PRODUCTION OF *Nannochloropsis gaditana* IN OUTDOOR THIN-LAYER REACTOR USING PIG SLURRY AS SOLE NUTRIENTS SOURCE

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INTRODUCTION

In the last decade, studies have focused on identifying the most suitable microalgal species for coupled the biological wastewater treatment and resource recovery. However, one of the challenges for microalgae related industrial applications is to maximize its productivity while reducing their production cost. The utilization of effluents as nutrients source is an interesting alternative for microalgae commercial production as it cuts costs and prevents environmental contamination.

OBJETIVE

To evaluate the outdoor production of *Nannochloropsis gaditana*, including the removal of pathogenic bacteria and nutrients (nitrogen and phosphorus), using pig slurry as sole nutrients source.

MATERIAL AND METHODS

THIN-LAYER

V= 2400 L
S= 63 m²
Depth= 0.02 m
D= 0.4 1/d
pH= 8,0 ± 0.1

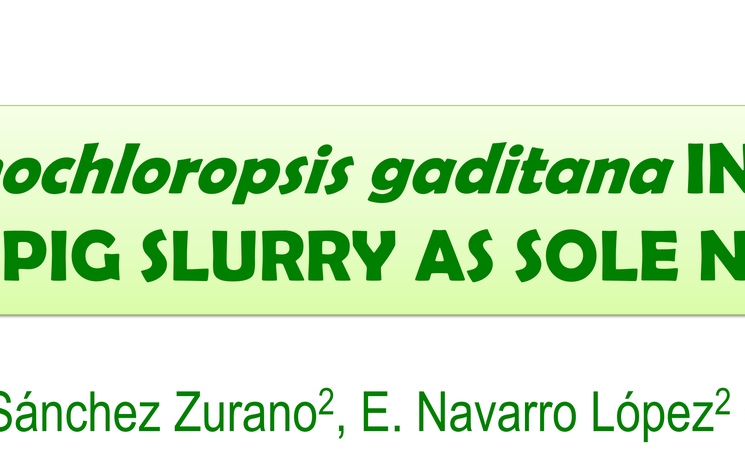
STRAIN
Nannochloropsis gaditana

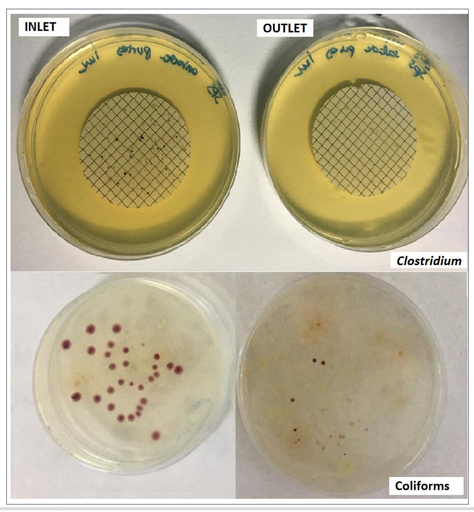
CULTURE MEDIUM
Seawater + 10% pig slurry

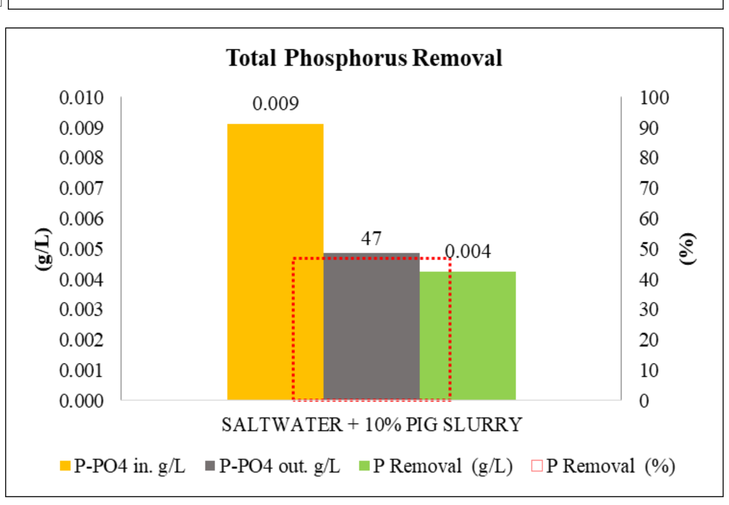
ANALYTICAL ANALYSIS

- ✓ X_b
- ✓ Fv/Fm
- ✓ Total phosphorus
- ✓ Total nitrogen
- ✓ Bacteria: total coliforms, *Clostridium* spp. and heterotrophic bacteria
- ✓ Total fatty acid

RESULTS







% Fatty acid profile

14:00	16:00	16:1n7	16:2n4	16:3n4	18:1n9	18:1n7	18:2n6	18:3n3	20:4n6	20:5n3	% Total Fatty Acid
4.3	24.8	26.3	1.9	1.4	1.8	0.5	1.3	2	3.5	32.1	**5.9**

CONCLUSION

Results suggest that the production of *N. gaditana* can be coupled with the biological treatment of pig slurry, allowing the recovery of nutrients while producing valuable biomass for aquafeed. Moreover, microbiological quality of produced biomass accomplishes with requirements of aquaculture sector. These results support the development of more sustainable processes for the large scale production of microalgae for aquaculture related applications.

ACKNOWLEDGEMENTS

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