

## Toxicity of Cadmium on Fish Spawn / Fry (LC 50)

### Aim:

To find out the lethal concentration of cadmium 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 cadmium, the chemical compound, which is being used, is cadmium chloride. Molecular weight of cadmium chloride is found out and is divided by atomic weight to get a known amount of cadmium chloride compound containing 1 gm of cadmium.

Molecular weight of cadmium chloride – 188.31

Atomic weight of cadmium – 112.00

To obtain known amount of cadmium chloride containing 1gm of cadmium,

$$= \frac{\text{Mol wt of cadmium chloride}}{\text{Atomic weight of cadmium}} = \frac{188.31}{112.00} = 1.68 \text{ g}$$

i.e. 1.68 g of  $\text{CdCl}_2$  contains 1gm of cadmium.

Dissolve 1.68 gms of  $\text{CdCl}_2$  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 cadmium required

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

### Procedure:

Prepare working solution of..... ppm, ppm, .....ppm, .....ppm and .....ppm concentration and a control, to which no toxic material is added. Take 5 ltr. of filtered tap water in each pre-washed trough and add toxicant at required level. Then, introduce 10 numbers of well acclimatized fish spawn / fry 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: