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**ACUTE TOXICITY TEST USING CYANIDE  
ON *DAPHNIA MAGNA* BY FLOW-THROUGH SYSTEM**

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*This study describes the acute toxicity of sodium cyanide on the crustacean *Daphnia magna* (Cladocera). A new flow-through system was innovated in which the microorganism continuously exposure to the toxicity of sodium cyanide during the test. We used twelve different concentration of sodium cyanide from low values (0 mg CN/L) to high values (1 mg CN /L) on bioassay test. *D. magna* were exposed to the concentrations for 24, 48, 72 and 96 h at 20 – 25°C. We controlled the three important parameters such as temperature, pH and DO to meet the standard requirements. The  $LC_{50}$  values for 24, 48, 72 and 96 h (95% confidence limits in parentheses) were estimated statistically by the probit methods and were 0.171 (0.163 – 0.179), 0.12 (0.112 – 0.128), 0.07 (0.062 – 0.078) and 0.019 (0.011 – 0.027) mg/L respectively. Finally, we proposed two new values for SAR (safe application rate) and SAFE Coefficients.*

**Key words:** acute toxicity test, bioassay, *Daphnia magna*, sodium cyanide.

### **1. Introduction**

Environmental pollution with a variety of toxic compounds has become a threat to the aquatic flora and fauna and is one of the issues of concern. These pollutions are mainly imported into the water bodies from industrial effluent and agricultural area and many of these compounds are highly resistant. This level of emissions over time is endangering aquatic life (Susan et al., 2010). The environmental analysis helps to preserve the natural environment and human health from contaminants such as pesticides, metals and other dangerous toxins and pollutants in the air, water, soil and nutrients (Mansour and Gad, 2010). The need to protect plant and animal life in the land and water ecosystems from pollutants released into the environment, which during the past five decades have increased, have been led to the development of methods to assess adverse effects of chemicals. Today usage of the variety of standard methods for determining the acute and chronic toxicity of pollutants has increased (USEPA, October, 2002a).

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