

## PREVALENCE OF SUBCLINICAL MASTITIS IN DAIRY COWS OF SALEM DISTRICT IN TAMILNADU

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**Abstract:** Unlike the clinical mastitis, in sub clinical mastitis there is neither visual abnormality in milk nor in mammary gland. Therefore, knowledge of routine physical examination of udder and diagnostic screening tests for early detection of mastitis and proper treatment of affected animal is one of the paramount importance in order to minimized losses encountered due to sub clinical as well as clinical mastitis. This study was undertaken to evaluate the prevalence of subclinical mastitis in apparently healthy dairy Cows of Salem District. The prevalence of subclinical mastitis in dairy cows of Salem District was 57 % out of 100 dairy cows tested in four division of Salem District. In addition, results of the CMT showed that the prevalence of subclinical mastitis was significantly high in graded buffalo 63.63% followed by 60.52 % in Holstein Friesian cross bred dairy Cows and 52.94% in Jersey cross bred dairy cow.

**Keywords:** Sub clinical mastitis, dairy cows, Salem District.

### Introduction

Subclinical mastitis (SCM) is a major cause of economic loss in dairy herds that shows no gross inflammatory changes in udder, hence remains unnoticed unless investigated by employing laboratory tests. Often it is more prevalent than the Clinical mastitis, it usually precedes the clinical form, it reduces milk production, and adversely affect milk quality. Sub clinical mastitis causes colossal losses than clinical mastitis (Joshi and Gokhale, 2004). Today Mastitis stands second to Foot and Mouth Disease as a most challenging disease in high yielding dairy animals in India (Varshney and Mukherjee, 2002) as documentary but present scenario has been changed. As per reports of occurrence of mastitis in dairy animals, it stands at first position because prevalence of mastitis had been reported more than 90% in high yielder cross bred dairy cows (Sharma, 2003). Sharma *et al.* (2004) reported 70.32% incidence of sub clinical mastitis in buffaloes, while Maiti *et al.* (2003) reported 70.37% incidence of sub clinical mastitis in cows. Hence, the present study was undertaken to evaluate the prevalence of subclinical mastitis in apparently healthy dairy Cows of Salem District in Tamil Nadu.

## Materials and Methods

Salem District, Which is one of the highest milk producing District in TamilNadu. It is located  $11^{\circ} 14'$  North latitude and  $12^{\circ} 53'$  and between  $77^{\circ} 44'$  and  $78^{\circ} 50'$  East Longitude. A total of 400 milk samples were randomly collected from 100 apparently healthy dairy Cows as 25 dairy cattle in each 4 division of Salem District viz., Salem, Omalur, Attur and Sankari. Out of these 100 dairy Cows, 51 were Jersey crossbred, 38 were Holstein- Friesian crossbred and 11 were graded Murrah buffaloes. At the time of sample milk collection, the breed of the cow, age of the cow, stage of lactation and health status of the mammary glands were recorded.

Aseptic procedures for collecting quarter milk samples as described by Hogan et al. (1999) and Quinn et al. (2004).were followed. During collection of milk sample, teats were washed, dried and sterilized with cotton soaked in 70% ethyl alcohol. The first 3-4 streams of milk were discarded. 15 ml. of milk were collected from each quarter into sterile vials. The collected milk samples were immediately kept in an insulated container with ice packs and were transferred to the laboratory for CMT, SCC, chemical analysis and bacterial culturing. The California Mastitis test was applied to all milk samples involved as described by Coles (1986): The 3 ml of milk were taken from each of the 4 milk samples that were collected from each cow involved in this study and poured into the 4 shallow cups of the plastic paddle used in this test. Following that, an equal volume of the CMT reagent (Bovivet CMT Test Liquid, USA) was added to each cup and mixed thoroughly by a gentle circular motion of the paddle.

The results of the CMT were reflected by the degree of precipitation or gel formation and they were scored as follows: "Negative" when the consistency of the mixture is homogenous, liquid and not associated with visible changes; "trace" when the reaction was associated with slight precipitate that tended to disappear with continued movement of the paddle; "1+" when a distinct precipitate was formed but with no tendency toward gel formation; "2+" when the mixture was thickened immediately with a suggestion of gel formation; "3+" when a distinct gel was formed, tended to adhere to the bottom of the paddle and during swirling a distinct central peak was formed.

## Results and Discussion

The prevalence of subclinical mastitis in dairy cows of Salem District was 57 % out of 100 dairy cows tested in four division of Salem District as shown in the Table 1. In addition, results of the CMT showed that the prevalence of subclinical mastitis was significantly high

in graded buffalo 63.63% followed by 60.52 % in Holstein Friesian cross bred dairy Cows and 52.94% in Jersey cross bred dairy cow.

Out of 400 milk samples collected from all 4 quarters of 100 apparently healthy Cows tested in this study, 190 quarters milk samples (47.50%) of 57 Cows showed positive results for subclinical mastitis by the CMT as shown in the Table 2. In the present study, the prevalence of subclinical mastitis in dairy cows of Salem District was 57 %. This finding is generally agreement with Tuteja et al., (1993) and he reported that the prevalence of subclinical mastitis on farms could range from 19 to 78%. The incidence of subclinical mastitis among dairy animal may be attributed mainly to poor hygiene practices, inadequate housing and malfunctioning milking machines, improper milking procedures and inadequate treatment methods. Several research studies concluded that the contagious organisms spread during the milking process (Bray and Shearer, 1996) causing an infection of the udder as a result of entering the teat canal (Rodenburg, 1990).

In addition, results of the CMT showed that the prevalence of subclinical mastitis was significantly high in graded buffalo 63.63% followed by 60.52 % in Holstein Friesian cross bred dairy Cows and 52.94% in Jersey crossbred dairy cows.. Sharma *et al.* (2004) reported that 70.32% incidence of sub clinical mastitis in buffaloes, while Maiti *et al.* (2003) reported 70.37% incidence of sub clinical mastitis in cows.

**Table 1: Prevalence of subclinical mastitis in dairy cows of Salem district**

| Breeds of cattle            | Number of tested cattle | Number of non infected cattle | Number of infected cattle | Prevalence rates of subclinical mastitis in cows |
|-----------------------------|-------------------------|-------------------------------|---------------------------|--|
| Holstein Friesian Crossbred | 38                      | 15                            | 23                        | 60.52% <sup>a</sup>                              |
| Jersey Crossbred            | 51                      | 24                            | 27                        | 52.94% <sup>a</sup>                              |
| Graded Buffalo              | 11                      | 4                             | 7                         | 63.63% <sup>a</sup>                              |
| Total                       | 100                     | 43                            | 57                        | 57.00%   |

Detection of subclinical mastitis was carried out by CMT.

Prevalence of subclinical mastitis in the study area differed significantly ( $P > 0.05$ ) based on Chi Square value.

**Table 2: prevalence of subclinical mastitis in examined quarter milk samples**

| <b>Number of dairy cattle tested</b> | <b>Total number of milk samples</b> | <b>Number of positive samples</b> | <b>Percentage (%) of positive samples</b> |
|--------------------------------------|-------------------------------------|-----------------------------------|---|
| 100                                  | 400                                 | 190                               | 47.50%                                    |

Detection of subclinical mastitis was carried out by CMT.

### **Conclusion**

The result of the present study indicated a relatively high prevalence of subclinical mastitis in dairy cattle of the study area. Lack of maintenance of strict hygiene and poor management may be the contributory factors for subclinical mastitis. It is therefore important that farmers should adopt good management practices to prevent subclinical mastitis in dairy cows and ensure good quality of milk.

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