

Toxicity of Chromium on *Perna viridis* (LC 50)

Aim: To find out the lethal concentration of chromium at which 50% of the organisms are killed and also to find out the effective time taken for killing 50% of the organisms.

Preparation of Stock and Working Solution:

To find out the toxic effects of chromium, the chemical compound, which is being used, is potassium chromate (K_2CrO_4). Molecular weight of K_2CrO_4 is found out and is divided by atomic weight to get a known amount of K_2CrO_4 compound containing 1 gm of chromium.

Molecular weight of K_2CrO_4 – 194.200

Atomic weight of chromium – 51.996

To obtain known amount of potassium chromate containing 1gm of chromium,

$$= \frac{\text{Mol wt of potassium chromate}}{\text{Atomic weight of chromium}} = \frac{194.200}{51.996} = 3.74 \text{ g}$$

i.e. 3.74 gms of K_2CrO_4 contains 1gm of chromium.

Dissolve 3.74 gms of K_2CrO_4 in 1000 ml distilled water to get 1000 ppm concentration.

The working solution is prepared by using the following equation.

$$N_1V_1 = N_2V_2$$

Where, N_1 = Concentration of stock solution

V_1 = Volume of stock solution required

N_2 = Concentration of chromium required

V_2 = Volume of water to which stock solution is added.

Procedure:

Prepare working solution of ppm, ppm,ppm,ppm andppm concentration and a control, to which no toxic material is added. Take 5 ltr. of filtered seawater in each pre-washed trough and add toxicant at required level. Then, introduce 10 numbers of well acclimatized *Perna viridis* to each trough. Observe the mortality for 96 hrs at every 6 hrs interval of time and tabulate the results. To obtain LC 50 and ET 50, Probit method is followed by plotting the values on semilog paper.

Calculation:

Results: