EFFECT OF USING ENVIRONMENTALLY SAFE YEASTS AS RATION ADDITIVES AND NATURAL PRESERVATIVES ON BROILERS

Submitted By

Mahmoud Farouk Abdel-Aziz Mohamed

B.Sc. of Agricultural Sciences, Faculty of Agriculture, Ain Shams University, 1993

M. Sc. in Environmental Sciences, Institute of Environmental Studies & Research, Ain Shams University, 2010

A Thesis Submitted in Partial Fulfillment
Of
The Requirement for the Doctor of Philosophy Degree
In
Environmental Sciences

Department of Environmental Agricultural Sciences
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This thesis Towards a Doctor of Philosophy Degree in Environmental Science Has been Approved by:

Name Signature

1-Prof. Dr. Nabil Mohamed Hassan

Prof. of Poultry Nutrition Faculty of Agriculture Ain Shams University

2-Dr. Mohamed Abdel–Hamid El-Shafei

Managing Director of Poultry Companies (Dallah Group)
Vice President of the General Union of Poultry Producers

3-Prof. Dr. Alaa Aldin Abdel-Salam Hemid

Prof. of Poultry Nutrition Faculty of AgricultureAin Shams University

4-Prof. Dr. Mohamed Sayed Mosad Masoud

Prof. of Human Nutrition Deputy of Regional Center for Food and Feed for Central Affairs Executive Manager of the Food Security Information Center Agricultural Research Center

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Under The Supervision of:

1-Prof. Dr. Alaa Aldin Abdel-Salam Hamid
Prof. of Poultry Nutrition
Faculty of Agriculture
Ain Shams University

2- Prof. Dr. Mohamed Sayed Mosad Mosoud
Head Researcher of Regional Center for Food and Feed
Agricultural Research Center

2018

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Abstract

The present study was conducted to evaluate the potential beneficial impact of dietary supplemented with *live Saccharomyces cerevisiae probiotic (LY), yeast cell wall prebiotic (YCW)* and *their combination* on growth performance, immunological status, carcass traits, intestinal microbiota, and histological changes. Three hundred unsexed one day old Ross 308 broiler chicks were randomly distributed into 9 dietary treatments plus the control group. Each group (30 birds/treatment) was divided into three replicates of 10 chicks each. Chicks were fed 10 dietary treatments; Control diet without addition, (T1) three different levels of LY (1, 2 and 3 kg/ton feed) respectively, (T2) three different levels of YCW (0.5, 0,75 and 1 kg/ton feed) respectively and (T3) three natural combination levels of LY (1kg/ton feed) + YCW (0.5 kg/ton feed), LY (1kg/ton feed) + YCW (0.75 kg/ton feed) and LY (1kg/ton feed) + YCW (1 kg/ton feed) respectively.

Results showed that LBW and BWG, feed intake and feed conversion ratio of the broilers were significantly ($P<0.05$) increased by the addition of *Saccharomyces cerevisiae* with or without YCW. The best results were recorded in groups fed dietary supplemented with (3 kg/ton LY only), (0.75 or 1 kg/ton YCW respectively) and combination of (1 kg/ton live *Saccharomyces cerevisiae* + 0.5 kg/ton yeast cell wall). The results suggest that natural symbiotic supplementation of LY with YCW to diets for broilers improved health by increased the absorption area in the gut and balanced microbial population in the gastrointestinal tract which has played an important role in the health and performance of the broiler's and might be enhanced counts of *lactic acid bacteria* (LAB) and yeasts in the gut. In addition, the natural safe symbiotic supplementation to diets have effective reduces on intestinal pathogenic bacteria numbers.

Key words: Saccharomyces cerevisiae, yeast cell wall, symbiotic, growth performance, carcass, intestinal microbiota, broiler.

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