
Poster

Microalgal biomass production and bioremediation of wastewaters generated by real urban wastewater treatment plant



Leonor López - Ibarra, Gassan Hodaifa*

Molecular Biology and Biochemical Engineering, Chemical Engineering Area, University of Pablo de Olavide, ES-41013 Seville, Spain. E-mail: ghodaifa@upo.es

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ABSTRACT

Motivation: Nowadays, microalgae are concern a high interest at research and industry levels. This fact due to its biomass composition multiuse in human and animal food, biomedicine, pharmaceutical industries, pigments, biopolymers, etc. (Vanthoor et al., 2013; Smetana et al., 2017). Wastewater bioremediation by microalgae also have a great attention in last thirty years. In this study, real urban wastewaters from different points of Urban Wastewater Treatment Plant were used as cultures media for microalgae growth. Specifically, *Chlorella vulgaris* a unicellular green algae was used.

Methods: First, urban wastewater was characterized. In fact, pH value, total solid, organic matter, ashes, electric conductivity, turbidity, COD, total carbon, total organic carbon, inorganic carbon, total nitrogen, ions (Na, NH₄, ...), proteins and carbohydrates among others. For biomass kinetic growth, the maximum specific growth rate and biomass productivity were determined. Proteins, carbohydrates, and total lipids were determined for biomass composition.

Results: Highest values for maximum specific growth rate (0.0403 1/h and 0.0415 1/h) and biomass productivities (4.29 and 5.20 mg/L h) were determined in cultures media formed by wastewater from primary and secondary treatment, respectively. The highest value of total lipids was found in the microalgal biomass when growth in wastewater proceeded from secondary thickener.

Conclusions: Results obtained in this work, show that *C. vulgaris* able to growth in all wastewaters studied. In fact, the net biomass production was varied between 1.5 g/L and 4.4 g/L. In all dry biomass collected after cultures, a fraction of total lipids was detected. This fraction was varied between 13.4% and 46% of total dry biomass.

REFERENCES

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