Title:

Microalgae in Aquaponics wastewater systems

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Abstract:

Aquaponics refers to any system that combines conventional aquaculture (fish, copepods, prawns, etc.) with hydroponics (vegetable, flower, and/or herb production) in a symbiotic environment. The nitrifying bacteria living in the gravel and in association with the plant roots play a critical role in nutrient cycling; without these microorganisms the whole system would stop functioning. Microalgae, although they are a member of the microorganism community in the aquaponic systems, they must be controlled and mitigated in order not to interfere negatively in the aquaponics system (ex: competition with oxygen and nutrients).
The aim of this work was to acquire knowledge of the community of microalgae that are present in our aquaponic system (Tilapia, *Tilapia niloticus*, was the culturing fish, and lettuce, *Lactuca sativa* was the culturing vegetable). For this purpose, we isolated a total of 22 clones and identified them with traditional and molecular techniques. Of these 22 clones, 20 corresponded to chlorophytes and two to diatoms. Cyanobacteria was not detected in our aquaponic system. From the resulted study, we obtained monoalgal strains of *Chlamydomonas* sp., *Grasiella emersonii*, *Parachlorella kessleri*, *Parachlorella hussii* and *Sellaphora* sp.