

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

### Aim:

To find out the lethal concentration of mercury 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 know the toxic effects of mercury, we use mercuric chloride compound. Molecular weight of mercuric chloride is found out and is divided by atomic weight to get a known amount of mercuric chloride compound containing 1 gm of elemental mercury.

Molecular weight of mercuric chloride ( $\text{HgCl}_2$ ) – 271.56

Atomic weight of mercury – 200.61

To obtain known amount of  $\text{HgCl}_2$  contains 1gm of mercury,

$$x = \frac{\text{Mol wt of HgCl}_2}{\text{Atomic weight of Hg}} = \frac{271.56}{200.61} = 1.354 \text{ g}$$

i.e. 1.354 gms of  $\text{HgCl}_2$  contains 1gm of mercury.

Dissolve 1.354 gms of  $\text{HgCl}_2$  in 1000 ml distilled water to get 1000 ppm concentration.

To prepare working solution, use 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 mercury required

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

### Procedure:

Prepare working solution of 10ppm, 20 ppm, 30 ppm, 40 ppm and 50 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: