

Suwannit Sukarawan 2014: Cryptobiotic Cyst Structures and Embryonic Development of Two Thai Fairy Shrimps, *Branchinella thailandensis* and *Streptocephalus sirindhornae*. Master of Science (Biology), Major Field: Biology, Department of Zoology. Thesis Advisor: Assistant Professor Boonsatien Boonsoong, Ph.D. 67 pages.

This study aimed to investigate the structures of cyst and embryonic development of two Thai fairy shrimps (*Branchinella thailandensis* and *Streptocephalus sirindhornae*). As the scanning electron micrographs revealed that cysts of *B. thailandensis* and *S. sirindhornae* show spherical shape with a regular pattern of polygons. Diameter of cyst is approximately 200 μm and 150-180 μm , respectively. Cyst of *B. thailandensis* appears pores and spiny projections, while spines are disappeared in *S. sirindhornae*. Structural morphology of cross-sectioned demonstrated three layers of egg shell in *B. thailandensis* (innermost embryonic cuticle, alveolar layer and outer cortex), indistinct three layers in *S. sirindhornae* (innermost embryonic cuticle, alveolar layer which is not demarcated with inner layer and outer cortex). In this study, four levels of sodium hypochlorite concentration (1%, 2%, 4% and 6%) were conducted to decapsulate cyst and compared to whole cyst. Percentage hatchability of 2% NaOCl decapsulated cyst is no significance difference from whole cyst, but clearly to investigate the developmental features. Embryonic development at difference timescales of *B. thailandensis* and *S. sirindhornae* were obtained from laboratory culture under the optimum conditions; hydration at room temperature and continuous illumination. The results indicated that the complete development of nauplii occurred within 5 and 7 hours after hydration, respectively. *B. thailandensis* shows slightly rapid development more than *S. srindhornae*. The preliminary study on the occurrence of stress proteins, p26 and artemin, by observing the bands which appear nearly 26 kDa, which are the critical components of cryptobiotic cysts to survive under stress environments.

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