Microbial community in relation to nutritional composition in heterotrophic and photomyxotrophic bioflocs from a biofloc system (BFT)

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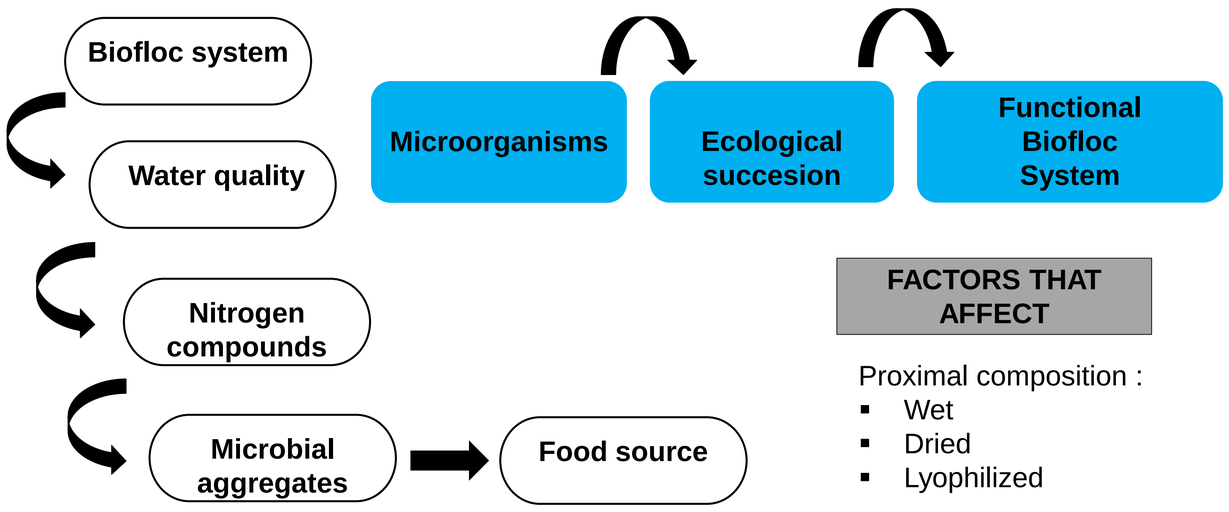
INTRODUCTION



OBJECTIVE

The microbial composition of bioflocs from heterotrophic and photomyxotrophic systems was investigated and their differences in proximal composition.

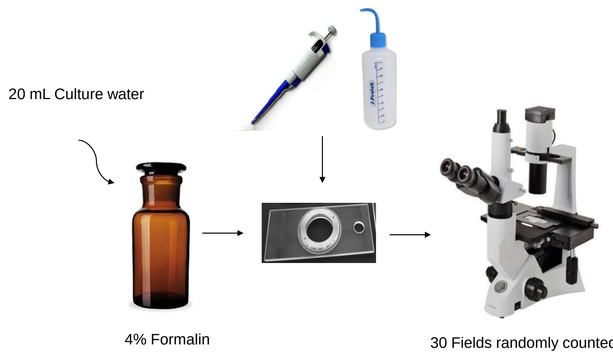
Microbial aggregates → **MICROBIAL COMMUNITY**

MATERIAL AND METHODS

- **Marine Station of Aquaculture - EMA**

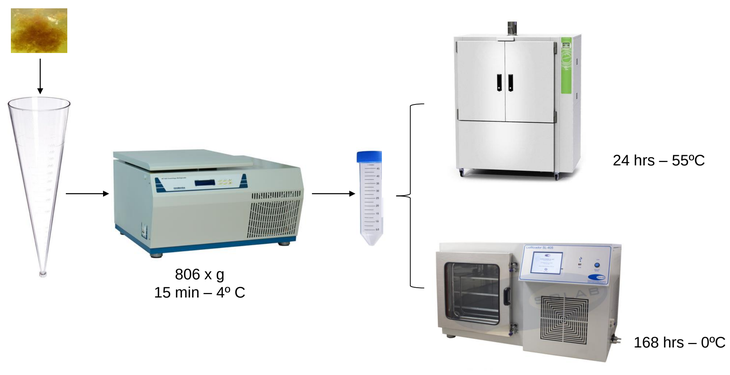
Figure 1: Biofloc system

- **Identification of microorganisms groups**



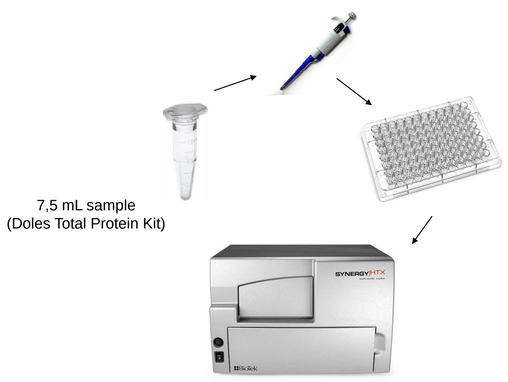
Hobbie et al. (1977); Utermohl (1958)

