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Application of *Chlorella vulgaris* to wastewater for reuse

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The accelerated growth of the population worldwide has led localities to a greater consumption of natural resources. Overpopulation also requires quality improvement. Industrialization, urbanization and daily consumption have limited the availability of water in many parts of the world, so in some populations, it is necessary to reuse wastewater that is subject to one or two phases of a treatment process, resulting in water poor quality that generates problems on human health. In addition to the above, the present work studies the capacity of metabolism and absorption of phosphorus, nitrogen and heavy metals present in the waste water of the treatment plant of the state of Puebla using *Chlorella vulgaris* algae. This was carried out by bioassays at different concentrations of residual water (Witness, 25%, 50%, 75% and 100%). The test that showed the best characteristics was 100%, this sample was centrifuged to separate the organic matter and later the water was placed in a photoreactor, it was made to react with UV light, hydrogen peroxide and ozone. The content of heavy metals present in the biomass obtained from the bioassay was determined by atomic absorption. To know the quality of the water treated with this type of technology, the acute toxicity was analyzed by *Daphnia magna* and the anomalies were determined in the cellular mitosis in *Allium sativum*. It should be mentioned that the general water parameters were measured at the beginning and end of each representative stage for a complete analysis.

Biography

Celeste Solis Martinez has completed her studies in Food Engineering from the Benemerita Autonomous University of Puebla, Mexico. Currently, she is pursuing her Master's in Environmental Sciences.

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