ABSTRACT


A heavy metal, nickel has potential to cause toxic and affect blood cell, histopathological changes, and alter the cell chromosome. The aims of this experiment was to determine the potency of the nickel toxicity that expressed by median lethal concentration (LC50) and to analyze its sub-chronic level effect such as oxygen consumption, haematological condition, and blood glucose. This research was conducted in three steps: finding range test, acute test, and sub-chronic level test. Acute test was conducted in 5 concentration levels (0.00 ppm; 8.89 ppm; 15.81 ppm; 28.12 ppm and 50.01 ppm). Sub-chronic test was also conducted in 5 concentration levels (0.00 ppm; 0.12 ppm; 0.59 ppm; 1.19 ppm and 3.56 ppm) with 3 replications. Nickel concentration analysis was used Atomic Absorption Spectroscopy (AAS). LC50 at exposure time 24, 48, 72, and 96 hours were 36.79 ppm, 23.54 ppm, 18.04 ppm, and 11.88 ppm, respectively. Oxygen consumption of milkfish juvenile at 3.56 ppm and 0.12 ppm of nickel concentration after 30 days of exposure time were 0.37±0.01 mgO2/grBW/hr and 0.73±0.10 mgO2/grBW/hr, respectively. These were lower than control (0.96±0.03 mgO2/grBW/hr). The longer exposure time the higher nickel concentration, it decrease oxygen consumption, haematocryte, haemoglobin and erythtrocyte. However, leukosit and blood glucose increase.

Keywords: Chanos chanos [Forsskal], nickel, toxicity, oxygen consumption, haematology, blood glucose