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INCIDENCE OF SUBCLINICAL MASTITIS IN KANGAYAM COWS: A FIELD STUDY

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Abstract: The study was carried out to determine the incidence of subclinical mastitis in Kangayam cows under field conditions by using California Mastitis Test (MCMT). The milk samples were collected from 125 Kangayam animals. Out of 500 milk samples collected, 97 (19.40%) milk samples were positive for subclinical mastitis while 403 (80.6%) milk samples were normal. Out of 97 positive samples, 50 (51.54%), 32 (32.98%) and 15 (15.46%) milk samples were observed as '+', '++' and '+++', respectively. From all samples, 10.00%, 6.40% and 4.40% milk samples were observed for '+', '++' and '+++', respectively. The overall animal wise and quarter wise prevalence of subclinical mastitis in Kangayam animals on the basis of CMT was 43.20% and 19.40%, respectively.

Introduction

Among all the production diseases, mastitis is one of the most important and expensive diseases in dairy cattle (Bhikane and Kawitkar, 2016). Mastitis causes physical and chemical changes in milk and pathological changes in udder tissue (Constable *et al*., 2017). Based on the changes in the milk and udder, mastitis is classified into two forms viz. clinical mastitis (CM) and subclinical mastitis (SCM). In CM, visible changes in milk (colour, consistency, clots and decreased production) are being associated with changes in udder (swelling, heat, redness and pain) (Fox, 2009). The SCM is asymptomatic without any local and systemic involvement and is most common in dairy cows than clinical mastitis (Abebe *et al*., 2016). The reports on the incidence of subclinical mastitis in indigenous animals are limited. The SCM can be detected in milk by California mastitis test (CMT), Somatic cell count (SCC), Electrical conductivity (EC) and biochemical and microbiological methods (Bastan *et al.,* 1997 and Lafi, 2006). The CMT is considered as accurate test than other tests for field diagnosis of subclinical mastitis (Lahamge *et al*., 2019). Hence the present study was conducted to analyse about the incidence of SCM in Kanagaym cows using CMT kit under field conditions.

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Materials and Methods

Selection of Kangayam cows

For the study, the Kangayam cows were randomly selected in villages of Erode and Tirupur Districts of Tamil Nadu in the farmer's field during field survey.

Detection of subclinical mastitis

The study was carried out in 125 animals by collecting 500 milk samples. The milk samples were tested at cow side using CMT kit (Schalm and Noorlander, 1957). The study was conducted at field at farmers door step. The selected animals udder was washed with water. The first stripping of the milk was discarded. The next strip of the milk was collected in the respective shallow cups of the paddle. Required quantity of milk was taken in each cup. The equal quantity of the CMT reagent was added in each cup of the paddle without making air bubbles. It was mixed gently by circular movement for 30 seconds. After mixing the observation was made for the colour change or for formation of viscous gel and based on this the score was given.

Grading of milk samples

Based on the changes observed in the milk, the score was given as strong positive (+++), distinct positive (++), weak (+) and negative (Normal) on the basis of gel formation or any colour change as per Lahamg *et al*. (2019).

Results and Discussion

Persson and Olofsson (2011) had opined that CMT is an easy, fast and cost-effective method for assessing SCM. In the present study a total 500 milk samples from 125 Kangayam cows were screened by CMT for identification of subclinical mastitis. Out of 500 milk samples, about 97 (19.40%) milk samples were positive for subclinical mastitis while 403 (80.6%) milk samples were observed to normal. Out of 97 positive samples, 50 (51.54%) milk samples were observed as '+', 32 (32.98%) samples as '++' and 15 (15.46%) samples as '+++'. Out of the 54 affected animals, 46.30% animals had single quarter involvement whereas 40.74% and 12.96% animals had two quarter and all quarter involvement, respectively. The overall animal wise and quarter wise prevalence of subclinical mastitis on the basis of CMT was 43.20% and 19.40%, respectively. From all samples, 10.00%, 6.40% and 4.40% milk samples were observed for '+', '++' and '+++', respectively.

A incidence of 28.60% (Khanal and Pandit, 2013), 35% (Swami *et al*., 2017), 53% (Bhutto et al., 2012) and 56% (Dhakal *et al*., 2002 and Varatanovic *et al.*, 2015) of SCM was reported by various researchers in dairy cattle which is higher than this study. Bonde *et al.*

(2014) recorded SCM in 60% of cows which were positive for CMT (+), CMT (++) and CMT (+++). In another study, Risvanli and Kalkan (2002) reported out of the 271 subclinical mastitis quarter 8.12%, 22.88% and 69.00% of quarter positive for CMT (+), CMT (++) and CMT (+++) respectively which is higher than the records of this study. Regarding the quarter wise incidence of SCM, Khan and Muhammad (2005) recorded 36% (72 out of 200 quarters) prevalence which is higher than the observations made in the present study. Swami *et al*., (2017) reported 18.25% (45 out of 240 quarters) prevalence in dairy cows which is in accordance with the observations made in this study.

According to Lahamge *et al*. (2019), the variation of prevalence of SCM in dairy animals might be due to various factors like age, breed, lactation period, season etc. The overall incidence, quarter involvement and severity of SCM recorded in the present study in Kangayam animals is lower than the incidence recorded in other dairy cows. It could be related to disease tolerance, animal rearing pattern, climatic condition of the breeding tract of the Kangayam animal and over all availability of the animal with the farmers. The Kangaym cow is reared in rural areas by selected farmers and the temperature is very hot in the breeding tract of the animal. The incidence may further be lowered by educating the farmers and by improving the rearing condition of the animal.

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