6.0 SUMMARY

Trypanosomosis or Surra caused by *Trypanosoma evansi* in bovines is endemic in different parts of India in general and Karnataka and Andhra Pradesh in particular was reported by various workers. The diagnosis of *T.evansi* infection in bovines relies on the demonstration of the organisms in the blood or tissue fluids but the parasite detection methods, including the concentration technique, cannot always detect current infections as the level of parasitaemia is often low and fluctuates. Even though the demonstration of *T.evansi* organisms in the blood of animals is a sure method of diagnosis, the occasional presence and fluctuation of parasitaemia in chronic infections necessitates the use of highly sensitive and specific diagnostic tests. Since trypanosomosis was reported to occur in some parts of Karnataka and Andhra Pradesh, the present study to note the prevalence of *T.evansi* infection in bovines was under taken.

Three districts of Karnataka and Andhra Pradesh were included in the study and the epidemiology was investigated. The animals were screened by wet blood film examination, Giemsa blood smear staining, buffy coat technique, Indirect Enzyme Linked Immuno Sorbent Assay and Enzyme Immuno Transfer Blot during different seasons with relation to their age and sex. The protein profiles of whole cell lysate antigen of *T.evansi* was analysed by SDS-PAGE and the efficacy of the different diagnostic tests were evaluated including Indirect ELISA and EITB.
In Karnataka, three districts viz; Shimoga (South trans zone), Chitradurga and Davanagere (Central dry Zone) and in Andhra Pradesh, East Godavari, Krishna and Guntur (Krishna-Godavari Zone) districts were selected in the present investigation to study the prevalence of *T.evansi* infection in bovines. In the present study, the cattle and buffaloes were screened for the diagnosis of *T.evansi* infection in three districts by parasitological, concentration and sero diagnostic methods. In three districts of Karnataka, blood smear stained with Giemsa stain detected 1.12 and 1.22 % infection of *T.evansi* in cattle and buffaloes respectively. Buffy coat method revealed 4.00 and 3.63 % infection in cattle and buffaloes respectively where as 4.76 and 8.00 % were positive by ELISA in cattle and buffaloes followed by 8.75 and 22.22 % in cattle and buffaloes respectively. The wet blood film examination could not detect organisms either in cattle and buffaloes. Season wise prevalence of *T.evansi* infection in bovines based on ELISA was 6.25 and 5.00 % in cattle and buffaloes respectively in cold weather followed by 7.40 and 7.14 % in hot weather in cattle and buffaloes respectively. During the south west monsoon 4.08 and 8.77 % infection in cattle and buffaloes respectively where as 3.77 and 8.88 % was observed during north-east monsoon in cattle and buffaloes respectively. The gender wise prevalence recorded was 2.35 and 4.34 percent respectively in male cattle and buffaloes in the present study and 6.61 and 9.61 % in female cattle and buffaloes respectively. In the age group of 6-8 years, 1.61 and 2.27 %
prevalence of *T.evansi* was recorded in cattle and buffaloes respectively followed by 1.33 and 1.92 in the age group above 8 years of cattle and buffaloes respectively. In the age group of 3-6 years 1.28 and 1.19 % prevalence was recorded in cattle and buffaloes respectively where as 1.47 and 0.8 % was recorded in the age group of 1-3 year old cattle and buffaloes respectively but no prevalence of *T.evansi* infection was found in the age group less than 1 year of cattle and buffaloes.

Three districts viz; East Godavari, Krishna and Guntur districts were selected in Andhra Pradesh to study the prevalence of *T.evansi* in bovines. The wet blood film examination detected 0.46 and 1.09 percent prevalence in cattle and buffaloes respectively where as Giemsa stained blood smear revealed 5.58 and 8.72 % infection in cattle and buffaloes respectively. Buffy coat technique revealed 7.14 and 8.69 % and ELISA detected 14.28 and 13.95 % and by EITB 41.66 and 41.11 in cattle and buffaloes were found positive respectively.

The Enzyme Linked Immuno Sorbent Assay detected 9.61 and 11.76 % infection in cattle and buffaloes respectively in winter season. During the summer season the infection rate was 15.68 and 1.29 where as it was 16.66 and 17.64 % in the monsoon season in cattle and buffaloes respectively. In male cattle and buffaloes 14.81 and 8.62 % infection was observed respectively where as 13.82 and 20.20 % infection was observed in female cattle and buffaloes respectively.
The highest prevalence of *T.evansi* infection recorded was 28.12 % in cattle above 8 years and 857 percent in the buffaloes of the same age group. In the age group of 6-8 years 17.5 and 14.70 % infection was recorded in cattle and buffaloes respectively. The percent prevalence of 3.38 and 17.18 was found in cattle and buffaloes of 3-6 years of age group. In the age group of 1-3 years, 13.63 and 8.77 and 2.5 and 1.96 % infection was observed in less than 1year old cattle and buffaloes respectively. Hence, it was concluded that ELISA and EITB are valuable in the diagnosis of *T.evansi* infection in bovines.

The Molecular weights of polypeptides in the whole cell lysate antigen of *T.evansi* analysed by SDS-PAGE revealed 10 polypeptide bands ranged between 69.18 to 15.85 KDa viz : 69.18, 60.28, 54.95, 50.12, 43.65, 34.97, 31.62, 28.84, 22.91 and 15.85 KDa. The Immunoreactive peptides on Western blot using hyper immune serum reacted with 50.12, 40.74, 25.70, 24.55 and 15.85 KDa whereas positive serum recognized 50.12, 25.70 and 19.95 KDa as immunoreactive peptides.