

Evaluation of pond water after the culture of ostracods (*Heterocypris incongruens*): associating toxicity with risk assessment

Authors:

Victor Nnamdi Ude¹,
Victor Eshu Okpashi²,
Agnes Edet Asuquo
Offiong³ and
Ikechukwu NE Onwurah¹

Institution:

1. Department of Medical
Biochemistry, University of
Nigeria, Nsukka, Nigeria.

2. Environmental Toxicology
and Molecular Biochemistry
Unit, University of Nigeria.

3. Department of
Environmental Education,
University of Calabar.

Corresponding author:

Victor Eshu Okpashi

ABSTRACT:

Protections of aquatic lives from pollution associated hazard are critical to the sustenance of fish pond ecosystem. To determine whether valuable substances such as pond water can pose unacceptable level of risk to fish is the purpose of this investigation. Research has shown that the adverse outcomes of life threatening conditions originate from micro-level events. The use of whole organisms was an alternative approach to integrate and understand the biological substances that can cause toxicity to aquatic organisms. In this research, *In vivo* Early Life Stage (ELS) testing was conducted on the whole organism in the pond water prior to the independent feeding of ostracod (*Heterocypris incongruens*). The growth inhibition was also studied to effectively monitor the onset of toxic metabolites in the stationary fish pond. For sampling purpose, fish pond water was collected for five different days after the replacement of old water. It was noted that no further serial dilution was done as the number of days were adopted as dilution one to dilution five. The fish pond has the dimensions of 10×8×7 m, containing 500 liters of water and 200 fish. Fish pond water samples collected from days 1–4 showed average mortality 42 – 47%, while day 5 showed 77% ostracods mortality rate. These results suggested that the onset of fish pond water toxicity starts from day 2 – 5. This implied that toxic metabolites in fish pond water at day five and over can progressively impaired the proper growth and development of fish and other lower organisms.

Keywords:

Fish-pond-water, Risk, Toxicology, Ostracods-growth-inhibition, Ecotoxicology and Hazard monitoring.