

Pattarawadee Srimeetian 2010: Antioxidant and Lipid Peroxidation in Molting Cycle of Mud Crab (*Scylla serrata* Forskål 1775). Master of Science (Marine Science), Major Field: Marine Science, Department of Marine Science. Thesis Advisor: Assistant Professor Jintana Salaenoi, Ph.D.  
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The activity of 3 anti-free radical enzymes; catalase (CAT), glutathione-S-transferase (GST) and glutathione peroxidase (GPx), anti-free radical substance; glutathione (GSH), lipid peroxidation (LPO) in mud crab (*Scylla serrata*) were studied. The crab samples including 12 stages over the molting cycle were collected from the soft-shell crab farm at Klung District, Chanthaburi Province. The results showed that CAT, which is responsible for destroying hydrogen peroxide ( $H_2O_2$ ), had relatively high activity in hepatopancreas and muscle. CAT activity in the hepatopancreas was higher at 2 weeks until 2 days prior to molting and 3-5 days after molting. For GST, which normally acts to eliminate free radicals and is important in cell maintenance, the activity showed the maximum content in the hepatopancreas. GST activity in hemolymph, hepatopancreas, gills, integument and muscle were high both period of premolt and postmolt. For GPx, which acts to remove and destroy the free radicals caused by processes involving oxygen, the activity revealed the gradually increased in the period of premolt. At the time of molting, GPx activity abruptly decreased and then increased immediately after molting occurred and the activities mostly expressed in the hepatopancreas and integument. For GSH, which has the effect to free radicals caused by processes that use oxygen, the activity was quite variable throughout the molting cycle. GSH activities in haemolymph, gills, integument and muscle were high both the period of premolt and postmolt stage. Activity of LPO in various organs found gradually increased at premolt stage and the activity was slightly decreased when the crabs became postmolt stage, comparing to the normal crab stage. The research was concluded that the activity of anti-free radicals in mud crab was clearly evidenced in 2 periods; the time prior to the molting process due to the decomposition of organic substances to return a new figure, and also at the period of postmolt stage due to the nutrients accumulated to create new figure.

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