

CHAPTER I

INTRODUCTION

Spotted babylon, *Babylonia areolata* (Link, 1807) is a commercially important marine gastropod for consumption in Thailand. Mostly, the products of spotted babylon from both wild caught and cultivations are exported to main markets in China, Taiwan, Hong Kong, Japan etc. The price of spotted babylon in seafood markets range 500 - 800 Thai Bath per kilogram. Spotted babylon is abundant and widely inhabits littoral regions along the coasts of the Gulf of Thailand, especially in muddy sand areas with 10-20m depth. The natural stocks of this marine gastropod in the Gulf have been decreasing due to continuous exploitation in various traditional fishing areas confronting to the chronic supply shortage particularly, in the market sizes. Therefore, there has been considerable interest in the commercial culture of this marine gastropod in Thailand, to protect spotted babylon as an important renewable marine resource and to increase market supply. However, there are shell color pattern variations in this snail, mainly different in the color of patches and basal shell color. Generally, *B. areolata* has the outer shape as a thick oval shell with a high pointed apex. The shell is smooth and the body whorl is patterned with round brownish patches on the white shell background array in 3 rows on body whorl. There is little furrow on body whorl which is spiral rib and has an oval palp to close aperture. Other shell color variations are orange patches on white basal shell or white basal shell without patches. However, there is no investigation on the differences in terms of taxonomy and genetic information. This problem is now affected the markets because both exported and domestic markets are not accepted spotted babylon having orange or white color. Then, the scientific ways are needed to elucidate these problems.

The differences in external morphology of shells may be affecting by either the genetic levels or external factors such as environmental tolerance, seawater quality, mineral composition of seawater, food items, etc. Then, the outer forms of shell are not enough to discriminate rightly of spotted babylon, so using of molecular markers is the way which can give more reliable data. It also tells the different of genetics more clearly

than observation on factors of outside environments. Molecular markers can divide to 2 groups protein markers; allozymes and DNA markers such as RAPD, ISSR, mtDNA, RFLP. However, there are so few studies on genetics and lack of molecular markers for *B. areolata*. The information on genetic structure of *B. areolata* and their relative forms in the Gulf of Thailand is currently needed. The knowledge gained from such information would lead to construction of suitable conservation and aquaculture programs to ensure protection of genetic diversity levels of this species.

The objective of this study to preliminary step towards understanding the patterns of genetic variability of *Babylonia* in Thailand, by using molecular markers: ISSR-PCR and DNA sequencing which markers have not been used to study the *B. areolata* genetic diversity in terms of molecular polymorphism. In addition, the preliminary observation on cross breeding among broodstocks with variety color shell patterns is done for the first generation (F1) under hatchery conditions. This result is very important data to support the molecular markers. The research gives some basic information about the genetic variation and also expected to help strategic policy decisions in relation to the conservation and management of this marine gastropod.