SEROLOGICAL DIAGNOSIS OF *BRUCELLA ABORTUS* : RBPT VIS-A-VIS STAT

S. Chopra, Nitesh Kumar, Swatantra K. Singh and D. Tiwari

Department of Veterinary Microbiology and
Department of Pharmacology & Toxicology
College of Veterinary Science & A. H., J.N.K.V.V., Jabalpur-482 001, India.

ABSTRACT

Serodiagnosis of *Brucella abortus* infection was carried out on 20 serum samples of cattle and buffaloes using Rose Bengal precipitation test (RBPT) and Standard tube agglutination test (STAT). The study revealed greater sensitivity of RBPT as compared to STAT .

Key Words: *Brucella abortus*, RBPT, STAT

INTRODUCTION

Brucellosis is an important zoonotic problem throughout the world (Lopez, 1991), especially in the mediterranean region (Young, 1998). It is caused by Gram negative bacteria of genus *Brucella*. Infections in animals casued by *Brucella* spp frequently results in abortion, decreased levels of milk production and repeat breeding. An important epidemiological aspect of infection is its location in local or in supra mammary lymph nodes and mammary glands of 80% of the chronic cases of the infection which continues to be secreted in body fluids (Nicoletti, 1990). Although isolation still remains the gold standard for diagnosis, serological tests prove to be a better alternative as culturing the organism requires a long duration (Alton, 1988). The sensitivity of serological tests though needs to be critically evaluated (Morgan *et al.,* 1969).

MATERIALS AND METHODS

The present study was carried out to compare the sensitivity of RBPT and STAT as serodiagnostic test for brucellosis. A total of 40 serum samples were obtained from blood samples collected form animals having a history of repeat breeding and abortions. The serum samples were obtained from individual animal owners of villages situated in the outskirts of Jabalpur (M.P.)

The serum samples were subjected to Rose Bengal precipitation test (RBPT) and standard tube agglutination test (STAT). RBPT antigen and *Brucella aboruts* colourless antigen for STAT were obtained from Biological Division, IVRI Izatnagar Bareilly (U.P.).

For RBPT, the procedure of Baek *et al.* (2000) was followed. Briefly 30 µl of serum sample was mixed with equal volume of antigen on a microslide and circled approximately 2 cm in diameter with a microtip. The sample was shaked for 4 minutes at room temperature and then observed. Any sign of agglutination was considered as positive.

For STAT the method described by Hur *et al.* (2001) was followed with little modification. Serial doubling dilutions of serum sample (1/10, 1/20,1/40…) in 0.5% carbol saline were treated with constant volume of antigen. The results were read after incubation at 37^0C for 48 hours. A positive reaction was one in which the serum antigen mixture presented agglutination in terms of floccules. All titres above 80 were considered positive.

Table : Brucella antibodies diagnosed by RBPT and STAT are serum samples of cattle in Jabalpur and adjacent villages.

Species	No. of serum samples	Positive Reactors (%) by RBPT	Positive Reactors (%) by STAT
Cattle	20	8 (40%)	6 (30%)
Buffaloes	20	12 (60%)	8 (40%)

RESULTS AND DISCUSSION

The result of the present study (Table) indicates that sensitivity of RBPT as a screening test is more than STAT which has also been reported earlier (Blasco *et al.,*1994). With the advent of newer serological assays like ELISA and PCR the diagnosis of brucellosis has become easier but keeping in view , economics and the essential facilities in mind basic serological tests like RBPT and STAT has its own existence and may prove more effective for screening in majority of countries (Rahman and Rahman, 1982).

REFERENCES

Alton, G.G. (1988). Techniques for brucellosis laboratory. pp 17-136.

Baek, B.K., Lim, K.H. and Choi, M.J. (2000). *Korean. J. Vet. Public Health*. **24**:133-142.

Blasco, J.M., Garis-Bastuji, B., Marin, C.M. and Fanlo, J. (1994). *Vet. Rec.* **134**: 415-420.

Hur, J., Lim, C.W. and Baek, B.K. (2001). *Korean J. Vet. Public Health.* **25**: 89-95.

Lopez, A.M. (1991). Brucellosis advances and perspectives. Publication technical del indre- SSA No.-6 secretaria de salud, Mexico City. p 54.

Morgan, W.J.B., Mackinson, D.J., Lawson, J.R. and Culler, G.A. (1969). *Vet. Rec.* **88**: 636-641.

Nicoletti, P. (1990). Vaccination. In: Animal brucellosis, Nielserk, Durcar JR (eds.). CRC Press, Boca, Raton. pp. 283-300.

Rahman, M.M. and Rahman, M.S. (1982).. *Vet. J.* **16**: 53-55.

Young, E.J. (1998). An overview of human brucellosis. *Clin. Infect. Dis.* **21**:283-89.

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