CHAPTER - 6

Summary
SUMMARY

- BTV Outbreak was studied in detail in six western districts of Tamilnadu namely, Namakkal, Salem, Erode, Coimbatore, Karur and Dindigul during 2003-2006.

- 95 outbreaks were recorded, in which lesser number (1-2) was noticed in the year 2003 and 2004 with low rainfall (51.6 – 122.6 mm). But the trend has been reversed during 2005 – 2006 with the heavy outbreak of 41-51 with high rainfall (168.24 – 558 mm).

- There was a significant correlation between rainfall and BTV outbreak in the year 2005 (t value – 12.131; p<0.001) and 2006 (t value – 6.010; p<0.001).

- A wind flow rate of 2.0 – 17.0 km/h favours the disease incidence due to the dispersal of Culicoides spp. especially in the year 2005-2006.

- The classical signs of cyanosis of the tongue and reddening of the coronary band are a common feature of the disease in native sheep, Macheri breed were observed.

- 165 blood samples were collected from the field outbreak (95 numbers) have been used to demonstrate BTV and further inoculated in embryonated chicken eggs (11 - 13 day old).

- In ECE inoculation technique, 13 positive results were obtained in a total of 165 samples (7.87 % positive).

- The 13 BTV positive samples further inoculated in ECE in two different routes namely, yolk sac route and intravenous route for studying infectivity titres of Bluetongue virus upto 12 passages and compared.

- High infectivity titre value, i.e., 6.49 and 7.13 was observed in 12th passage in yolk sac and intravenous route of inoculation which was confirmed by higher mean difference (0.642 – p=0.019). Intravenous route of inoculation exhibited better infectivity titre value than yolk sac.
• Cultivation of BTV in two different cell cultures like BHK21 and Vero produced visible Cytopathic effect from 36h post infection. Rounding of cells, syncytia formation, giant cell formation and grouping of cells have also been observed in fifth passage. The affected cells have shown granularity and undergone variable degrees of shrinkage.

• Between the two cell cultures, the Vero cell line (6.21 – 10.58) exhibited more titre value than BHK 21 (5.6 – 9.48).

• Three categories of plaque morphology were observed in the 13 BTV isolates inoculated in Vero and BHK 21 cell line. They were large regular shaped sharp boundary, medium sized regular shaped sharp boundary and minimum sized round shaped irregular boundary.

• Number of plaques was higher in BHK 21 cell line than Vero cell whereas Plaque forming units produced in Vero cell was in higher order than BHK 21. Variation among the thirteen BTV isolates was observed based on number of plaques produced and plaque forming units.

• The thirteen isolated BTV isolates were acid labile, stable at 37°C and resistant to ether, chloroform and RNAse.

• Among the three diagnostic tests, AGPT gave higher positive results (74.54 % positive) than IFT (51.51% positive) and ECE (7.87%).

• 10-13 fractions of protein profiles were observed in SDS-PAGE and molecular weight of the 13 BTV isolates would fall under three categories as 10 – 156 KDa (isolates - 2,6,9,12,10), 15 – 155 KDa (isolates -1,3,5,7,8,11) and 20 – 156 KDa (isolates -4,13).

• In RT-PCR, a product of 1156 bp and 770 bp was amplified with set 1 and set 2 primer for all the thirteen isolates.

• The sensitivity was increased to 10 fold in RT-PCR and 100 fold in nested PCR for all the thirteen isolates with set 2 primer.