EFFECT OF ADDITION OF GLYCYRRHIZA GLABRA ROOTS IN FEEDING OF CYPRINUS CARPIO

Ban Salman Kadhim AL-Mafragi
Departments of Animal production, College of Agriculture, Sumer university, Iraq.

Abstract
Fish experiment is conducted for estimation of the efficiency of addition of Glycyrrhiza glabra to the diets of Cyprinus carpio fishes and for this (3) three diets made the first represented by control without any add dative, second with G. glabra at concentration (2gm/kg) and third with (6gm/kg) for (60) sixty days in aquarium provided with oxygen pump, the results showed significant differences to T2 and T3 compared with control group in total weight and daily weight respectively (45±2.8, 46 ±2.2) (0.766±0.10, 0.749±0.09) and there wasn’t any significant differences between to diets T2, T3 also incase of RGR there was significant differences to both T2, T3 compared with control one T1 (10.17±0.66) (10.13 ± 0.52) (8.22 ± 0.57) and SGR (0.04 ± 0.1608, 0.03 ± 0.1615) (0.02 ± 1316) and there was any sig. differences among control and others in amount of consumed food or food conversion ratio (0.05± 1.354) (0.07±1.313, 0.05±1.271) respectively-concluded addition of 2gm/kg of G. glabra to diets of Cyprinus carpio fishes for improvement of growth and decrease the cost of diets used.

Key words: Addition, Glycyrrhiza glabra, Cyprinus carpio L., Feeding.

Introduction
Glycyrrhiza glabra plant consider as one of more important medical seeds distributed in the word, its permanent vegetative plant return to the Leguminous family (Chakaravarty, 1976), its growth along year as wild plant specially in the southern and western of Europe and middle of AL-sham, Syria, Iraq and Egypt (FAO, 1988). It is consist of high percentage of starches, carbohydrates, adhesives, salts eats. and its taste (sweetness, bitter) (AL-Ajeeli, 2005) it’s used in the eastern and western and the researchers found plates with old writings extended to 3000 A.C also, some plants go back to the Ashurian people at 2500A.C. (Lafta, 2009). This plant used in many medical prescriptions (Muthana, 2015) because it has several advantages as thirst inhibitor if mixed with honey, treatment of Gastritis and improved of wet and dry cough (Tyler et al., 1988), expectorant and has importance as analgesic, skin itching, because of its ability to stimulate of adrenal gland which necessary for cortisol excretion in the blood (Quaschning et al., 2001), toothache, liver functions and consider as one of important plants which make washing of internal organs, decrease the susceptibility to cancer strong stimulating Factor for immunity, Appetizer and improving of digestion. Root is considered as active part of this plant due to its active ingredient Glycerose which form 19% of G. glabra alcoholic extraction and for this part taste of sweetness for extraction and this sweetness exceed 50 times more than sugar cane (Hegazi, 2004). Food rational value of this plant resulted from the ability of its roots to obtained food stuff from deep layer of soil about 3-4 m depth not obtained by other plants (Mussa et al., 2003) G glabra roots consider as important traditional source of drugs and medicals and additives, therefore many researchers found that proved addition of G. glabra to diets of livestock animals as poultry which gave good results in improvement of growth characteristics (weight, sexual efficacy) (AL-Duraij et al., 2005) while addition of this plant to the diets of fishes Tilapia lead to significant improvement in all growth parameters and food conversion ratio (El-msallamy et al., 2015), also, addition of G. glabra residues to diets of lambs lead to improvement of food conversion and increasing of weights.

Aim of study
Increasing of food conversion ratio of diets because of its important factor in decreasing of economic cost by decreasing of feeding waste.

*Author for correspondence: E-mail: dr.ali.ali52@gmail.com
Materials and Methods

(40) forty of small Cyprinus carpio fishes with different weights range of (452± 2) to AL-Refaie district University of Sumer-Agriculture college Laboratory, then cultured at (10) ten fishes in each glass box with distention’s (30×40×70) cm, after treatment with salty solution at 5% concentration for 30-40 seconds (Herwing et al., 1979) for disinfect of fishes from external parasites after that taken of weights of fishes for 15 days interval and put of fishes diet.

Results

The results explained in general significant increasing in case of treatment with Glycyrrhiza glabra as following:

1. Daily Weight Gain (D.W.G.):
   The results showed increasing of weight daily more than treatments which had G. glabra (T2, T3) on the control group (T1) as in fig. 1.

2. Total Weight Gain (T.W.G.):
   Results showed two treated groups with G. glabra T2, T3 (46 ±2.2, 47 ± 2.8) respectively compared to control group T1 (37 ±1.5) as showed in fig. 2.

3. The specific and relative growth rate:
   The results in the control group significantly decreased compared with T2, T3 but did not record any significant differences between tow treated groups T2, T3 as in fig. 3.

4. Food conversion ratio (F.C.R.) and food conversion efficiency (F.C.E.):
   The results of food conversion ratio showed there was no significant differences between all groups T1, T2, T3 as in fig. 4, while the food conversion efficiency showed significant decreasing between T1 and T2 and there was not any significant differences between T3 and each of T1 and T2 as explained in fig. 4.

5. Protein Productive Value (P.P.V.):
   The results showed there was any significant differences in protein amount consumpted in diet for growth in each of T2 and T3 while there was significant decreasing between control group T1 and other T2, T3 as in fig. 5.

Discussion

The previously explained results showed that the parameters of growth to the diets included G. glabra
showed significant increasing in recorded parameters compared with control diet (T1) and this increasing may be due to effect of G. glabra on the improvement work of digestive system and its therapeutic effects to many problems as increased appetite to diets and increase the efficacy of its benefit and these results agreed with Al-Duraji et al., (2003) and Abdel Hakeem, (2009) who observed that the addition of G. glabra to diets of poultry improved the growth improved the growth parameters and productivity status to these poultry and agreed with El-msallamy et al., (2015) when added of this plant to the diets of fishes Tilapia lead to significant improvement in all growth parameters and food conversion ratio and agreed with Lafta, (2009) in typical consumption of the constituents of diet and elevate growth level for these industries. Many studies proved that the addition of extraction of G. glabra to drinking water of poultry with different concentrations had positive effect in production of birds (broiler) be p<0.01 in increasing of weight rates, food conversion rate, the range of ended weight, production index, significant decreasing in food consumption and mortality rate affected poultry, so that concluded that the G. glabra as active ingredient in improvement of feeding program and increase the range of Cyprinus carpio weights.

Conclusions

Licorice is one of the substances that works to initialization of the digestive system, thus increasing of benefit from food intake, addition of 2gm/kg of G. glabra to diets of Cyprinus carpio fishes for improvement of growth parameters, decrease the cost of diets used 2 gm /kg of G. glabra Because of the improved food conversion rate (FCR) of these diets and the optimal utilization of their ingredients.

References

Abdel Hakeem Saad Abdel Hakeem, Abdel Maged, Himat Abdel-Aal (2009). Addition of Glycyrrhiza glabra to poultry diets through different system during the Summer season. poultry Nutrition Research Department, Animal production Research center -Dokki - Egypt.


