Introduction

Brucellosis, a public health hazard and an economically important reproductive disease of livestock, is prevalent in most of the developing countries. The disease induces infertility, delayed heat, interrupted lactation, loss of calves, wool and milk production. In India, the occurrence of brucellosis is to the extent of 10% in marginal herd and 50% in organized farms and the economic impact of this disease was estimated to run over Rs. 500 crores annually (Rajashekhar, 1995). About 500,000 cases of human brucellosis are estimated to occur worldwide every year (Anon, 1986; Hahn, 1991). The present study was, therefore, envisaged to conduct a systemic study on its seroprevalence among bovine population that in turn helps to evolve proper strategies against its dissemination.

Materials and Methods

A total of 1085 blood samples (415 from organized farms and 670 from individual reared animals) and 476 milk samples were collected from cattle and buffaloes of Uttar Pradesh State, India. Serum was separated and stored at –20°C till use. All the serum samples were screened for brucellosis with Rose Bengal plate test (RBPT; Alton et al., 1975a) and standard tube agglutination test (STAT) and Milk Ring Test (MRT; Alton et al., 1975b). Antigens for tests were procured from Biological Product Division, Indian Veterinary Research Institute, Izatnagar. A titre of 80 IU or above was taken as positive in STAT.

Results and Discussion

Results of RBPT and STAT for detection of brucellosis are presented in Table 1. In the farm animals, the overall seroprevalence recorded by RBPT (8.19%) was much lower compared to 21.4% reported by Purbey and Sane (1978), but almost similar to 7.2% reported by Suresh et al. (1993). Seropositivity revealed by STAT in this
Table 1: Seropositivity by different diagnostic tests of brucellosis in bovine

<table>
<thead>
<tr>
<th>Tests</th>
<th>Farm animals (n = 415)</th>
<th>Individually reared animals (n=670)</th>
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<tbody>
<tr>
<td></td>
<td>Samples positive</td>
<td>Percentage</td>
</tr>
<tr>
<td>RBPT</td>
<td>34</td>
<td>8.19</td>
</tr>
<tr>
<td>STAT</td>
<td>29</td>
<td>6.99</td>
</tr>
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*RBPT= Rose Bengal plate test, STAT= Standard plate agglutination test

study (6.99%) was lower than that of 20.5% reported by Chaterjee et al. (1984), but almost similar to 8.7% observed by Sharma et al. (1984). Among the individually reared animals, the seroprevalence detected by RBPT was 6.26%, which is similar to the observation made by Sharma et al. (1979), but much lower than that of 23.5% recorded by Mathur (1966). The percent of positive case detected by STAT (5.22%) was much lower than that of 43.7% reported by Hussain et al. (2000).

A total of 476 milk samples of bovine were screened for brucellosis by using milk ring test (MRT). Of these, 28 (5.88%) milch animals were found reactors for milk ring test. Kalita and Roychoudhury (1993) also reported per cent positivity of 5.4% by milk ring test (MRT). Frequent testing of herd with the milk ring test helps in early detection of infections and thereby prevent serious out breaks in susceptible herd. The major limitation of the test is the dilution factor, which occurs, in large dairy herd where large quantities of milk are stored in bulk tank.

In the present study the seroprevalence of brucellosis was found to be more in farm animals than in individually reared animals, because in organized farms there are chances of spread of disease due to close confinement and exposure to diseased animals more easily. In the study region, the traditional farming system is predominant, where an infected bull may act as a source of brucellosis. Brucellosis is considered an infection, which increases with the degree of intensification in animal production (Blankenburg and Cremer, 1999). The process of intensification might result in further increased public health risk. The control of zoonotic diseases like brucellosis require a coordinated efforts of medical and veterinary research, the provision of veterinary services and the reinforcement of disease control regulations. This study thus clearly establishes the presence of Brucella in animals that point to the necessity for effective control measures.

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References


Prevalence of bovine brucellosis


