بسم الله الرحمن الرحيم

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EFFECT OF SOME DIETARY ADDITIVES ON PERFORMANCE OF BROILERS UNDER HOT WEATHER CONDITIONS

By

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B.Sc. Agric. Sci. (Soil Sciences), Fac. Agric., Cairo Univ., 2002
M.Sc. Agric. Sci. (Soil Sciences), Fac. Agric., Cairo Univ., 2016

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Approval Sheet

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ABSTRACT

Fatma Abd-Elsalam Abd-Elsalam Mohamed: Effect of Some Dietary Additives on Performance of Broilers under Hot Weather Conditions. Unpublished Ph.D. Dissertation, Department of Poultry Production, Faculty of Agriculture, Ain Shams University, 2022.

This study was carried out to evaluate the impact of ginger, peppermint powder to broiler chicks' diets either singularly or in combinations and vitamin C on performance in broiler chicks under conditions of heat.

A total of 320 d-old broiler chicks (Cobb-500) with an average body weight of 48.0±2g were distributed by weight to eight equal groups. The first group (T1) was fed on a basal diet. Ginger roots powder was added with was basal diet at 0.25% and 0.5% (T2 and T3 groups), peppermint leaves powder was added with basal diet at 0.25% (T4) and 0.5% (T5), both ginger and peppermint at levels of 0.125% (T6) and 0.25% (T7) groups, respectively, and 300 mg/kg diet vitamin C with basal diet (T8) group.

Results showed that live body weight, body weight gain were significantly affected among experimental groups compared to the control group. The highest live body weight and body weight gain were recorded in group supplemented T7, and lowest values were found in control group. Feed consumption and feed conversion ratio were significantly improved in all treatment groups compared with control group. Carcass traits were high significantly in the percentages of the body weight, liver, spleen, heart and lowest abdominal fat in all the treated groups. Different dietary supplementations were significantly increased in serum total protein, albumin, and globulin. As well A/G ratio. The highest level of total protein was noted in groups T2, T3 and T5 while the lowest value was reputed for control one. Serum tri-glycerides, cholesterols and low density lipo-proteins (LDL) levels were significantly decreased in

experimental groups compared to control group. HDL or LDL were significantly difference between all treatments under the condition of this study. The highest levels of HDL recoded by T2 but, the lowest level of LDL reported by T5.

Hemolysatic malondialdehyde was significantly decreased, while catalase activities were significantly increased in all experimental groups.

Amylase or protease significantly increased in chicks fed supplemented with different fed additives compared to chicks of control. Cecum total plate count, *E. coli*, and *fecal coli*, count was decreased significantly in all experimental groups compared with control group. Fatty acid profile of broiler chicken breast meat results showed that feeding broiler chickens on different types of fed additives were higher in unsaturated fatty acid compared with control group (T1).

The polyunsaturated fatty acids chicken meat fed on diets containing T8, T4, and T2 were higher content then other treatment. UFA/SFA ratio of broiler chicken fed on groups (T1, T4 and T7) were lower compared with those fed on T8, T2, T6, while the control group (T1) give the lowest value of UFA/SFA ratio. All treated groups showed an improved intestinal villi length and decreased crypt depth. Net return was increased by supplementing broilers diets compared with the control group (T1), the treatment (T7) recorded the highest net return among all the treatments compared to control group (T1).

It could be concluded that, dietary supplementation with dry leaves at 0.5% or a high mixture of ginger root powder and peppermint leaves powder (0.25%+0.25%) may be used for enhancing productive performance and preventing pathogenic bacterial infections of growing broiler reared under heat stress conditions**.**

Keywords: Natural Antioxidants, Vitamin C, Heat Stress, Performance, Antimicrobial Effect and Economic Efficiency.

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