of ten animals. Among two drugs, the efficacy was highest in ceftizoxime (80.00%) followed by marbofloxacin (60.00%). The results were in agreement with Fontaine (2012) <sup>[3]</sup>, Kroemer *et al.* (2012) <sup>[6]</sup>, who stated that there is therapeutic indication of marbofloxacin in mastitis for the treatment of severe gram negative bacterial infections and Marin *et al.*, (2010) <sup>[7]</sup> in his experiment concluded that marbofloxacin is the therapy for control of mammary infection in goats.

Table 1: Percent positivity of SCM based on CMT and EC.

Screening test (n=150)	No. of animals positive	Percent positivity
EC	73	48.66%
CMT	45	30.00%

Parity	CMT (%)	EC (%)
Ι	20.00	60.00
II	22.72	45.45
III	25.92	33.33
IV	13.70	34.48
V	32.14	39.28
VI	47.80	74.21

Table 2: Parity wise prevalence of SCM.

Table 3: Lactation stage wise prevalence of SCM

80.00

60.00

Lactation stage	CMT (%)	EC (%)
Early	50.76	68.42
Mid	53.19	63.82
Late	47.36	41.53

Table 4: Tre	eatment effi	ciencies c	of drugs	in S	SCM	1
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Groups	Treatment	No. of	No. of animals cured after 7 <sup>th</sup> day	
_		ammais	Ν	%
G1	Marbofloxacin	10	06	60.00%
G2	Ceftizoxime	10	08	80.00%

#### Conclusion

VII

It is to conclude that the percent prevalence of SCM in goats is highest in the seventh parity and prevalence was highest in early and mid lactation stage. Ceftizoxime (80.00%) is more efficient than that of marbofloxacin (60.00%) in the treatment of SCM in goats.

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