

## Poster

## Role of MLSS as a chelating agent in a variety of toxic wastewater treatment plant



Lorena Sánchez (1), Eva Rodríguez (2) and Ana Moral (1)

(1) ECOWAL group, Molecular Biology and Biochemical Engineering Department,  
Pablo de Olavide University. Ctra. de Utrera, km. 1, Seville 41013. Spain

(2) Grupo de Bioindicación de Sevilla

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### ABSTRACT

**Motivation:** The world's population is increasing, therefore, the treatment of wastewater is important for drinking water. The wastewater may contain pathogens, suspended solids, nutrients, inorganic contaminants such as heavy metals and sulfates and organic as detergents. For treating wastewater, there are several steps: pretreatment, primary treatment, secondary and tertiary.

This study aims to see the effect of various toxic, thiosulfate and mercury, and different types of detergents in the organisms containing in three systems: a culture of protists, a extended aeration plant (pilot plant) and a conventional plant (Wastewater Treatment Plant). Also it aims to evaluate the role of suspended solids (MLSS) as a chelating agent, and bioindicator effect paramecium and copepods.

**Methods:** Biodiversity of the samples is evaluated by observation optical microscopy at 24, 48 and 72 hours after the addition of different amounts of selected toxic agents. Complementing the amount of MLSS and the percentage of volatiles is calculated, and realization corresponding respirometry. The bioindicator effect of the two organisms elected is estimated observing their morphology and survival after 24 hours of the addition of different toxic.

**Results:** The biodiversity of the WTP conventional is more affected with toxic than the other systems, however, the results were different detergents according to the type and can't be generalized. Paramecium and copepods are affected by certain quantities of toxics.

**Conclusions:** The MLSS of activated sludge from WTP conventional protect microorganisms against toxic that can bring wastewater containing, allowing their survival and degradation of organic matter from wastewater as it acts as a chelating agent, which reduces soluble toxic principle. Specifically in the case of detergents, the limit values allowed of anionic detergents (15 mg/L) and total (40 mg/L) according to the Official Gazette of the province of Seville the day 30-06-2015 should be reviewed since not all detergents act in the same way on organisms in wastewater treatment plants. Copepods and Paramecium may be good bioindicators of certain toxic spills.

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