

ABSTRACT

Effect of Copper Sulfate Exposure on Hatching Rate, Histopathological Changes of Gill and Malformations of Zebra Fish (*Brachydanio rerio*) Larvae

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Copper in the form copper sulphate (CuSO_4) is heavy metal being used in the field of agriculture (fungicide) and in the field of fishery, especially in the fish culture as algacide. The frequent use as copper sulphate for preventing fungi and parasitic diseases in fish culture systems, can generate negative effects for aquatic organism.

Concerning the phenomenon above, the aim of this research is to understand the effect of copper sulphate toward: hatching rate, malformation, and the histopathology changes of zebra fish gill (*Brachydanio rerio*).

This research is conducted experimentally by using completely randomized design with three treatments and six times series. The dose of copper sulfate used is 0.1 mg/l; 0.15 mg/l and 0.3 mg/l.

The finding shows that the percentage of the hatching rate of zebra fish egg at every treatment including control is as follows: control dose (0.0 mg/l) is 85.83 %; CU1 (0.1 mg/l) is 65.833 %; CU2 (0.15 mg/l) is 48.33 %; and CU3 (0.3 mg/l) is 30.00 %.

The result toward the percentage of larva malformation at every treatment is follows: control (1.66 %); CU1 (12.66 %); CU2 (54.66 %), and CU3 (84.00 %). Related to malformation, it is also observed the type of malformation at larvae. The result is: Lordosis, scoliosis and kyphosis at the of vertebral that has the highest percentage, followed by the defect at tail and head.

The of research toward the change histopathology of gill indicates as follows: epithelia damage on dose 0,1 mg/l, in the dose 0,3 mg/l lamellar have necrosis.

Key words: zebra fish, copper sulphate, hatching rate, malformation, epithelia damage.