The Profile of Blood Transaminase Enzyme on Duck (*Anas* sp.) Polluted by Lead (Pb) Textile Waste

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ABSTRACT

Duck which is raised traditionally in around of textile industry have a risk by lead (Pb) pollution from textile industry liquid waste, will caused hepatocite liver. Decrease liver function, has the impact to vitellogenesys that is synthesis of vitellogenin and β-lipoprotein as yolk precursor. Transaminase is enzyme which is indicated decrease in liver function. Objectives of this research was to know the profile of blood transaminase enzyme (SGPT= serum glutamate pyruvate transaminase, SGOT = serum glutamate oxaloacetate transaminase) on duck that polluted by lead (Pb) from textile waste. This experiment has been used survey method with purposive sampling, amount of sample used was 60 Tegal duck, consisted of 30 duck which was not polluted by Pb and 30 duck which was polluted by Pb. The data was analys by statistical analysis of T-students. Based on research showed that blood SGPT level which was polluted Pb higher significant different 76,74 ± 1,89 μmol/L against which was not polluted 47,93 ± 1,59 μmol/L, and so it is with SGOT level was higher significant different 78,73 ± 2,73 μmol/L polluted by Pb, against which was not polluted was 46, 52 ± 1,53 μmol/L.

Key words: transaminase, lead (Pb), duck

INTRODUCTION

Duck which is raised traditionally in around of textile industry have a risk by lead (Pb) pollution from textile industry liquid waste, that cause hepatocite to liver. Decrease in liver function, has the impact to vitellogenesys that is synthesis of vitellogenin and β-lipoprotein as yolk precursor. Transaminase is enzyme which is indicated decrease in liver function.

Accumulation of excess Pb can potentially cause liver damage that is clinically characterized by increased SGPT (serum glutamic-pyruvic transaminase) and AST (serum glutamic-oxaloacetic transaminase). Degree increase in these enzymes correlated positively with the level of liver damage. Biochemical changes due to liver damage, manifested by the increase of ALT levels from 20-200 times the normal levels (1-36 μM / L) and AST levels by 10-150 times the normal values (8-40 μM / L) (Bergmeyer and Bernt, 1971).

Pb concentrations in water, soil and air around industrial areas may reach 0.2 ppm and wastewater regulations limit the conditions 0.05 ppm (Amina, 2006), whereas Pb concentrations of wastewater based on preliminary research results is 0.207 ppm,

Pb content of blood contaminated duck waste textiles based on preliminary research results by using Atomic Absorption Spectrophotometer (AAS type) reached 0.07 ppm, whereas the Pb content of blood is not contaminated duck waste textiles reach 0.0005 ppm. Based on preliminary research results, there is a heavy metal content of Pb in waste water higher than the content of heavy metals other than Pb content of blood was contaminated ducks to reach 0.07 ppm indicate the occurrence of heavy metal pollution Pb in ducks raised in the neighborhood textile industry.

MATERIALS AND METHODS

Animals and Survey

Animals used in this research were 60 Tegal Ducks, 10-12 months age, average body weight 1.6 kg. Sampling method used was sampling purphosif sampling, consist of 30 ducks polluted by lead and 30 ducks not polluted by lead.

Survey have been made during 30 days and blood sample collected every week (forth time/ 4 weeks).