**NUTRITIVE VALUE OF COMMERCIAL BROILER GROWER FEEDS**

****

By:

**Sharif Ahamed**

**A Report by**

Roll No: 12/06; Reg. No: 00723

Intern ID: A-06; Session: 2011-2012

A production report submitted in partial satisfaction

 of the requirements for the degree of

***Doctor of Veterinary Medicine***

**(DVM)**

Faculty of Veterinary Medicine

Chittagong Veterinary and Animal Sciences University

Khulshi, Chittagong-4225, Bangladesh

**November 2017**

**NUTRITIVE VALUE OF COMMERCIAL BROILER GROWER FEEDS**

****

By:

**Sharif Ahamed**

**A Report by**

Roll No: 12/06; Reg. No: 00723

Intern ID: A-06; Session: 2011-2012

Approved as to style and contents by

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

(Md. Emran Hossain)

**Supervisor**

Department of Animal Science and Nutrition

Faculty of Veterinary Medicine

Chittagong Veterinary and Animal Sciences University

Khulshi, Chittagong-4225, Bangladesh

**November 2017**

**Table of contents**

|  |  |
| --- | --- |
| **Contents** | **Page no.** |
| Abstract |  1 |
| Introduction |  2 |
| Materials and methods |  4 |
| Results and discussion |  5 |
| Conclusion |  11 |
| References |  12 |
| Acknowledgement |  13 |
| Biography |  14 |

**List of tables**

|  |  |
| --- | --- |
| **Title** | **Page no.** |
| Table 1. Chemical composition (g/100g) of broiler grower feeds | **7** |
| Table 2. Statistical analysis of the chemical composition of broiler grower feeds  | 10 |

**Nutritive Value of Commercial Broiler Grower Feeds**

**Abstract**

The study was undertaken to estimate the variations in chemical composition of different broiler grower feeds produced by different feed companies of Chittagong, Bangladesh. Test results of one hundred eighteen different broiler grower feeds from different feed companies were collected and compiled in Poultry Research and Training Centre laboratory of Chittagong Veterinary and Animal Sciences University, Chittagong Bangladesh during 21st October 2014 to 2nd December 2016. Samples were analyzed in triplicate for dry matter (DM), crude protein (CP), crude fiber (CF), ether extract (EE) and total ash (TA). Results indicated that, there were variations for different parameters in all the samples. DM content varied from 8.8 to 13.4 g/100g, CP varied from 19.5 to 24.6 g/100g, CF varied from 3.4 to 8.2 g/100g, EE varied from 3.8 to 9.8 g/100g, TA varied from 4.5 to 7.0 g/100g, Ca varied from 0.6 to 3.1 g/100g and P varied from 0.4 to 1.1 g/100g. It was concluded that broiler grower feeds should be analyzed before supply to the birds.

**Keywords:** Broiler grower feed, CF, CP, DM, EE, TA

**Introduction**

The poultry sub-sector is an important avenue in fostering agricultural growth and reduce malnutrition for the people in Bangladesh (**Akbar *et al*., 2013**). It is an integral part of farming system in Bangladesh and has created direct, indirect employment opportunity including support services for about 6 million people (**Chowdhury *et al*., 2011**). The major ingredients in poultry diets provide the protein and energy required for poultry to maintain health, grow, and produce eggs. However, the high price and non-availability of feed ingredients are two major constraints to the growth of commercial poultry enterprises. In Bangladesh, feed cost alone accounts 60-70% of the total production cost (**Bulbul and Hossain, 1989**). Therefore, it is important to explore quality feedstuff to enhance optimum productivity. About 80% feed stuffs used in poultry ration are imported from different countries. As a result, the cost of feed prepared for poultry using those grains are always high. (**Hossain *et al*., 2016**)

**Broiler Grower feed** is a complete feed for all growing broiler chicks.  This feed is in a granular form that makes it easy for the small chicks to consume.  A natural fungal-based (dried Aspergillus niger fermentation product) enzyme pack to aid in the break-down of the different components of the diet.  Enzymes include amylase, β-glucanase, cellulose, pectinase, xylanase, phytase, and protease. A balanced amino acid profile of Lysine, Methionine and Cystine.  These amino acids are needed to support the dynamic turn-over and growth of structural (bones, ligaments, and muscles) and protective (skin and feathers) tissues in the bird.Elevated Choline (a B-vitamin) which aids in fat metabolism, supports cognitive function, and serves as an anti-inflammatory agent.

Broiler feeds are commercially available in pellet and crumblesform. Pellets consist of a mash that has been pelletized; that is, compressed and molded into pellets in a pellet mill. Unlike mash, where the ingredients can separate in shipment and the poultry can pick and choose among the ingredients, the ingredients in a single pellet stay together, and the poultry eat the pellets whole .Crumbles are pellets that have been sent through rollers to break them into granules.

