

Subclinical mastitis in crossbred goats-diagnostic and therapeutic profile

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The rearing of goats is becoming more and more important because of its favorable geographic conditions and the economical advantages of goat rearing compared to that of cattle (Bochev and Russenova, 2005). The dairy goat industry is rapidly gaining importance throughout the world in recent years. Goat milk is still used in the rural population as a source of milk. Any factor that adversely affects the quantity and quality of caprine milk is of great economic importance. Milk quality is mainly affected by bacterial contamination of the mammary gland, which causes clinical or sub clinical mastitis. Information concerning bacterial contamination of the mammary (SCM) gland in goats and incidence of sub clinical mastitis are limited. Hence the study was designed to assess the prevalence of SCM in crossbred goats, to find out the comparative efficacy of various indirect tests in the detection of SCM under field conditions and to test the efficacy of treatment with herbal and antibiotics.

A total of 104 mid stream milk samples collected from 52 cross bred goats of different flocks in and around Nagercoil in Tamilnadu were subjected to various indirect tests viz. Modified California Mastitis Test (MCMT), Modified White Side Test (MWST) and Mastitis Detection Strip (MDS), according to the manufacturer's recommendations. To ascertain the comparative sensitivity in relation to direct tests i.e. bacteriological examination of milk, the milk samples were subjected to standard bacteriological studies to find out the etiological agent and the antibiotic sensitivity pattern. The culturally positive samples were considered absolutely positive and the results of indirect tests were compared on this basis.

The positive samples were divided in to three groups and treated as follows

Group I: Topical application of herbal gel

Group II: Topical application of herbal gel + parental antibiotic for 3 days

Group III: Untreated control

A total of 104 milk samples from 52 crossbred goats were subjected to various indirect and direct tests. The prevalence rate by different tests is shown in the Table. The prevalence of SCM by cultural examination (40.38%) was comparable to MCMT (32.69%), MDS (30.77%) and MWST (23.08%). This findings is in agreement with the findings of Dulin et al., (1983) and slightly higher than those (32.60%) reported by Lerondelle and Poutrel (1984) and lower (50.2%) than by Binder (1986). The number of positive samples recorded by MCMT, MWST and MDS were 75.86%, 51.72% and 68.97% respectively. The differences in the prevalence could be attributed to breed differences and/or to different hygienic practices. It should also be taken into account that the goats in India are hand milked. The results of Sheldrake et al., (1981) in four flocks indicated prevalence of bacteria in the milk of goats is lower when hand milking is practiced. The prevalence of bacteria in the left udder halves (34.61%) was higher than in the right udder halves (21.15%). The higher prevalence of bacteria observed in the left mammary glands could be attributed to that most milkers are right handed and consequently milk the right mammary glands more thoroughly than the left mammary glands, predisposing the latter to higher rate of infection. (Boscos et al., 1996).

Twenty-nine quarter milk samples were positive for cultural examination and diagnosed, as SCM. The remaining milk samples were considered normal, as no pathogenic bacteria were isolated from these samples. The different types of organisms isolated were Staphylococcus sp. (37.93%), Streptococcus sp. (34.48%) and E.coli (27.59%). The antibiogram of milk samples revealed higher sensitivity to enrofloxacin and ceftriaxone (93.18%) followed by gentamicin (89.65%) and amikacin (86.21%). Tetracycline (37.93%) and amoxicillin (31.03%) were relatively resistant to most of the isolates, which might be due to the variations in the level of usage of these drugs.

In the therapeutic profile, four out of the seven animal's in-group I showed negative results after 3-5

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Table: Prevalence of sub clinical mastitis in crossbred goats

Group	MCMT	MWST	MDS	Culture
No. of animals tested	52	52	52	52
No. of animals positive	17(32.69)	12(23.08)	16(30.77)	21(40.38)
No. of quarters tested	104	104	104	104
No. of quarters positive	22(21.15)	15(14.42)	20(19.23)	29(27.88)
Left side	13	8	12	18
Right side	9	7	8	11
Efficacy of indirect test compared to culture	75.86	51.72	68.97	-

days application of the herbal gel with an efficacy of 57.14%. The herbal formulation was more effective only in those cases where the MCMT test scores were less than 2+.i.e mild cases of SCM. In-group II, all the seven animals were found to be negative for SCM after three days of topical application of herbal gel and parental antibiotic whereas all the seven animals in control group showed positive reaction for SCM.

References

- Binder, C. 1986. Sub clinical mastitis in goats with special reference to Micrococcaceae. Disserrtation. Fachbereich. Veterinarmedizin, Justus-Liebig Universitat. Gessen. Germany, PP.156
- Boshev, I. and Russenova, N. 2005. Resistance of Staphylococcus Spp. Strains isolated from goats with sub clinical mastitis. *Bulgarian Journal of Veterinary Medicine*, **8**:109-118
- Boscós, C., Stefanakis, A, Alexopolulos, C. and Samartzi, F. 1996. Prevalence of sub clinical mastitis and influence of breed, parity, stage of lactation and mammary bacteriological status on Coulter Counter Counts and Californian Mastitis Test in the milk of Saanen and autochthonous Greek goats. *Small Ruminant Research*, **21**:139-147
- Dulin, A.M., Paape, M.J., Schultze, W.D. and Wemland, B.T. 1983. Effect of parity stage of lactation and intramammary infection on concentration of somatic cells and cytoplasmic particles in goat milk. *Journal of Dairy Science*. **66**: 2426-2433
- Lerondelle, C. and Poutrel, B. 1984. Characteristics of non-clinical mammary infection in goats. *Ann. Rech. Vet.* **15**: 105-112
- Sheldrake, R.F., Hoare, R.J.T. and Woodhouse, V.E. 1981. Relationship of somatic cell count and cell volume analysis of goat's milk to intramammary infection with coagulase negative staphylococci. *Journal of Dairy Research*, **48**: 393-403

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