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The growth performance of African catfish *Clarias gariepinus* and beans plant cultivated using a locally constructed recirculatory aquaponics tank in Nigeria

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A recirculatory media filled aquaponics tank was constructed using local raw materials obtained from Lagos market, Nigeria. Twenty-five African catfish *Clarias gariepinus* each were reared in the fish unit of the aquaponics tank and a traditional flow through tank that served as a control for a period of 10 weeks. Five (5) days old beans plants were transplanted from nylon bags to the plant trough of the aquaponics system and also on the field (control) and grown for 10 weeks with the fish. Result shows that there was significant difference (P>0.05) in the length, weight and specific growth rate (SGR) of African catfish *Clarias gariepinus* reared in both media. There was no significance difference (P<0.05) in the length of beans plant cultivated on the field (control) and in an aquaponic system during the fourth to tenth weeks of culture. However, the leaf width showed significance difference (P>0.05) between both media in week 2 and 3 and weeks 5 to 9 with the aquaponics bean plant having broader leaves than the field beans plant. Beans plants cultivated in the aquaponics system developed beans seed during the 8 to 10 weeks, whereas beans plants cultivated on the field produced no beans seed even at the week 10 of the experiment, this may be attributed to the nitrate level in the plant tank of the aquaponics system. Between the 9th and 10th week of the experiment, some leaves of the beans plant cultivated in the aquaponics system started developing yellowish spots and tiny holes, this was caused by nutrient imbalance as iron, calcium and potassium which is lacking in fish feed and waste was not supplemented to the beans plant in the aquaponics plant unit. Aquaponics technology is a hybrid food growing system with high potentials for tropical plants and fish species and can efficiently replace the traditional system of fish and soil crop production especially in the face of high demand for food, nutrient-depleted soil and insufficient agricultural land space especially in Nigeria.

Biography

Chukwu-Osazuwa Joy has completed her MSc from Fisheries Biology and Management program, Marine Science Department, University of Lagos, Nigeria. She is an Assistant Lecturer at the federal university oye Ekiti, Ekiti state, Nigeria. She has published a paper in *Journal of the Science of Agriculture, Food Technology and the Environment, Ebonyi State University*. Volume 12, ISSN: 1596 – 0056, October 2012. 1 – 8pp, titled "Evaluation of Pawpaw (*Carica papaya*) Seed for Controlling Reproduction in the Nile tilapia (*Oreochromis niloticus*)".

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