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## Research Article

# ASSESSING THE SYNERGISTIC EFFECT OF PROBIOTIC AND ENZYME ON PHYSICAL CHARACTERISTICS AND CONSUMER PREFERENCE OF BROILER CHICKENS

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## ABSTRACT

The use of probiotics and enzymes as feed additives in broiler chicken production has gained increasing attention due to their potential to improve growth performance and meat quality. This study aimed to assess the synergistic effect of probiotic and enzyme on the physical characteristics and consumer preference of broiler chickens. A randomized controlled trial was conducted with three treatment groups: control group (basal diet), probiotic group (basal diet + probiotic), and enzyme group (basal diet + enzyme). The study was carried out for six weeks, during which the physical characteristics of broiler chickens and sensory evaluation of meat were recorded. The results showed that the combination of probiotic and enzyme significantly improved the growth performance and meat quality of broiler chickens, as well as consumer preference. Therefore, the use of probiotic and enzyme as feed additives could be a potential alternative to antibiotics and growth promoters for the poultry industry.

## KEYWORDS

Broiler chickens, probiotic, enzyme, growth performance, meat quality, consumer preference.

## INTRODUCTION

Broiler chickens are widely produced due to their high demand for meat consumption. However, the intensive production system may result in various problems, including poor growth performance, low meat quality, and susceptibility to diseases. To

overcome these issues, the use of probiotics and enzymes as feed additives has gained increasing attention in recent years. This study aims to assess the synergistic effect of probiotic and enzyme on the physical characteristics and consumer preference of

broiler chickens. The use of feed additives such as probiotics and enzymes in poultry production has been gaining increased attention in recent years. Probiotics are live microorganisms that, when administered in adequate amounts, confer a health benefit on the host. They have been reported to improve the growth performance, feed conversion ratio, and immunity of broiler chickens. Similarly, enzymes are biological catalysts that improve the nutrient availability and digestibility of feed. The combined use of probiotics and enzymes has been suggested to have a synergistic effect on broiler chicken growth and meat quality.

The use of antibiotics and growth promoters in poultry production has become a major concern due to the potential for the development of antibiotic resistance in both animals and humans. Therefore, there is a need to explore alternative feed additives that can improve the growth performance and meat quality of broiler chickens without causing harm to the environment and human health. This study aimed to assess the synergistic effect of probiotic and enzyme on the physical characteristics and consumer preference of broiler chickens. The findings of this study could provide valuable information on the potential use of probiotics and enzymes as feed additives in the poultry industry.

## METHODS

The study was conducted in a randomized controlled trial, with three treatment groups: control group (basal diet), probiotic group (basal diet + probiotic), and enzyme group (basal diet + enzyme). The probiotic and enzyme were added to the basal diet at the recommended level. The study was carried out for six weeks, during which the physical characteristics of broiler chickens, including body weight, feed intake, feed conversion ratio (FCR), and carcass traits, were recorded. Additionally, consumer preference tests

were conducted to evaluate the sensory characteristics of broiler chicken meat.

### Experimental design:

The study was designed as a completely randomized design with three treatment groups and four replicates per treatment. The treatment groups were as follows:

Control group (basal diet without any additives)

Probiotic group (basal diet with 0.1% probiotic)

Probiotic and enzyme group (basal diet with 0.1% probiotic and 0.1% enzyme)

### Sample collection:

A total of 120-day-old broiler chicks were obtained and randomly allocated to the three treatment groups.

### Feeding:

All birds were fed with a basal diet for the first week, after which the treatment diets were introduced. The birds had access to feed and water ad libitum throughout the study period.

### Data collection:

The following parameters were measured:

Body weight and feed intake were recorded weekly to determine growth performance.

Feed conversion ratio was calculated as the ratio of feed intake to body weight gain.

Carcass characteristics such as dressing percentage, breast meat yield, thigh meat yield, and abdominal fat were measured at the end of the study period.

Meat quality parameters such as pH, water holding capacity, cooking loss, and shear force were also measured.

Sensory evaluation was conducted to assess consumer preference of the broiler meat using a hedonic scale.

### Statistical analysis:

Data were analyzed using one-way analysis of variance (ANOVA) followed by Tukey's test to determine significant differences between treatment means. The level of significance was set at  $p < 0.05$ .

### RESULTS

The results showed that the use of probiotic and enzyme as feed additives significantly improved the growth performance of broiler chickens compared to the control group. The broiler chickens in the probiotic and enzyme groups had a higher body weight, better FCR, and improved carcass traits compared to the control group. Moreover, the sensory evaluation showed that broiler chicken meat from the probiotic and enzyme groups was preferred by consumers in terms of juiciness, tenderness, flavor, and overall acceptability.

### CONCLUSION

The use of probiotic and enzyme as feed additives can improve the growth performance and meat quality of broiler chickens, as well as consumer preference. Therefore, the combination of probiotic and enzyme could be a potential alternative to antibiotics and growth promoters for the poultry industry.

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