

CHAPTER I

INTRODUCTION



Shrimp farming is generally recently recognized as one of the major agricultural industries providing substantial income to Thailand; more than 51,000 million baht a year. In 1994, 250,000 metric tons of shrimps was solely produced and brought Thailand, to be the highest shrimp production country in the world. However, there are still many constraints in development for prawn culture in Thailand which needed to be solved.

The most common shrimp species cultured in Thailand is gaint tiger prawn, *Penaeus monodon*. *P. monodon* grows rapidly and can reach marketable size within 4 months. The marketable size, 30-40 shrimp per kilogram may cost more than 150 baht and gives high profit to the farmers.

Shrimp culture has developed rapidly. The continued growth of this industry will increasingly depend upon well balanced formulated shrimp feeds. Culture areas available for expansion are becoming more limited and the industry must move from extensive (relying largely on natural productivity for food) to intensive culture (where the shrimp are more densely cultured and rely on supplemental feeds) (Xu et al., 1993). Therefore, nutritionally balanced and quality-controlled diets are of foremost importance to aquaculture. Feed is a major expense for intensive culture, it would be half of the total variable costs.

The economic efficiency of a farm is therefore sensitive to both the cost and nutritional quality of feed. Feed is a source of energy and nutrition that shrimp requires for forming tissue, for growth and survival. Moreover, feed does not only give shrimp good growth, but also provides the nutrients necessary to promote recovery, resistance to diseases or assistance in overcoming the effects of environmental stress. So the development of nutrition in feed is an important factor for the success of shrimp culture. The present trend of fishery science is to improve commercially productive aquaculture which is heavily dependent upon an adequate supply of feed of high nutritional quality.

Fatty acids, n-3 highly unsaturated fatty acids (HUFAs) such as eicosapentaenoic acid (EPA, 20:5n-3) and docosahexaenoic acid (DHA, 22:6n-3), have been recognized as important nutrients for growth of crustaceans. The requirement of EPA and DHA in *P. monodon* has not yet fully investigated. Thus, the objective of this study is to determine the quantity and ratios of EPA/DHA on growth and survival of *P. monodon* postlarvae. This study will be another step for the development of feed quality for *P. monodon*, and will be useful for shrimp farming in Thailand.