

**BIO ASSAY ON EFFECTIVENESS OF CHEMICAL
HYDROLIZATION FOR DENATURING
AGROCHEMICAL CONTAMINATED
WASTEWATER**

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by

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Abstract

Pesticides provide the primary means for controlling organisms that compete with man for food and fiber, livestock and crops. Pesticides cause direct and indirect effects to the ecosystems and for animals. There are several treatment methods available to detoxify agrochemical residuals, as chemical, physical and biochemical methods.

Present study has focused to analyze the effectiveness of chemical hydrolysis for denaturing agrochemical contaminated wastewater and to investigate the effect of treated wastewater by "Alkaline Hydrolysis" to the aquatic organisms using *Poecilia reticulata*. Effectiveness was analyzed by comparing the COD and pesticide analysis before and after the hydrolysis treatment to the agrochemical contaminated water and acute toxicity of Profenofos was investigated by using guppy (*P. reticulata*). Behaviors and mortality rates were evaluated after introducing them to the treated effluent. One hundred fifty specimens of *P. reticulata* with mean length 2.5 cm and mean weight 0.2 g. Physico-chemical parameters such as DO, Temperature, pH of the test media were maintained during the experiment period. Mortality assessment was carried out for 24h to 96h of experimental period. Fishes were assumed to be dead when there was no body or opercula movement.

All the data were analyzed statistically using one way ANOVA (analysis of variance). No adverse behavioral changes or any mortality was recorded in the control fish tanks throughout the period of bio assay. Symptoms of toxicosis observed in the behavioral of fish exposed to test media. Before the eventual death species showed lack of balance erratic swimming and restlessness. In the study highest mortality was recorded, in less diluted effluent and lowest exposure time (24 h), lowest mortality was recorded in highest dilution (75%) and longest exposure time (96 h).

And further, the study was revealed that when comparing the COD, and pesticide analysis before and after the treatment, it has the ability to reduce those chemical parameters in high efficiency and convert pesticide active ingredient in to non detectable level.

findings in this study has proved that when discharging the agrochemical contaminated waste water after hydrolyzation, it should be mixed with rain or storm water and keep the contaminated water in the maturation tank for further degradation. Because in the study it has shown highest dilution and highest exposure duration caused minimum mortality.