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Sustainable Aquaculture for a Secure Future

**Title**: Growth performance of spinach (*Spinacia oleracea*) on diets supplemented with iron-amino acid complex in an aquaponic system in Kenya

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**Abstract:** Aquaponic is an environmental-friendly production system involving reuse of waste and nutrients in production of fish and vegetables. Currently the system experiences unbalance in pH and nutrients deficiency in plants. This study investigated the effect of iron amino acid chelate supplement in fish feeds on growth performance of spinach (*Spinacia oleracea*) in aquaponic system. The experimental research was conducted at the University of Eldoret from August-December 2016. A complete randomized design was used in triplicate treatments. The supplementation quantity in fish diets constituted 30 Fe $kg^{-1}$, 20 Fe $kg^{-1}$ 10 Fe $kg^{-1}$ and 0 Fe $kg^{-1}$ of iron amino acid chelate respectively. At 30 Fe $kg^{-1}$ treatments spinach indicated a significant growth at ($p < 0.05$) than other treatments with final mean height (52.44 ± 0.798cm) and 19.33 leaves. The least growth of spinach was at 0 Fe $kg^{-1}$ treatments with final mean (25.36 ± 0.72 cm, 9.704) height and leaves respectively. 30 Fe $kg^{-1}$ exhibited highest nutrients and improved water quality as compared to other treatments. The results revealed that 30 Fe $kg^{-1}$ iron amino acid chelate supplementation had significant nutritional attributes as feedstuff in aquaponic system for spinach growth than other dietary treatment tested.

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