



Management of Mastitis in Dairy Cattle using Herbal Combination

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INTRODUCTION

Mastitis is the one the most commonly encountered economic problem in the field by the dairy farmers. Bovine mastitis, the inflammation of the mammary gland is primarily caused by pathogenic microorganisms, is a major health hazard for the dairy industry. Mastitis affects the quality and quantity of milk. Mastitis is a pervasive and costly disease that afflicts mammary glands worldwide. In the dairy industry, a clinical case of bovine mastitis can cost greater than Rs.5,000/- up to Rs.20,000/- in high-yielding cows due to milk yield losses, increased mortality, and treatment costs (Bar *et al*, 2008; Cha *et al*, 2011).

Mastitis is detrimental to the health of the cow, and its negative effects can impact cow reproduction, milk yield and shelf life of dairy products derived from the cow's milk (Schrack *et al*, 2001). Ethano veterinary medicines refer to people's belief, knowledge, skill and practice relating to care of their farm (Martin *et al*, 2001). Aloe vera has been used as an immune stimulant in both humans and animals with no adverse reactions. A review of controlled human clinical trials reported that Aloe vera gel applied topically to a wound site speeds the healing process and when taken orally can lower blood glucose in diabetic patients (Vogler and Ernst, 1999). The application of Aloe vera based herbal paste for treating the mastitis has been standardized by Directorate of Distance Education, Tamil Nadu University of Veterinary and Animal sciences. Hence, demonstration was taken to validate this

herbal combinations effectiveness against mastitis in dairy cattle and also to reduce the cost spend towards the treatment by cattle growers.

MATERIALS AND METHODS

Selection of animal

A total of 50 mastitis affected cattle were selected in Dharmapuri district to demonstrate the herbal treatment. Animals were selected irrespective of age, body weight, breed and type of mastitis. Mastitis diagnosed on the basis of abnormality of milk, hardening of udder, change in quality and quantity of milk. Physiological parameters in all the animals were in normal condition.

Preparation of herbal paste

The ingredients required for the preparation of herbal paste were 200 g Aloe vera (3 leaves), 50g turmeric powder (handful quantity) and 5g lime (size of tamarind seed). Three Aloe vera leaves had chaffed with leave blade into a 2 X 2cm small piece and grinded to became a bubble mixed greenish paste without adulteration of water. Then handful of turmeric powder along with tamarind seed size lime were added into the paste, further grinding of the ingredients to became reddish paste. This prepared paste was used for this study.

Application method

The affected udder was drained completely. It was rubbed using coir pith for cleaning of debris and other stained infectious material. The udder was washed with clean water.

A handful of paste was taken into to a bowel and diluted with 100 ml of pure water. The paste now became a herbal solution. This was applied over the both affected and normal udder. Three hours later the udder was cleaned and drained as stated previously and again the solution was applied over the udder. The same procedure was repeated for 8 times per day for 5 days. The herbal paste was prepared freshly for application everyday and old paste was discarded.

Parameter recorded

Random numbers of 10 milk samples were analyzed for pH, conductivity, California Mastitis Test (CMT), Somatic Cell Count (SCC) and microbial organism before and after the proposed herbal treatment by using standard procedure. Duration of normal secretions of milk (in days), reduction of size of affected udder (in days) and Economics (in percentage) were recorded and analyzed using statistical software SPSS 16.0

RESULTS AND DISCUSSION

The result of the present study was present in table 1&2. In the present study grinding and mixture of Aloe vera, turmeric powder and lime had given good results for the management of clinical mastitis in dairy cattle as reported by Mooventhan *et al* (2016) where it has been documented the indigenous practices and its procedure for the

management of clinical mastitis in dairy cattle.

In the present study pH, conductivity and somatic cell count of mastitis milk were found higher compared to control whereas it was found lesser in the herbal treatment after 5d of post treatment. In the present study California Mastitis Test was found negative after treatment. This indicates the control of mammary infection. *E. coli* was found in control whereas *Streptococcus* and *E.coli* were found in demonstration samples. These results were in concurrence with results of Kilt *et al* (2008). Nurdin *et al* (2011) reported that quality and quantity of the milk was increased in subclinical mastitis with supplementation of Black Cumin, *Curcuma zeodharia*, *Curcuma mangga* and *Curcuma aeruginosa* in dairy cattle. In the present investigation, the use of Aloe vera, turmeric and lime resulted in normal secretion of milk in 4.8 days whereas in control it takes 4.0 days. Reduction of size of affected udder in the present study was noticed after 3.3 days.

In the present study 100 per cent success was noticed without any post treatment complications in the herbal treatment demonstration. Compared to control group herbal paste application for mastitis had given good results with less input cost outcome and conventional treatment had required ten times higher cost than herbal treatment.

Table 1. Average change in milk pH, conductivity, California Mastitis Test (CMT), Somatic Cell Count (SCC) and microbial organism in control and mastitis cattle at different intervals.

Sr.No	Parameter	Normal milk	control	Herbal treatment
1	pH	6.4±0.14	7.4±1.12	6.6±0.69
2	Conductivity(µg/cm)	0.6±0.02	1±0.05	0.8±0.04
3	California Mastitis Test	No clump	Clumping noticed	No clump
4	Somatic Cell Count (cells/ml) in lakhs	1.5±0.12	2.75 ± 2.12	1.95 ± 1.18
5	Quality of Microbial organism	<i>E. Coli</i>	<i>Streptococcus</i> and <i>E.coli spp</i>	<i>Streptococcus</i> and <i>E.coli8 spp</i>

Management of Mastitis in Dairy Cattle

Herbal treatment for mastitis in dairy cattle of Dharmapuri district



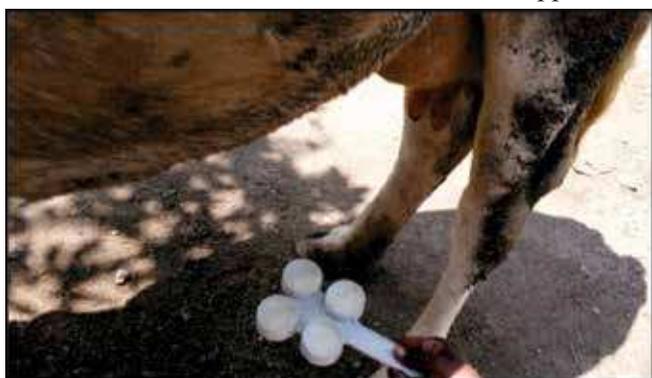
Examination of udder and milk



Decolouration of milk



Application of herbal paste



Normal secretion of milk



Reduction of size of quarter

CONCLUSION

Mixture of Aloe vera (200g), turmeric powder (50g) and lime (5g) paste was found to be suitable to treat all type of mastitis without any adverse effects. The treated animal recovered within 5d after treatment. The conventional treatment needs ten times higher cost than herbal treatment for treating mastitis. The farmers can use this herbal treatment application as preventive strategy to treat the mastitis.

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