EFFECT OF MODIFIED ATMOSPHERE PACKAGING IN COMBINATION WITH A CO2 EMITTER ON THE SENSORY CHARACTERISTICS OF RED TILAPIA (OREOCHROMIS SP.) FILLETS PRODUCED IN THE MULTITROPHIC SYSTEM IN BIOFLOC (BFT)

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RESUMO

In the biofloc cultivation system, there is an accumulation of organic solids that can affect the quality of the water. The inclusion of red tilapia (*Oreochromis* sp.) becomes an option to convert this problem due to its feeding habit, also reducing the amount of feed to be offered. Therefore, it is necessary to assess the muscle quality of this animal. One way to extend this is through the use of modified atmosphere packaging and a CO2 emitter that can control the gas emission rate inside the packaging. The study evaluated fillets of red tilapia (*Oreochromis* sp.) packaged in modified atmosphere with the inclusion of a CO2 emitter to extend their shelf life. Specimens of red tilapia were obtained from multitrophic cultivation in biofloc at the Marine Aquaculture Station/FURG. The animals were harvested, killed by immersion in ice cold water (hypothermia), and taken to the Food Technology Laboratory in which they have been undergone washed, gutted, filleted, and packaged in modified atmosphere using a packaging machine. The samples were subjected to three treatments: (A) Control, (B) 100% CO2, and (C) 100% CO2 and CO2 emitter. Emitters were prepared by adding 0.304 g of NaHCO3 and 0.237 g of citric acid to a liquid absorbent pad. The packages were stored under refrigeration (5º C) and evaluated at times 0, 3, 8, 14, 21, and 30 days for sensory characteristics. Texture analysis of Red tilapia fillets was carried out using a texture analyzer. Samples were removed in form of parallelepipeds of 2 cm3, following the orientation of muscle fibers, and submitted to a cutting/shearing test using Warner-Bratzler shear force (kgf). Fillet color was measured with a Tristimulous colorimeter method with circular measurement area of 8 mm. The L*, a*, and b* values were measured in three distinct positions of the fillet. There was a significant difference ($p<0.05$) between treatments about texture, where on the 21st day, treatment C had the highest cutting force value (14.06±4.45 N). Regarding color, the most expressive value ($p<0.05$) of luminosity was observed in treatment B (52.31±2.20), as well as the lowest value of chroma a* in that same treatment (2.56±1 .49). There was no difference between treatments ($p>0.05$) for chroma b* at the end of 30 days. It is concluded that considering the sensorial characteristics, the treatment with 100% CO2 and CO2 emitter maintained the quality of the fillets until the 21st day of storage.

PALAVRAS-CHAVE: Biofloc technology, Muscle quality, Shelf life

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