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## **The effect of some growth factors of Common carp (*Cyprinus carpio*, Linnaeus, 1758) fed with different sources of zinc and iron (Nano-particles)**

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### **Abstract**

Success in all fish farming systems requires proper nutrition to grow suitably, maintain health and increase resistance to inappropriate environmental factors such as stress and disease. Therefore, vitamin and mineral supplements in dietary foods are essential for improving the growth and health of fish. In this research, some growth factors of common carp (*Cyprinus carpio*) fed with various sources of iron and zinc (nanoparticles) have been investigated. For this purpose, 420 specimens (with an initial average weight of  $7.4 \pm 45$  g) were prepared. Then, the fish were randomly divided into seven groups. The first group was considered as control and other groups received 10, 50 and 100  $\mu\text{g}$  of iron and zinc nanoparticles (per gram of diet) for 65 days, respectively. The biometry results showed that the fish fed with nanoparticles had better growth indicators than fish of the control group. In addition, improvement of growth indicators in fish fed with zinc was concentration-dependent, so that the greatest increase in growth factors was related to the zinc concentration (100  $\mu\text{g}$  per g). Confrarily, this result was not observed in the fish fed with iron. The results showed that the adding of iron and zinc nanoparticles in the diet can have an important role in increasing and improvement of growth factors.

**Keywords:** Common carp, Diet, Growth factors, Iron nanoparticles

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