

## EFFECT OF DIETARY NATURAL FEED ADDITIVES TO MINIMIZE NEGATIVE ROLE OF PEROXIDE HYDROGEN IN BROILER

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**ABSTRACT :** This study was conducted in poultry farm belong to Animal Resources and Fisheries Research center, Ministry of Sciences and Technology, from 21/11/2018 to 2/1/2019 for 42 day. The aim of study was to find out effect of Green tea and Organic Selenium, as antioxidant and their effects on immunity response and oxidation parameters of broiler. One Hundred – Ninety Eight of males broiler (Ross 308) chicks with average initial body weight of 42 gm./ chick were used in this study. Chicks were randomly assigned to six treatments, each treatment was sub-divided into three replicates (11 chicks per replicate). The treatments were as follows: T<sub>1</sub> basal diet free from any addition (Negative control), T<sub>2</sub> included addition of 0.5% H<sub>2</sub>O<sub>2</sub> to drinking water at the age 10 days (Positive control), T<sub>3</sub> basal diet + 1.5% green tea to feed, T<sub>4</sub> basal diet + 1 mg/kg Organic Selenium to feed, T<sub>5</sub> basal diet supplemented with 1.5% green tea + H<sub>2</sub>O<sub>2</sub> (0.50%), T<sub>6</sub> basal diet supplemented with 1 mg/kg Organic Selenium + H<sub>2</sub>O<sub>2</sub> (0.50%). The results revealed significant differences between treatments in (HI) titer against Newcastle and Gumboro diseases. However, T<sub>2</sub> (Negative control) recorded lowest values with significant difference with other treatments. Also, no significant differences were observed by adding green tea and organic selenium on relative weights of Bursa, while relative weights of spleen and thymus recorded significant differences between treatments and T<sub>5</sub> showed significant increase as compared with other treatments, while Highly significant (P<0.01) observed for T<sub>6</sub> in relative weight of thymus and recorded 0.370. Results included significant differences between treatments in Creatinine and Uric acid. T<sub>2</sub> showed a significant increase in Malondialdehyde (MDA), Peroxide Value (P.V) and Free Fatty Acids (FFA) in liver tissue as compared with other treatments. On other hand, feed additives treatments showed improvement in liver tissues content of Glutathione peroxidase and catalase as compared with T<sub>2</sub> (Negative control). As well as, T<sub>1</sub> (positive control) has highly significant (P<0.01) in Glutathione peroxidase and catalase enzymes.

**Key words :** Green tea, organic selenium, immunity, oxidation status, broiler.

### INTRODUCTION

Nutrition is a very important link in chain of operations that must be conducted in order to reach the optimal production process, especially poultry production eggs or meat (Zuidhof *et al*, 2015). The adoption of modern strategies in the poultry industry tends to increase the efficiency of food conversion, which is an inevitable option on a commercial scale, but it causes decrease on health status of bird (Das *et al*, 2011). Recent research has focused on enhancing the immune ability of broiler meat, as it is important to increase immune capacity (Khan *et al*, 2016). High intensity of poultry production requires fast growing strains and rations of high energy density, so poultry rations are often supplemented with oils. Feeding diets with added fat to poultry can confer several economic advantages by providing increased energy

levels at a lower cost and is becoming common practice (Mousa *et al*, 2018). Fats added to the diet for fast growing broilers are generally rich in polyunsaturated fatty acid (PUFA) (Al-Rawi *et al*, 2019). An increase in the degree of un saturation of carcass fat of broiler, due to dietary unsaturated fat supplements decreases the carcass lipid stability. Lipid oxidation is a major cause of quality deterioration in meat and meat products and can give rise to rancidity and formation of undesirable odors and flavors, which affect the functional, sensory, and nutritive value of the meat products (Amaral *et al*, 2018). Under such condition, antioxidant supplementation even is effective in stabilizing these tissues from oxidation reactions. The high stocking densities of broiler are highly susceptible to infectious agents either as a result of reduced immune potential (Qaid *et al*, 2016) or as a result of deteriorating environmental hygiene (Umar *et al*, 2017).