

Chapter 1



Introduction

Mangrove ecosystem is the most biodiverse marine wetland on earth. The plants grow in the intertidal areas and estuary. Natural environmental factors that affect mangrove ecosystem are sea level, temperature, salinity, ocean currents, storms, shore-slope, and soil-substrate. Effect of physical factor is the cause of the zonation of mangrove plant species. Mangroves provide suitable habitats for various marine and terrestrial flora and fauna. Most of juvenile fishes, shrimps, crabs, and mollusks use mangrove forest as refuge and nursery grounds. Indo-Malayan region exhibits the greatest diversity of the mangrove flora and fauna. Two hundred and eleven species were recorded from Southeast Asia area (Aksornkoe, 1998; Field, 1995).

The Gulf of Thailand is a semi-enclosed tropical sea, where the Chao Phraya, Tha Chin, Mea Klong, and Bang Pakong rivers enter the gulf including many small rivers flowing into the coasts. The gulf is a part of the Sunda Shelf. The central area is the deepest at about 83 meters below the lowest low water. The average depth is about 50 meters (Snidvong, 1998). Mangrove areas of upper Gulf of Thailand from Trat to Phetchaburi Provinces (in 1996) is 180.64 square kilometers or 10.77% of total mangrove area (Aksornkoe, 1998).

Pulmonate is a group of air breathing mollusk that their lungs are derived from the mantle. High diversity of mangrove habitats may lead to snails' diversification. Ellobiidae, the most primitive pulmonate, shows a varieties of morphological characters adapted to different habitats (Hubendick, 1978). Siphonariidae, a cap-shaped shells adapted to live on rocky shore. Amphibolidae, its operculum is present in adult. Onchidiidae, a slug has regressive evolution of shell and considered an unique character in slug order, Systellommatophora. Pulmonate snails of the mangrove live in many microhabitats e.g. under logs or large substrates, on mud surface, in rotten logs, on stones, on leaves, etc. They are primary consumer and are eaten by reptiles, birds and small mammals (Panha, 1998). Local people utilize many species as food i.e. *Ellobium aurismidae*, good protein source for people in eastern Thailand (Panha, 1998). The studies of mangrove pulmonate snails in Thailand are mainly on shell taxonomy. Brandt monograph (1974)

on the non-marine aquatic mollusks of Thailand is an important paper, which reported 20 ellobiid species found in Thailand.

Objective

The main purpose of this research is to study and compare anatomical characters of some pulmonate snails in the mangrove habitats of the upper Gulf of Thailand. Their phylogenic relationships were reconstructed by those characters.