

**IMPACT OF ADDING CITRIC ACID, SYMBIOTIC
AND ORGANIC ZINC AS ANTI-GLYCATION
AGENTS ON PROTEIN UTILIZATION IN
BROILER DIETS**

By

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ABSTRACT

The present study was conducted to determine the best level of crude protein and the best anti-glycation agent by feed additives to achieve optimum broiler performance and minimize the production cost. The experimental diets included the protein levels of either 100% (optimal level) or 90% (low level) of the requirements and feed additives including citric acid (2%), symbiotic (0.1%), and zinc-methionine (0.05%). The experimental diets were formulated to meet the nutritional recommendations according to Cobb 500 guide except for CP in low protein diets. Birds were distributed into 8 treatments of 40 birds each in 4 replicates (10 birds/replicate). Results showed that diets contain optimal protein level was significantly ($P < 0.05$) improved live body weight and body weight gain, feed conversion ratio, carcass %, abdominal fat%, intestinal morphology, glycation markers, and economic efficiency. Citric acid and symbiotic addition resulted in better body weight gain and feed conversion ratio than those fed either free diets or zinc-methionine diets. All tested feed additives reduced abdominal fat%, villus height, cecal microbial count, albumin, glycated hemoglobin A_{1c}, fructosamine, glycated albumin, and N-carboxymethyl-lysine. Broiler chickens fed a low protein diet supplemented with citric acid and symbiotic addition had the same performance as the control group. It could be concluded that adding citric acid and symbiotic removed the adverse effects of low dietary protein on broiler performance.

Key words: Crude protein, anti-glycation, feed additives, broiler, performance.

CONTENTS

	Page
INTRODUCTION	1
REVIEW OF LITERATURE	3
1. Factors affecting protein utilization in poultry	3
2. Effect of dietary crude protein levels	7
a. Effect of dietary crude protein levels on poultry productive performance.....	7
(1) Body weight and body weight gain.....	7
(2) Feed intake.....	9
(3) Feed conversion ratio.....	10
b. Effect of dietary crude protein levels on carcass measurements and immune organs.....	11
c. Effect of dietary crude protein levels on gastrointestinal tract.....	12
d. Effect of dietary crude protein levels on blood parameters.....	13
e. Effect of dietary crude protein levels on glycation markers	14
f. Effect of dietary crude protein levels on economic profit.....	15
3. Effect of organic acids	16
a. Effect of organic acids on poultry productive performance.....	16
(1) Body weight and body weight gain.....	16
(2) Feed intake.....	17
(3) Feed conversion ratio.....	18
b. Effect of organic acids on carcass measurements and immune organs.....	19
c. Effect of organic acids on gastrointestinal tract.....	20
d. Effect of organic acids on blood parameters.....	22
e. Effect of organic acids on glycation markers.....	23

CONTENTS (continued)

f. Effect of organic acids on economic profit.....	23
4. Effect of microbial feed additives.....	24
a. Effect of microbial feed additives on poultry productive performance.....	24
(1) Body weight and body weight gain.....	25
(2) Feed intake.....	26
(3) Feed conversion ratio.....	27
b. Effect of microbial feed additives on carcass measurements and immune organs.....	27
c. Effect of microbial feed additives on gastrointestinal tract.....	29
d. Effect of microbial feed additives on blood parameters.....	31
e. Effect of microbial feed additives on glycation markers.....	32
f. Effect of microbial feed additives on economic profit.....	32
5. Effect of zinc.....	33
a. Effect of zinc on poultry productive performance.....	33
(1) Body weight and body weight gain.....	34
(2) Feed intake.....	35
(3) Feed conversion ratio.....	36
b. Effect of zinc on carcass measurements and immune organs.....	37
c. Effect of zinc on gastrointestinal tract.....	38
d. Effect of zinc on blood parameters.....	40
e. Effect of zinc on glycation markers.....	40
f. Effect of zinc on economic profit.....	41
MATERIALS AND METHODS.....	43
RESULTS AND DISCUSSION.....	52
1. Productive performance.....	52
2. Carcass characteristics.....	67

CONTENTS (continued)

3. Intestinal morphology.....	77
4. Bacteriological analysis of caecal content.....	82
5. Blood parameters.....	86
6. Economic efficiency.....	98
SUMMARY.....	101
REFERENCES	106
ARABIC SUMMARY.....	

LIST OF TABLES

No.	Title	Page
1.	Experimental design	44
2.	Composition and calculated analysis of the experimental diets during starter period (1-14 day).....	46
3.	Composition and calculated analysis of the experimental diets during grower period (15-28 day) ...	47
4.	Composition and calculated analysis of the experimental diets during finisher period (29-42 day).....	48
5.	Main effect of dietary protein levels and feed additives, and their interactions on the body weight (BW, g) of broiler chicks at the end of the different experimental phases.....	53
6.	Main effect of dietary protein levels, feed additives, and their interactions on the body weight gain (BWG, g) of broiler chicks at the end of the different experimental phases.....	54
7.	Main effect of dietary protein levels, feed additives, and their interactions on the feed intake (FI, g) of broiler chicks at the end of the different experimental phases.....	59
8.	Main effect of dietary protein levels, feed additives, and their interactions on the feed conversion ratio (FCR, g:g) of broiler chicks at the end of the different experimental phases.....	63
9.	Main effect of dietary protein levels, feed additives, and their interactions on dressing %, giblet%, and relative weight of lymphoid organs (bursa and spleen) of broiler chicks.....	69

10.	Main effect of dietary protein levels, feed additives, and their interactions on meat composition and abdominal fat of broiler chicks.....	73
11.	Main effect of dietary protein levels, feed additives, and their interactions on intestinal morphology of broiler chicks	79
12.	Main effect of dietary protein levels, feed additives, and their interactions on caecal bacterial counts [\log^{-1} (cfu/g)] of broiler chicks.....	82
13.	Main effect of dietary protein levels, feed additives, and their interactions on glucose, plasma proteins and glycation markers of broiler chicks.....	93
14.	Main effect of dietary protein levels, feed additives, and their interactions on cholesterol and liver and kidney functions of broiler chicks.....	97
15.	Effect of the experimental diets on economic efficiency of broiler chicks.....	100