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NIPA AMORNRUJI :TOXICITY OF MERCURY ON GROWTH OF *Chaetoceros* sp.

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The purpose of this study was to study the toxicity of mercury on growth of *Chaetoceros* sp. in the synthetic sea water at 5 different levels of concentration ; 0.127, 1.589, 3.439, 5.442 and 8.533 ppb with control group. The amount of plankton started at about 300 cells/ml. The effect of mercuric chloride on growth of phytoplankton by 50 percent ( $EC_{50}$ ) was determined by using Sedgewick-Rafter(S-R) Counting Cell under microscope of 100 magnification with Probit Analysis Program and the accumulation of mercury in *Chaetoceros* sp. after 24, 48, 72 and 96 hours was studied by using Atomic Absorption-Cold Vapour Technique. The study was a laboratory experimental research and was a batch study.

The finding of this study showed that growth rate or the increasing amount of *Chaetoceros* sp. decreased when the concentration of mercuric chloride increased. At 96 hours it was found that at mercuric chloride concentration levels of 0, 0.127, 1.589, 3.439, 5.442, 8.533 ppb the density of plankton increased at about 48,367 , 43,000 , 29,500 , 22,833 , 13,500 and 8,600 cells/ml respectively. The 96-hour  $EC_{50}$  with 95 percent confidence level was estimated at 2.05(1.10 to 3.81)ppb. The study of bioaccumulation of mercuric chloride in *Chaetoceros* sp. at 96 hours was made by measuring mercury residues in sea water. The result showed that the 5 levels of concentration at 0.127, 1.589, 3.439, 5.442 and 8.533 ppb caused bioaccumulation in plankton at 0.107, 0.795 , 1.358, 2.669 and 5.201 ppb respectively and there was interaction between mercury concentrations and times with mercury bioaccumulation in *Chaetoceros* sp. The level of mercuric chloride concentrations had more effect on bioaccumulation than time with significant differences( $p<0.0001$ ).