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Effect of pond aeration on growth performance of African Catfish (*Clarias gariepinus*) cultured in treated wastewater in Kumasi, Ghana

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This study was undertaken to assess effect of aeration on growth performance of African catfish (*Clarias gariepinus*) cultured in wastewater stabilization pond (WSP) receiving residential wastewater from Chirapatre Estate in Kumasi, Ghana. Fingerlings obtained from local commercial farm at about 5g were cultured in concrete tanks to average weight of 40g in 8 weeks. The cultured fingerlings were transferred into two separate maturation ponds (MP) of WSP, each having surface area of 220m^2 and stocked at 4fish/m^2. Solar powered aerator (Leafy, Htsolar, China) was used to aerate each ponds for 3hours (04:00-07:00 GMT) every day for 12weeks culture period. The fish were made to depend on natural food sources in the pond without supplementary feeding. The Data on water quality was analyzed using standard methods (APHA, 2001) and statistically analyzed using Graphpad prism 5. Fish cultured in non-aerated wastewater ponds (NWFP) under similar condition as in aerated wastewater-fed pond (AWFP) served as control. The physico-chemical parameters of AWFP were 25.5±0.1mgl^{-1}, 4.7±1.2 mgl^{-1}, 100.0±10.0mgl^{-1} and 40.0±2.5mgl^{-1} for water temperature, dissolved oxygen (DO), BOD_5, and COD respectfully and these were not significantly different from NWFP (Table 1). These water parameters fell within acceptable limits of Ghana EPA and US EPA except for DO in both treatments. Fish from AWFP performed marginally better than those in the NWFP in terms of weight gained and specific growth rate, though statistically they were not different (Table 2). In conclusion, aeration might have caused the better the growth performance of the catfish in the treated wastewater.

Biography

Mark Yeboah-Agyepong is the founder and centre director of TriMark Aquaculture Centre (TAC). TAC is a private business entity whose operations are incorporated into the laws of Ghana to reuse wastewater for aquaculture. Presently, he is a PhD candidate at Department of Fisheries and Watershed Management of Kwame Nkrumah University of Science and Technology, Kumasi-Ghana, investigating into nutrient recovery from wastewater for commercial fish production in Ghana. He graduated with MPhil Parasitology (2014), and BSc Natural Resources Management (2010) from same university. He began conducting feasibility studies on reuse of wastewater for fish production since 2010 with institutions such as Waste Enterprisers Limited, US and International Water Management Institute, Ghana.

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