



 **Current Issue**

 **Browse Issues**

 **Search**



 **About this Journal**

 **Instruction to Authors**

 **Online Submission**

 **Subscription**

 **Contact Us**



 **RSS Feed**

## Acta Medica Iranica

2009;47(4) : 1-4

### Toxicity Evaluation of Wastewater Treatment Plant Effluents Using *Daphnia magna*

H Movahedian, B Bina, GH Asghari


#### Abstract:

Toxicity evaluation is an important parameter in wastewater quality monitoring as it provides the complete response of test organisms to all compounds in wastewater. The water flea *Daphnia magna* straus is the most commonly used zooplankton in toxicological tests. The objective of this study was to evaluate the acute toxicity of effluents from different units of Isfahan Wastewater Treatment Plant (IWTP). The samples were taken from four different physical and biological units. The acute toxicity tests were determined using *Daphnia magna*. The immobility of *Daphnia* was determined after 48h. Toxicity results showed that 48h-LC50 and ATU values for raw wastewater were 30% (v/v) and 3.33, respectively. It was also found that LC50 values after 48 h for preliminary, primary, and secondary effluents were 32%, 52% and 85% (v/v), respectively. The ATU values for these effluents were 3.1, 1.9, and 1.8, correspondingly. The efficiency levels of preliminary, primary, and secondary units for removal of toxicity were found as 6%, 38.9% and 8%, in that order. Overall, the present investigation indicated that toxicity removal by up to 50% might be achieved in IWPT. Based on the obtained results and regarding the improvement of water quality standards, coupled with public expectations in Iran, it is necessary to consider more stringent water quality policies for regular monitoring and toxicity assessment.

#### Keywords:

Acute toxicity , *Daphnia magna*

TUMS ID: 2015

Full Text HTML  Full Text PDF  147 KB

top ▲

[Home](#) - [About](#) - [Contact Us](#)

TUMS E. Journals 2004-2009  
Central Library & Documents Center  
Tehran University of Medical Sciences

Best view with Internet Explorer 6 or Later at 1024\*768 Resolutions