Opinion

Ecotoxicity monitoring by the aquatic microorganisms

Abstract

The evaluation of the quality of any water system depends on their surrounding and the sources from where the impure supplies are down in the system. Near the industrial areas, the water would be polluted due to certain factors responsible for it. In the precedent, water quality was determined through the use of indicator organisms, occurrence will be the potential incidence of pathogenic conditions of the water. However, this is the topic of debate between the experts and people, regarding the use of that water due to the presence of any microbial species. However, now it has been revealed that monitoring of water by the presence of aquatic microorganisms will be a good indicator of water and the aquatic ecosystem also. In this paper, we discuss the need of strategies for the rapid detection of microorganisms in the water system to know about quality and the new technologies needs to enhance the improved sensitivity for detection of it, to protect the ecosystem.

Keywords: ecotoxicity, anthropogenic, bioaccumulation, aquatic toxicants, aquatic environment tests

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Introduction

Through anthropogenic activities, certain chemicals enter into the surface waters, where they may cause toxic effects on aquatic organisms. Ecotoxicological tests can help in measuring any toxic effects on the aquatic organism. The test has been performed in vitro bioassays and in vivo organisms. These chemicals can cause mutations or lead to toxic effects at certain levels by bioaccumulation. For assessing environmental responses only single species,[1] while for testing at the broad level, testing and observation on multiple animals, can assess responses at the population or community level. As earlier workers mentioned an advantage of population studies we found the data among interactions such as competition and predation these provide information to follow on in bioaccumulation of any toxicants in the food chain.

Aquatic microorganism toxicants

Aquatic toxicants generally deal with the contaminant that levels are the hazardous effects on the aquatic environment and also the connected human beings. Several historical incidents that showed the detrimental effects to both the aquatic environment as well as humans from anthropogenic chemical contaminants present in water. For example, in the 1950s industrial release of mercury spilled into Minamata Bay in Japan. Severe developmental defects and many neurotoxicological problems in the local people who consumed the tainted fish and shellfish from the bay[2] because of the accumulation of mercury in their bodies.

The occurrence and habits of the aquatic animal's environments provide unique properties to the impact of contaminants. *Daphnia magna* (water flea) and the *Pimephalespromelas* (fathead minnow), are known as the indicators of chemically induced toxic effects in freshwater and marine organisms.[3] Precedent data of research provided a foundation stem for the development of standard methods of toxicants analysis, while techniques for the easy identifying biomarkers are regularly sophisticated which enhance the more sensitive target markers and too much specificity to detect chemical contaminants.

How can mitigate it? in near future

Through the literature search survey, I found that many data link gaps in the available which need to be required more research and analysis at the species levels and their interactive systems levels. Many more test method should be required for the analysis of toxicants as early for to mitigate the effects as early as possible.

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Conflicts of interest

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