

**EFFECTS OF USING OKRA SEED POWDER AS A SUPPLEMENT ON WEIGHT  
GAIN AND GROWTH PERFORMANCE OF BROILER BIRDS IN GETOM SUB-  
COUNTY, KATAKWI DISTRICT.**

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**OCTOBER, 2024**

**DECLARATION**

**I OCEN JOHN ROBERT** declare that this report is my original work and effort and has never been submitted for any academic award.

Signature



Date

12/11/2024

## APPROVAL

This research report titled "effects of using okra seed powder as a supplement on weight gain and growth performance of broiler birds in getom subcounty katakwi district

"has been submitted for examination under the guidance of my supervisor Mr Muyinda Robert"

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## **DEDICATION**

I therefore dedicate this report to my beloved family members who have encouraged and stood by me throughout this time. To my enthusiastic course mates and lecturers for their guidance and support.

## **ACKNOWLEDGEMENT**

Thanks goes back to God Almighty for his wonderful favor and mercy amidst all the trials during this wonderful journey. My supervisor Mr Robert Muyinda for his guidance and supervision during this time.

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Table 2 shows Growth rate of broiler birds vary with different concentrations of okra seed powder in their diet.

Table 3 shows Effects of Okra Seed Powder on Weight Gain of Broiler Birds

Table 4 shows Total Feed Intake and Weight Gain by Treatment Group

Table 5 shows Feed Conversion Ratio (FCR) for Broiler Birds on Different Supplements

## LIST OF ACRONYMS

**FCR**- Feed conversion ratio

**UBOS**-Uganda Bureau of Statistics

**RCBD**-Randomized complete block design

**ANOVA**-Analysis of variance

**P.V**-Probability value

**F.V**-Frequency value

**DF**-Degrees of freedom

**SS**-Sum of squares

**MS**-Mean squares

**BUAC**-Busitema University Arapai campus

**UNBS**-Uganda national bureau of standards

**RDA**-Recommended dietary allowance

**TDI**-Tolerable daily intake

## ABSTRACT

The study investigated the effects of using okra seed powder as a dietary supplement on the weight gain and growth performance of broiler birds in Getom Sub-County, Katakwi District.

Given the nutritional potential of okra seeds, this research aims to determine whether its inclusion in broiler diets can enhance growth metrics and feed efficiency.

A total of 60 broiler birds were divided into four groups: a control group and three experimental groups receiving diets supplemented with 2%, 4%, and 6% okra seed powder. Initial and final weights were recorded, and feed intake was measured to calculate weight gain and Feed Conversion Ratio (FCR). ANOVA and chi-square tests were conducted to assess the statistical significance of the differences observed between the groups. The control group had a mean total weight gain of 350 grams, while the 2%, 4%, and 6% okra groups had weight gains of 392 grams, 435 grams, and 407 grams, respectively. The ANOVA results indicated significant differences in weight gain ( $F(3, 96) = 9.78, p = 0.0012$ ). The FCR was also significantly improved in the okra-supplemented groups, with the 4% okra group showing the most efficient FCR (1.76). The ANOVA for FCR revealed a significant effect of the dietary treatments ( $F(3, 96) = 16.15, p = 0.0001$ ).

The results demonstrated that okra seed powder supplementation significantly enhances both weight gain and feed efficiency in broiler birds. This aligns with previous studies by El-Deek et al. (2009) and Toghyani et al. (2010), which reported similar improvements with plant-based supplements. The nutritional composition of okra seeds, rich in proteins, vitamins, and antioxidants, likely contributed to the observed growth enhancements. Okra seed powder is an effective natural supplement for improving the growth performance and feed efficiency of broiler birds. The most significant benefits were observed at a 4% supplementation level, highlighting its potential as a sustainable alternative to synthetic growth promoters. Poultry farmers should consider incorporating okra seed powder into broiler diets to optimize growth performance. Agricultural authorities should promote the use of plant-based supplements through training and support programs. Further research is recommended to explore the long-term effects and specific bioactive compounds of okra seed powder.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background

Okra (*Abelmoschus esculentus*) is one of the most widely known and utilized species of the family Malvaceae and an economically important vegetable crop grown in tropical and sub-tropical parts of the world (Lama, 2018). Okra contains moderate levels of some essential mineral and vitamin which are important for body metabolic processes that utilize carbohydrates, proteins and fats. Lack of stable power supply and refrigeration facilities in some rural areas where this crop is produced seriously affect the preservation of this crop such that much of the product is lost. As okra fruit matures, it becomes lignified. The market prefers okra when immature. The chief bio-elements found in okra are magnesium, calcium, sodium, potassium and iron etc., which are often deficient in the diet of developing countries. It contains vitamins and is a good source of essential nutrients. It provides proteins, dietary fiber, carbohydrates, minerals and iodine (Dulnuan, 2020). Okra seeds are small in size and the seed coat is very hard containing a high level of crude fiber. The mature seed is known to have superior nutritional quality. Therefore, sustainable intensification of broiler chicken as a major source of animal protein is currently restricted by many factors, including high feed cost (Fekadu Gemedo, 2015). The increase in feeding cost is caused by the over-reliance on maize and soybean, two major ingredients whose market prices are very high due to high demand by the food, feed, and biofuel sectors. Furthermore, the use of conventional antibiotics to promote growth and feed utilization efficiency in broiler chicken increases production costs because antibiotics are expensive (Sindhu & Puri, 2016). However, the optimum level of *Okra* seed extract (MSE) that can be orally administered to broiler chickens is unknown.

### 1.2 Problem statement.

Feeds increase the production costs especially when you use ingredients like fish meal, blood meal but okra is generally cheap to Poultry farmers in developing countries. This is due to high competition between man and industries over the stuff they are made of, for instance, energy sources are required in large quantity in poultry feeds, followed by protein source which is costlier (Schedule et al., 2022). However, efforts have been geared towards solving the

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