Review Of Literature

PART-II

PART - II : CULTURAL EXAMINATIONS

McDonald et al.(1970) isolated 70 cultures of aerobic gram-negative rods from bovine udder infections in a mastitis research herd comprising of 20 dairy cows, over a period of eight years. Nearly one-half were Escherichia coli and most of remaining isolates were Citrobacter, Klebsiella and Proteus spp.

Sharma and Singh (1970) stated that out of 128 mastitic quarters, half harboured Staphylococcus aureus, 29%, Streptococcus spp., 1.6%, Pseudomonas spp. 2.3% Corynebacterium spp., 7% mixed infections; from 3.9% no bacteria could be isolated.

Fuh and Chang (1971) examined milk samples bacteriologically from 490 quarters of 139 cows in 14 herds in the Taipei district and isolated Str. agalactiae from 28% of the quarters, 46% of the cows, and 86% of the herds; Staph aureus was isolated from 14% of the quarters, 32% of the cows, and 79% of the herds.

Hoare and Barton (1972) examined a total of 2,212 samples positive to the rapid mastitis test from 113 problem herds; and found Staph aureus in 34% of samples and 97% of herds. Str. agalactiae was isolated from 13% of samples and 63% of herds.

Kral et al.(1973) studied in for a four year period; 6,27,770 milk samples from 3,52,351 cows; at 19 state veterinary institutes. Mastitis was diagnosed in 33.8% of the cows, while bacteria were isolated from about half of these cases i.e. from 16.9% of the total number of cows. They were Strep. agalactiae from 9.0%, Staph. aureus from 3.3%, Strep. dysagalactiae, Str. uberis and other streptococci2.8% E.coli from 0.6% and Corynebacterium pyogenes 0.21%.

Todorov et al.(1974) surveyed 26 herds around Sofia for 30 months, involving tests on 7,570 cows, showed that subclinical mastitis was present from 6% to 39% (av 14%) of cows. Bacteria isolated included staphylococci from 45% of bacteriologically positive samples, streptococci (32%) and corynebacteria (15%), Staphylococcus aureus accounted for 63% of the 435 isolated obtained and Staph epidermidis for the remainder, 43% of the 308 isolates of Streptococcus spp. were Str. agalactiae, 20% Str. uberis and 12% Str. dysgalactiae.

* Misra et al (1974) observed Staphylococcus aureus in 33.1% of the infected quraters, S.albus in 15.3% and Klebsiella spp. in 8.4%. Other pathogenic bacteria isolated were Corynebacterium pyogenes, Pseudomonas aeruginosa, Escherichia coli and Streptococcus agalactiae. Mixed infections were encountered in 36% of quarter samples.

Kohler - Samouilidis (1977) obtained 170 milk samples, from cows with suspected mastitis, Staphylococcus aureus (71 strains), S.epidermidis (82 strains) and Micrococcus (17 strains) were isolated. All the Staph. aureus were coagulase positive and the other two were coagulase negative. The formation of a blood agar toxic zone was apparent in 36 (51%) of the Staph. aureus, except for one S.epidermidis strains, all remainder were negative.

Havelka (1977b) examined 54,824 milk samples from 28,737 cows in the year, 1975. Milk from 18.9% of the cows contained mastitis producing bacteria Streptococcus agalactiae was present in 13.9% of the cows, S.aureus in 2.9%, other streptococci in 1.3%, E.coli in 0.13%, Klebsiella in 0.13% and Corynebacterium pyogenes in 0.15%.

Kohler - Samouilidis (1978) isolated 102 strains of Corynebacterium spp. from milk samples, eight were C.pyotenes, two C.renale , 45 C.bovis,45 C.striatum; two strains could not be identified. The biochemical characteristics of the strains were variable. The percentage of gelatin liquefying strains was high (49%).

Yurkov and Todorov (1978) observed mixed infections of Corynebacterium spp. and Micrococcus spp. particularly with Staphylococcus spp.were present in about 5% of samples. Mixed infections of Staphylococcus spp. and Streptococcus spp. were rare.

Gil [illegible] (1978) obtained the milk supplied by each of the 129 dairy herds. All but six yielded potential mastitis agents, the commonest was Staphylococcus epidermidis (68 isolates), followed by Streptococcus dysgalactiae (58), Staph.aureus (38), Str. uberis (14) and Str. agalactiae (4).

Hamir et al.(1979) recorded that Staphylococcus aureus and Streptococcus spp. were the most frequently isolated pathogenes followed by Escherichia coli and Klebsialla pneumoniae more than (20%) of cases had more than one pathogen.

