

Chapter V

CONCLUSION AND RECOMMENDATIONConclusion

This study was aimed to be a preliminary report of seasonal variations in the biochemical composition in various tissues of the mussel, Mytilus viridis L. from samples obtained from Cholburi Bay, Cholburi Province. Comparison between the biochemical composition in the field specimens and in those kept in the laboratory was also determined. Attentions were focussed on the seasonal changes in biochemical composition of the mussel in relation to its growth, reproduction, nutrition and some environmental factors summarized as followed:

1. Proteins were the major components in various tissues. They made up about 50 % or more in the tissues. The lipid content was very low. Carbohydrates were most variable ranging from 0.7 to 25 %
2. The total solid in the mantle, non-mantle and total tissue remained constant at approximately the same level throughout the year at 5 % level of significance. This was also true for the carbohydrate content. The lipid content in mantle, non-mantle and total tissue did show variations throughout the year at the same level of significance. The protein content showed variations in these

tissues only in the summer.

3. Seasonal changes in biochemical composition were clearly related to gonad development and spawning time, salinity and growth. Total solid and water content varied according to salinity and gonad development. The total solid tended to increase as the gonad developed. This corresponded to changes in total solid due to growth. The water content increased when the salinity was low. There was a clear relationship between the two components, proteins and carbohydrates in relation to gonad development and spawning time. The protein content was highest during September during which the gonads were gravid and some have already spawned. At this time the carbohydrates and lipids reached minimum level, suggesting their conversion into gametes material. The lipids showed no marked seasonal variation in relation to reproductive cycle. As for the relation to growth, the lipid content decreased as the mussel grew. This was the opposite to the total solid, protein content and carbohydrate content.

4. Seasonal changes in biochemical composition were not clearly related to the nutrition state. Degree of fullness in mussel's stomach and relative abundance in percentage of the three major groups of plankton found in stomach contents namely centrics diatom, pennates diatom and dinoflagellates were also studied.

5. In comparison to the field specimens of the same size, the carbohydrates in the laboratory specimens differed at 5 % level of significance. The protein content showed significant difference both in the field specimens and the laboratory specimens in the non-mantle tissue. The lipid content in both specimens were approximately the same in various tissues. There was significant difference in the total solid in the total tissue at 5 % level of significance.

Recommendation

1. Ash contents (mineral contents) should be determined to compensate for the portion in the biochemical composition loss due to the presence of considerable salt in the tissue.
2. Biochemical changes in larvae and young spats of Mytilus viridis L. should be determined to give the full detail of biochemical composition changes during one life cycle. It is necessary to make determinations of the biochemical composition several times during a reproductive cycle, to include at least growings, mature and spent animals.
3. Seasonal changes in biochemical composition in both sexes should be determined. It is a difficult task for immature bivalves. This is because the sexes can hardly be distinguished.

4. Histological studies should be made in relation to the biochemical composition changes in a reproductive cycle of the mussels.

5. Experiments on biochemical changes due to nutritive, salinity and temperature stresses should be made.

6. Experiments determining the biochemical composition in mussel fed by three major groups of plankton; centrics diatom, pennates diatom and dinoflagellate in order to find the possible relation between the seasonal biochemical changes and the nutritional state of the mussels, should be conducted.

7. This study could be used as the preliminary report comparing the biochemical changes caused by parasites in the mussel or caused by other environmental stresses such as pollution.