CHAPTER VII

SUMMARY
1. The author's intent in this study was to look for age dependent changes in RNA, DNA and proteins of *Dysdercus similis*, and for the influence of mating on these changes.

2. The life span of mated insects was shorter than unmated insects.

3. The life span of mated males was forty-five days, mated females twenty-nine days, unmated males sixty days and of unmated females seventy-two days.

4. In mated females egg laying takes place twice, while in unmated females it takes place only once and at a later period. In mated females first egg laying takes place at 6-7 days and second on 11-13 days, while in unmated females egg laying takes place on 9th day.

5. The number of eggs laid by mated females was more in number than that of unmated females.

6. The maximum number of protein bands as assessed by electrophoresis in the haemolymph samples of *D. similis* were eight in mated males and females and unmated females and six in unmated males.

7. Group C band (Rm values more than 60) was present in a few stages of mated and unmated males and unmated
females, while it was absent in mated females.

8. In females the number of protein bands decreased at the time of egg laying, showing their utilization in egg-formation.

9. In the majority of the stages studied number of protein bands were more in mated males than in unmated males except a few stages (i.e. 7, 9, 29, 37 and 41 days). This may be due to the difference in the physiological state of the insect.

10. The number of protein bands were less in mated females till the first egg-laying stage when compared to unmated females. After the first egg-laying the number of protein bands became more in mated females.

11. Interestingly there was a very characteristic pattern of the haemolymph proteins in twenty-three days old mated females. There were maximum eight bands (Group A-5 bands, Group B-3 bands). In all the other stages group B always had one band but here there were three. This female had a very short life span only 29 days. It would be possible that the group B protein bands \( (B_2, B_3) \) which have increased at this stage are responsible for the approach of senile stage. These appear as trace bands and may be associated with ageing and death.
12. Total body protein level fluctuates up to thirteen days due to reproductive phase, but after thirteenth day there was a gradual decline in protein content, showing the onset of ageing.

13. The coefficient of correlation between age and protein was negative, showing the inverse relationship between age and protein concentration in mated and unmated males and females of *D. similis*.

14. Total body RNA also fluctuates up to thirteen days due to reproductive phase. After thirteenth day there was a gradual decline in RNA content till death, showing the onset of ageing.

15. The coefficient of correlation between age and RNA was negative in all the mated and unmated males and females of *D. similis*. This indicates that in *D. similis* there is an inverse relationship between age and RNA content.

16. DNA content decreases at the time of egg-laying in females and then increases till thirteenth day. After thirteenth day there was a gradual decline in DNA content, showing the onset of ageing.

17. The coefficient of correlation between age and DNA content was also negative in both mated and unmated males and females of *D. similis*. These results indicate that in *D. similis* proteins, RNA and DNA
content decrease with the increase in age.

18. Ratios of RNA/protein, DNA/protein and RNA/DNA fluctuate up to thirteen days due to fluctuations in proteins RNA and DNA.

19. After 13th day the fluctuations in these ratios are due to the difference in the decline of protein, RNA and DNA content.

20. The coefficient of correlation between age and RNA/protein ratio was positive in both mated and unmated males and females of D. similis. This indicates that protein is declining more rapidly than RNA in D. similis.

21. The correlation of age with DNA/protein ratio and RNA/DNA ratio are just reverse to each other. In DNA/protein ratio the correlation was negative in mated and unmated males and unmated females, while in mated females it was positive. In RNA/DNA ratio the correlation was positive in mated and unmated males and unmated females, while in mated females it was negative. This indicates that the mated females show the different results when we compare them with unmated females and mated and unmated males. In mated and unmated males and unmated females the protein content is declining more rapidly than RNA. DNA declines more rapidly than RNA and protein content. Thus in mated
and unmated males and unmated females RNA showed the least decline. In mated females protein content declines more rapidly than RNA and DNA, and RNA is declining more rapidly than DNA. Here the decline in DNA was the least.

22. When the coefficient of correlations of DNA/protein and age are compared it was noticed that the coefficient of correlation was highest in mated males and lowest in unmated males. This indicates that the difference in the decline of DNA and protein content is maximum in mated males and minimum in unmated males.

23. By comparing the coefficient of correlations of RNA/DNA and age it is obvious that it is highest in mated males and lowest in mated females. This shows that the difference in the decline of RNA and DNA was maximum in mated males and minimum in mated females.

24. Thus in *D. similis* total body proteins, RNA and DNA decrease with increase in age. In mated females the rate of decline of proteins was highest. RNA declines more rapidly than DNA. In mated and unmated males and unmated females the rate of decline of DNA is highest. Proteins decline more rapidly than RNA.

25. Finally the results of *D. similis* show that mating has an influence on ageing because mated insects have a
shorter life span than unmated insects.

26. The peculiarity seen in the haemolymph protein band pattern of twenty third day old mated females need further investigation.