Efficacy of herbal spray in treating clinical mastitis in dairy cows

In today's world safe and wholesome milk production is a challenge for farmers with increasing incidences of different types of diseases and emergence of new and resistant pathogens due to indiscriminate and unjustified uses of antibiotics/ antimicrobials.

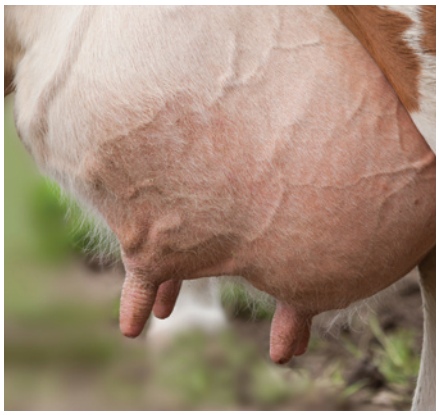
by Dr Amit Kumar Pandey
& Dr Praful Kumar, Ayurvet.
www.ayurvet.com

When we are talking about the prevalent diseases, mastitis is one of the major diseases which not only causes trouble to animals and farmers but also causes significant losses to the economy of the farm, society and ultimately to the country.

Bovine mastitis, defined as 'parenchymal inflammation of the mammary gland', is characterised by a range of physical and chemical changes in the milk and pathological changes to the udder glandular tissues.

According to the clinical symptoms mastitis may be classified as clinical mastitis or sub-clinical mastitis. Subclinical mastitis usually leads to the clinical form as it is of a longer period, difficult to diagnose, adversely affects milk production and quality and comprises a reservoir of pathogens that can lead to disease of other animals within the herd.

Mastitis is the most cost intensive production disease in the dairy industry, causing a considerable financial burden. According to a recent report, annual economic losses sustained by the dairy industry in India on account of udder infections have been projected at about Rs. 6053.21 crores.



Out of this, a loss of Rs. 4365.32 crores (70%-80% loss) was credited to the sub clinical version of udder infections. Subclinical mastitis is important due to the fact that it is 15-40 times more prevalent than the clinical form.

Control of bovine mastitis is a challenge because of multiple aetiological agents. Mostly antibiotics are used for the treatment and control of mastitis, but intra-mammary infusion of antibiotics for mastitis therapy was cited as a major reason for milk contamination and frequent use of antibiotic therapy leads to antibiotic resistance. Increasing emergence of antibiotic resistant pathogens is further suspected to complicate the effectiveness of the mastitis treatment.

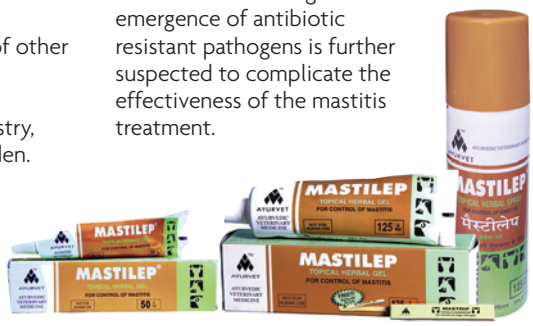


Table 1. Results from Modified California Mastitis Test (MCMT).

Group	Animals found positive with MCMT (%)		
	Day 5	Day 14	Day 21
SCM with Brand A	60	60	60
SCM with Mastilep Spray	60	20	10

WHO has emphasised the use of medicinal plants as an alternative to antibiotics. Several herbal extracts have shown in vitro antibacterial activity versus major mastitis pathogens. Some of these are Cedrus deodara, Curcuma longa and Eucalyptus globules, which also have anti-inflammatory effects.

Detecting mastitis in the early stages and keeping the animal's udder in the utmost healthy condition is the only way to prevent physical and economic losses due to mastitis. There should be a solution which is giving all round protection to the udder not only from pathogens but also relief from the pathogenic effects to the udder.

All these recommendations are fulfilled by Mastilep, which is a herbal spray from Ayurvet. The company is continuing their research studies through clinical and field trials to ascertain the efficacy of products in different situations. In this context, a clinical trial was carried out in which the efficacy of the herbal spray for the treatment of mastitis was compared with another well known herbal product.

Plan of trial

A total of 30 cows were screened as per the guidelines of the International Dairy Federation (IDF). 10 healthy cows and 20 cows exhibiting signs of subclinical mastitis (SCM), were divided into three groups:

- Control:with 10 healthy cows.
- Second group: with 10 cows suffering from SCM and treated with 'Brand A' (gel), applied gently by massaging the udder after each milking, twice a day for five days.
- Third group: with 10 cows suffering from SCM and treated with Mastilep spray, twice a day for five days.

Therapeutic efficacy was determined on the basis of Modified California Mastitis Test (MCMT) readings, improvement in the somatic cell count (SCC) and milk yield.

Result

The Modified California Mastitis Test (MCMT) was used at day 0, 5, 14 and 21. In the Brand A treated group after the

Continued on page 16

Treatment	Day 0	Day 5	Day 14	Day 21
Control group	1.68±0.26	1.44±0.35	1.32±0.28	1.16±0.41
SCM with Brand A	6.67±0.10	4.19±0.10	6.47±0.17	5.54±0.08
SCM with Mastilep spray	4.74±0.09	3.30±0.06	1.52±0.06	1.01±0.09

Table 2. Average somatic cell count (x10^5).

Continued from page 15
treatment on day 5, 14 and also on day 21, 60% animals were found to be positive. In the Mastilep treated group after the treatment on day 5, 60% animals were positive and only 20% remained positive at day 14, whereas on day 21 only 10% remained positive. Data shows the high antimicrobial potential and anti-inflammatory properties of Mastilep against the subclinical mastitis.

In the control group the average somatic cell count (SCC) (x10^5) ranges between 1.15 to 1.67. Regarding the average SCC (x10^5) of the Brand A treated group there is a 16.94% decrease from day 0 to 21, whereas in the Mastilep treated group there is a 78.52% decrease.

A decrease in the average SCC is due to the antimicrobial and anti-inflammatory properties of the herbal ingredients of Cedrus deodara, Curcuma longa and Eucalyptus globules, which are the component ingredients of the herbal spray Mastilep.

Milk yield

There was a significant increase in the average milk production of the Mastilep treated group, from 9.040 litres/day on day 0 to 10.63 litres/day on day 21. There was no significant increase in the average milk production of the Brand A treated group and the control group.

A significant increase in average milk production may be due to the anti-inflammatory and antimicrobial properties of the ingredients of Mastilep which leads to quick recovery of the mammary glands from the infection and inflammation.

Consequently, the mammary gland becomes healthy and more milk is produced by the gland.

Conclusion

Results shows that the efficacy of the herbal spray Mastilep was better than that of the Brand A treated group.

Mastilep has proven excellent in the form of improved SCC and increased milk yield. Therefore application is recommended to cure subclinical mastitis. ■

For further information please contact
amit.pandey@ayurvet.com,
pverma@ayurvet.com

Table 3. Milk yield during the study period between the treatments.

Group	Milk yield (litres/day)			
	Day 0	Day 5	Day 14	Day 21
Control group	7.78±0.07	8.09±0.07	8.02±0.12	8.27±0.26
SCM with Brand A	8.00±0.08	8.31±0.07	8.66±0.05	8.02±0.09
SCM with Mastilep Spray	9.04±0.12	9.34±0.14	9.39±0.15	10.63±0.07