

STUDIES ON MASTITIS IN BUFFALOES IN IRAQ. II. RELATIVE EFFICIENCY OF DIAGNOSTIC TESTS*

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A comparison of the results of various indirect mastitis tests in detecting udder infections of buffaloes in Iraq with those of the cultural examination of milk revealed that leucocyte count test was the most efficient (83.87%) in picking up culturally positive cases, followed by microscopic examination of incubated milk (MEIM) (79.17%), California mastitis test (CMT) (76.60%), catalase test (68.75%) and strip cup test (52.17%). Their efficiencies relative to leucocyte count positive samples were: CMT 92.20%, catalase test 77.67%, MEIM 72.82%, and the strip cup test 48.79%.

For the prevention and control of mastitis, early detection of the subclinical cases and elimination of infection from the herd is imperative. It is therefore important that the condition is diagnosed as early as possible with the help of some reliable tests, which can be carried out under field conditions, or with limited laboratory facilities.

Several tests have been developed for the detection of subclinical cases of mastitis and, from time to time, various workers have investigated their merits and demerits. But most of these were on mastitis in cows; only a few reports are available on buffalo mastitis.

In this study, an attempt was made to determine the relative efficiency of different indirect tests, namely, strip cup test, California mastitis test (CMT), catalase test, microscopic examination of incubated milk and leucocyte count test in detecting (i) udder infections, judged by cultural isolations of mastitis pathogens, as well as, (ii) inflammatory reaction in the udder tissues, indicated by leucocyte count test.

MATERIAL AND METHODS

The procedure of Yass *et al.* (1983) was employed for the collection and cultural examination of milk samples, which were also subjected to different mastitis diagnostic tests.

For the strip cup test, before collecting milk samples, the first few streams of milk were taken into a strip cup. The presence of flocculi enabled the detection of abnormalities in the milk.

The procedure of Schalm & Noorlander (1957) was followed for the CMT and its interpretation.

For the estimation of catalase activity in milk, the procedure of Spencer & Simon (1960), as modified by

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Kalra & Helwig (1973), was used. The liberation of more than 10% of gas was taken as positive reaction, indicating mastitis.

The leucocyte count test was performed according to Prescott & Breed (1910). An evenly spread and dried smear of a representative sample of milk (0.01 ml) on 1 cm² area on a clean glass slide was stained by Newman-Lampert stain, as modified by Levowitz & Weber (1956). The leucocytes seen in each of 30 fields were counted. The average count per field was multiplied by the microscopic factor to determine the count per ml of milk sample. A count of 500,000 or more leucocytes per ml was considered to be indicative of mastitis.

For the microscopic examination of incubated milk, milk samples were incubated at 37°C for 16-18 h. Smears were prepared from the sediment of incubated milk, stained by Gram's method and examined microscopically. The presence of mastitis pathogens (long chain streptococci, staphylococci and corynebacteria) indicated mastitis infection, and the samples showing organisms other than these were classed as negative for mastitis.

RESULTS AND DISCUSSION

The results of the cultural examination of 531 milk samples, obtained from apparently normal quarters of buffaloes, and those of the other mastitis tests were compared (Table 1). Similarly, comparison was made between the results of leucocyte count test and those of the other screening tests (Table 2).

A comparison of the diagnostic value of the various tests with that of the cultural examination of milk (Table 1) showed that no single test could be fully relied upon for detecting mastitis, particularly recent and mild infections.

The strip cup test detects only gross abnormalities