University of Zabol
Graduate school
Faculty of Natural Resources
Department of Fisheries

The Thesis Submitted for the Degree of Master of Science
(In the field of Fish Product Processing)

Influence of powder garlic (*Allium sativum*) in reducing mercuric chloride bioaccumulation in *Cyprinus carpio*

Supervisors:
Dr. Ebrahim Alizadeh Doughikolaee
Dr. Mohsen Shahriari Moghadam

Advisor:
Dr. Ehsan Ahmadifar

By:
Hossein Bakhtiari

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Abstract

The present study was investigated the effect of diet containing garlic powder on mercury chloride absorption in common carp fillet. Fishes were fed with dietes containing 2% garlic powder, 10 mg/kg mercury chloride and 2% garlic powder + 10 mg/kg mercury chloride for 56 days. At the end of the breeding period, growth indicators (weight gain, food conversion ratio, specific growth rate) and mercury accumulation in fish fillets were measured. Then, the fishes were filleted and stored in the refrigerator (4°C). Chemical (TBA) and microbial (TVC, PTC) parameters were measured on days of 0, 3, 6 and 9. The results of growth indicators showed that weight gain and the specific growth rate in fish fed with mercury chloride decreased, but the food conversion ratio increased ($P<0.05$). The highest and lowest level of mercury accumulation were observed in fish fillets fed with mercury chloride (506.12 ± 19.67 ng/g) and 2% garlic powder (255.30 ± 26.13 ng/g) respectively. The diet containing garlic powder and mercury chloride were significant effect ($P<0.05$) in reducing mercury accumulation in fish fillet compared to the diet containing mercury chloride. Feeding fish with dietes was not significant effect on chemical and microbial parameters during storage in refrigerator, but these parameters increased with increasing the storage time. The results of the present research show that the use of garlic powder in diet is an efficient method to reduce mercury accumulation in common carp fillet.

Keywords: Garlic, Mercury chloride, Common carp, Muscle tissue