EuroSciCon

European Summit on

Aquaculture, Fisheries and Horticulture

September 20- 21, 2018
Lisbon, Portugal

Gergely Csakberenyi-Nagy et al., Journal of FisheriesSciences.com Volume:12
DOI: 10.21767/1307-234X-C1-002

INCREASING THE EFFICIENCY OF AQUAPONICS CROP PRODUCTION BY APPLYING QUAIL DUNG

Gergely Csakberenyi-Nagy[1], Tamas Toth[1], Gabor Turk[2], Tamas Mester[1] and Istvan Lazar[1]

[1]University of Debrecen, Hungary
[2]Fazekas Mihaly High School, Hungary

To make aquaponics systems ever more widespread, raising crop yields is an indispensable task. In the present study it is examined, how much the intrinsic integration of the quail dung into the aquaponics system modifies the development of plants, thereby increasing the efficiency of the flower and yield formation. In the study jalapeno chili, arugula and artichokes were coated. The plants in buckets were grown in three different ways. In the first parcel plants were grown in potting soil and irrigated with groundwater. In the second parcel plants were grown in potting soil and irrigated with fish tank effluent. In the third parcel to the potting soil quail dung was mixed in 2:1 ratio, the plants were irrigated with groundwater. Potting soil, groundwater and fish tank effluent were analyzed. Macro (Na, Al, Ca, Fe, K, Mg) and micro elements (Ba, Cd, Cr, Cu, Li, Mn, Ni, Pb, Sr, Zn), as well as the elements of the plant nutrient (NO_3-, NO_2-, NH_4+, $(PO_4)^{3-}$) were measured. The results of the soil measurements in the vegetation period show that the mixture of quail dung resulted higher concentration of Ba, Zn, Cr and Al, Fe, K, Mg, Mn than the other two cultivation forms. The samples with a mixture of quail dung contained nearly 50% less Na than the fish tank effluent irrigated samples. P, Sr Cu concentrations did not show significant differences in the three cultivation forms. Samples without fish tank effluent irrigation or quail dung mixing contained significantly less amounts of trace elements except NO3- and P. The Ni, Cd and Pb did not exceed the toxic level in any of the cultivation forms. Based on the results, it can be stated that the quail dung contributes greatly to the trace supply, so it can be successfully integrated into the aquaponics systems.

Biography

Gergely Csakberenyi-Nagy, CEO of Renewable Energy Park Research Center in Debrecen, Hungary, and the Department Head of Renewable Energy Department at the University of Debrecen. His research topics are the Solar Energy, Heat Pump Systems, Algae Systems and Aquaponic Systems.

csakberenyi@hotmail.com
info@megujuloenergiapark.hu