Rojo Vazquez et al.(1979) isolated organisms from 53 cows included Staphylococcus aureus (17.8%) S.epidermidis (39.6%), Streptococcus agalactiae (4%), Corynebacterium (5.7%) and E.coli and other gram-negatives (15.5%).

Park (1980) isolated 148 cultures of gram - negative bacilli from clinical cases of mastitis over a two year period in six dairy herds 81 (55%) were Escherichia coli, 30 (20%) Enterobacter aerogenes, 18 (12%) Klebsiella pneumoniae, 12 (8%) Progeus spp. four Alcaligenes faecalis and three Psendomonas aeruginosa.

Prandzhev et al.(1980) stated that among the bacteria isolated (subclinical mastitis (68%) of 2,377 cows of eight herds) 72%, were Staphylococcus spp.

14% were Micrococcus spp. and 8.4% were Streptococcus spp.

Verma et al. (1980) studied that the three commonest pathogenes isolated from subclinical mastitis cow milk samples were Staphylococcus aureus (34%), Escherichia coli (27%), and S.epidermidis (23%). They also isolated Alcaligenes faecalis (7%), Streptococcus dysgalactiae (5.5%), Micrococcus luteus (4%) and Proteus morganii (4%).

Madariaga Aguilar and Lopez-Alva Rez (1981) isolated organisms from milk samples giving reactions of 3 + in California Mastitis Test. The organisms most frequently isolated were, Staphylococcus aureus (27%), Streptococcus agalactiae (19%), Bacillus spp. (other than B.cereus) (12%), Str.epidermidis (9%) and E.coli (9%).

Tessi et al.(1981) isolated Staphylococcus aureus (54%) from 320 milk samples from mammary quarters of cows representing 40 herds; Streptococcus agalactiae from 23% and Pseudomonas aeruginosa from 13%.

Gonzalez et al.(1981) recorded that the milk samples from 300 quarters giving a positive CMT reaction of 2 + or 3 + were cultured for bacteria. Isolations were made of Staphylococcus aureus (43% of samples), Staph. epidermidis (21%), Streptococcus uberis (19%), Str. agalactiae (13%), Str. dysgalactiae (9%) Corynebacterium bovis (7%), Coryynebacterium pyogenes (1.3%) and Coliforms (1.7%).

Char et al. (1983) analyzed 175 milk samples from buffaloes with mastitis, bacteriologically between 1977-81 showed that Staphylococcus aureus was the chief pathogen (27%), followed by Streptococcus spp.(14%), Corynebacterium spp. (10%), Staph. epidermidis (4%), Diplococcus and Bacillus subtitis (each 3%) and Proteus vulgaris (1%).

Rahman and Baxi (1983) studied various aspects of Staphylococcal mastitis in bovines. A total 565 mastitis milk samples of cows and buffaloes suffering from clinical and subclinical mastitis were investigated bacteriologically Staphylococci could be isolated 61.97% of bacteriologically positive samples which proved to be the chief aetiological agents of bovine mastitis in India.

Stem et al. (1984) stated that milk samples for aerobic culturing were collected from 72 quarters of cows with clinical mastitis that had not responded to *intramammary antimicrobial treatment. Mastitis pathogens* were isolated from 56 samples (78%).

Rahman et al. (1984) examined 240 milk samples from 103 cows and 60 milk samples from 32 buffaloes for bacteria. 95 (92.2%) cows and 22 (66.8%) buffaloes were positive bacteriologically. Staphylococcus aureus (79 cows, 36.4%; 11 buffaloes, 31.4%), Staph. epidermidis (54 cows, 24.9%; 9 buffaloes, 25.7%) and Streptococcus

agalactiae (36 cows, 16.6%; 1 Buffalo, 2.7%) were most frequently isolated. No mycoplasma was isolated.

Aydin and Coskuner (1984) isolated 564 agents from mastitis milk samples, 23% were coagulase positive staphylococci and 7% coagulase negative staphylococci, 11% were Streptococcus agalactiae, 9% Streptococcus uberis, 2% Streptococcus dysgalactiae, 4% Streptococcus faecalis, 9% Escherichia coli, 7% Corynebacterium pyogenes and some fungi were also isolated.

Fagliari et al. (1984) carried out comparison were made between CMT results and bacteriological examinations in 272 milk samples from crossbred cows in Ilha Solteira sp. region of Brazil. In samples classified as CMT +, ++, and +++, respectively bacteria were detected in 22.4, 74.4 and 85.6% of cases. Streptococci and coagulase positive stphylococci were the most frequent isolates.