- **Obtaining and processing bioflocs**



- **Proximal composition analysis**

PROTEIN



Biuret method (Amado et al., 2009)

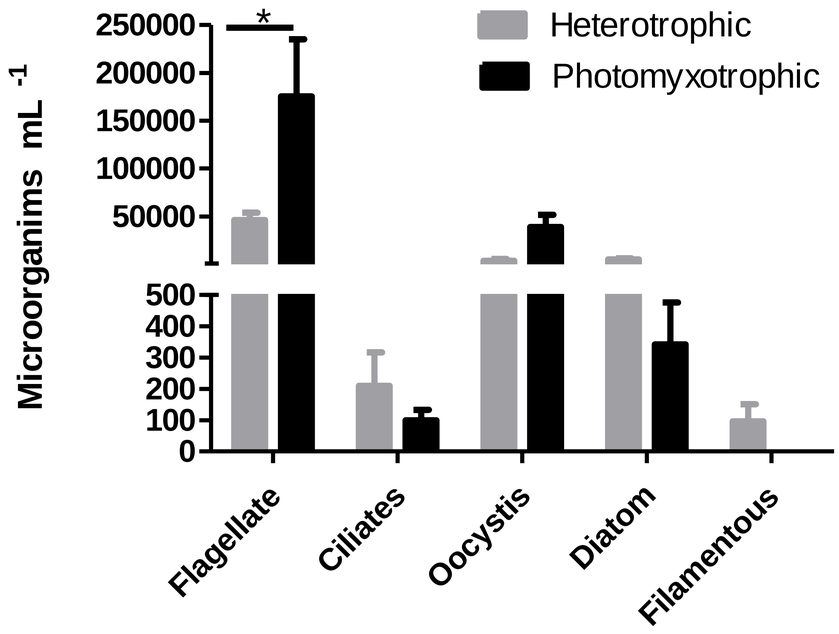
LIPIDS

Bligh-Dyer method (1959)

RESULTS AND DISCUSSION

Figure 1 shows the concentrations of microorganisms groups present in the photomyxotrophic and heterotrophic biofloc samples. For the microbial communities there were significant differences ($p<0.05$), where the flagellates (1.75×10^5 ml) were higher in the photomixotrophic than in the heterotrophic system.

Figure 1: Mean values (± SD) of groups of microorganisms in photomyxotrophic and heterotrophic bioflocs



Tables 1 and 2 show the levels of total proteins and lipids in the biofloc samples as a function of the drying method. There were significant differences for total proteins between the Photomyxotrophic biofloc and Heterotrophic biofloc samples ($p<0.05$), with the highest values observed in the lyophilized BH (12.72 mg/mL), however there was no difference ($p>0.05$) of lipids in the samples.

Table 1: Mean values and standard deviation of protein levels of bioflc samples as a function of the drying method

Tratament	BIOFLOCS	
	Heterotrophic	Photomyxotrophic
Wet	6.75 ± 1.12[a]	3.66 ± 0.19[b]
Dried	8.40 ± 2.11[a]	2.76 ± 0.99[b]
Lyophilized	12.72 ± 0.65[a]	5.76 ± 1.89[b]

Table 2: Mean values and standard deviation of lipids levels of bioflc samples as a function of the drying method

Tratament	BIOFLOCS	
	Heterotrophic	Photomyxotrophic
Wet	3.20 ± 0.02[a]	3.20 ± 0.01[a]
Dried	3.22 ± 0.01[a]	3.21 ± 0.01[a]
Lyophilized	3.22 ± 0.01[a]	3.22 ± 0.02[a]

CONCLUSION

Thus, the predominance of microorganisms influences the type of bioflocs and proximal composition in terms of protein content. The freeze-drying process ensured a higher content of total proteins in the heterotrophic and photomyxotrophic bioflocs.

ACKNOWLEDGMENT

CNPq CAPES

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