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EFFECT OF DIETARY GREEN TEA SUPPLEMENTATION ON PERFORMANCE OF FAYOUMI AND GOLDEN MONTAZAH LAYERS

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SUMMARY AND CONCLUSIONS

The experimental work of the present study was carried out at El-Takamoly Poultry Project, Fayoum, Egypt, and the chemical analyses were performed in the laboratories of the Poultry Production Department, Faculty of Agriculture, Fayoum University, according to the procedures outlined by **A. O. A. C. (1990).**

The aim of this study was to evaluate green tea (GT) as feed additive in laying diets of two different strains (Fayoumi and Golden Montazah).

Results obtained could be summarized as follow:

1-The results showed that either dietary GT levels or strain significantly improved egg number, egg production, egg weight and egg mass. The improvement in EN; EP %; EW and EM of hens fed GT containing diets during experimental period may be due to the antimicrobial effect, antioxidant effect and improving nutrient utilization.

2- Regarding FI, the results indicated that as the dietary GT level was increased from 0.0 or 0.2 to 0.4 %, the FI did not influenced, while F strain consumed ($P < 0.01$) less feed than GM strain. With respect to FC; CPC and CER, dietary GT levels (0.2 or 0.4 %) have highly significant effect on that values. It seemed that the diet containing 0.4 % GT with GM strain was adequate for better FC; CPC and CER. In this regard, the improvements in FC; CPC and CER due to feeding GT could be attributed to their antimicrobial, antioxidant, potential beneficial effects of GT on gastrointestinal tract micro-organisms and improving nutrient utilization also may be due to high production rate of hens fed GT containing diets.

3- Regarding body weight change (BWC), the results explained that the BWC of hens was not influenced significantly by GT levels, strain and interaction between GT levels and strain.

4- Mortality rate in this study was within the normal range, the non MR % (0.000 %) of (GM fed 0.2 % GT) obtained in the present study may be related to the proper management practices during the entire experimental period. Results revealed that mortality was found to be not related to dietary treatments.

5- Feeding diet containing 0.2 or 0.4 % GT significantly increased egg weight, albumen weight % and decreased yolk weight %, shell weight % while, shell thickness, shape index % and yolk index % and HU were not significantly

affected as compared with the control diet. Also, Yolk color was improved significantly by GT diets; strain had no significant effect, and diets 1 (F fed 0.0 % GT) or 4 (GM fed 0.0 % GT) had the lowest value. The improvement in yolk color of GT supplemented group may be due to pigment content of green tea. Significant differences were observed for egg weight, shell thickness, albumin %, yolk %, shell %, yolk color as affected by interaction between GT levels and strain. Concerning the strain effect, the eggs from GM hens were heavier than those from F hens, with more albumen % and HU but less yolk % and shell %.

6- Regarding to the values of chemical composition of eggs, strain did not significantly influenced chemical composition of eggs, except, ash %, where F hens had higher ash %. Also, both of adding GT to laying diets and interaction between GT levels and strain significantly influenced chemical composition of eggs, where hens fed diet containing GT had higher egg moisture and protein %, however, lower fat % with no significant effect on NFE %. Green tea (GT) levels, strain and interaction between GT and strain had highly significant effect on yolk cholesterol. Concerning strain effect, F hens had higher yolk cholesterol as compared to GM hens.

7- Results showed that GT had significant improvement on fertility or hatchability of fertile eggs. Also, (GM fed 0.4 % GT) seemed to be adequate for optimum fertility and hatchability percentage. Strain significantly influenced fertility and hatchability %, where F hens had higher fertility and hatchability %, this may be due to that this strain is claimed to have a wide range of adaptability and sustained productivity under semi-tropical and village conditions in many developing countries.

8- The hens fed diets supplemented with 0.2 % and 0.4 % green tea exhibited significantly ($P \leq 0.01$) reduced *salmonella* and *E.coli* when compared to the untreated hens. In general, the higher concentration of green tea supplementation showed more protective effect and reduced *salmonella* and *E.coli*.

9- Feeding experimental diets inclusive GT at 0.2 or 0.4 % improved the immune status for NDV and Influenza disease virus values as compared with control. While, the lowest one was recorded with control group. On the other hand, strain did not show any significant effect on the immune response against NDV and Influenza disease viruses.

10- Different dietary GT levels, strain or interaction did not significantly affect blood plasma albumin, globulin, total protein, calcium and platelet count. However, birds fed GT had significantly less AST, TG, cholesterol, LDL, RBCs, WBCs and hemoglobin as compared with the control. While, HDL value increased significantly due to dietary GT levels. Also, F hens had significantly higher values of AST, ALT, RBCs, hemoglobin and MCV % compared to those of GM hens. Also, there were significant interactions between GT levels and strain on AST, TG, cholesterol, HDL, LDL, RBCs, WBCs, hemoglobin and MCV %. Indicating that F hens fed the control diet had the highest values except of HDL. While, F or GM hens fed 0.4 % GT had a higher value of HDL.

The results of this study demonstrated that green tea supplementation in layer diets could have a positive effect on egg performance, egg quality and chemical composition of eggs laid, fertility and hatchability and immune responses Also, from the economical point of view, it can be noticed that F hens or GM ones fed layer diets supplemented with 0.4 % GT were the best.