The nutrient composition of Broiler grower feed proper balance of Metabolic energy, moisture, crude protein, crude fiber, ether extract, methionune, lysine, calcium, available phosphorus respectively 3100 Kcal/kg, 12%, 21%, 4.5%, 6%, 0.45%, 1.1%, 0.9%, 0.45% respectively and it given to broiler from 15 days to 28 days .There is some variation in different broiler grower feed among different commercial feed companies. This unusual variation in the composition of Broiler starter feeds makes a complex situation for the formulation of practical ration. Therefore, current study was conducted to find out the variations in nutrient content Broiler grower feeds available indifferent commercial feed companies.

**Materials and methods**

***Study area***

The study was carried out in the PRTC laboratory of Chittagong Veterinary and Animal Sciences University, Chittagong, Bangladesh during January to June of 2017.

***Data collection***

During January to March 2017, secondary data of proximate analysis for 118 feed samples from different commercial broiler grower feed companies were collected. Name of the company, address, sample ID, data of receipt, moisture, CP, CF, EE, Ash, Ca and P contents were recorded from laboratory register from 21st October 2014 to 2nd December of 2016.

***Data analysis***

After collection, all data were put into the MS Excel 2007. Data were sorted and compiled for further analysis. Sorting was done according to date of receiving sample. Data were analyzed for descriptive statistics i.e., mean, median, mode, maximum, minimum value, standard deviation and standard error for DM, CP, CF, EE, Ash, Ca and P. One sample t-test was carried out using reference values to analyze the data in SPSS 16.0 **(Winer *et al*., 1991).** Statistical significance was accepted at 5% level (P<0.05).

**Results and discussion**

Chemical composition of Broiler grower particularly DM, CP, CF, EE, Total Ash, Calcium, Available Phosphorous contents in different Commercial Broiler grower feed samples have been presented in Table 1. Throughout the world, commercial Grower feed has been used as broiler grower feed for many years. It is very popular because of its combination of nutritional value.

***Dry matter (DM)***

DM content differed significantly (p<0.01) among the feed samples. The average DM content of Broiler grower observed in this study was 89.7% (Table 1). The maximum and minimum moisture percent estimated in this study were 91.2% and 86.6% respectively. The result is in close agreement with earlier studies where it was 89.4% of Aftab feed, 89.5% of Quality feed, 89.3% of Paragon feed (**Roy *et al*., 2004**). However the result slightly differs with the findings of other investigation where it reported 90.4% in Nourish feed, 88.7% in Fresh feed, 88.4% in Sundarban feed (**Roy *et al*., 2004**), 90.31% (**Vakili *et al*., 2015**).

***Crude protein (CP)***

CP content differed significantly (p<0.01) among the feed samples.The average crude protein content of Broiler grower estimated in this study was 21.89 % (Table 1). The maximum and minimum moisture percent observed in current study were 24.6% and 19.5 % (Table 2) respectively. The result is in close agreement with earlier studies where it was 21% in Aftab feed, 22.6% in Nourish feed (**Roy *et al*., 2004**). However the result slightly differs with the findings of other investigation where it reported 19.2% in Fresh feed, 19.8% in Surdarban feed, 23.2% in Quality feed, 23.7% in Paragon feed (**Roy *et al*., 2004**), 20.37% ( **Vakili *et al*., 2015**).

***Crude fibre (CF)***

CF content differed significantly (p<0.01) among the feed samples. The average crude fiber content of Broiler grower observed in this study was 5.48% (Table 1). The maximum and minimum moisture percent observed in current study were 8.2% and 3.4% (Table 2). The result is in close agreement with earlier studies where it was 5.2% in Aftab feed, 5.3% in Nourish feed (**Roy *et al*., 2004**). However the result slightly differs with the findings of other investigation where it reported 6.1% in Fresh feed, 6.4% in Paragon feed, 6.7% in Quality feed, 7.8% in Surdarban feed (**Roy *et al*., 2004**), 3.81% (**Vakili *et al*., 2015**).

***Ether extracts (EE)***

EE content differed significantly (p<0.01) among the feed samples. The average ether extract content of Broiler grower observed in this study was 7.08% (Table 1). The maximum and minimum moisture percent observed in current study were 9.8% and 3.8% (Table 2). The result is in close agreement with earlier studies where it was6.8% in Paragon feed, 7.3% in Nourish feed, 7.7% in Fresh feed (**Roy *et al*., 2004**). However the result slightly differs with the findings of other investigation where it reported 5.4% in Quality feed, 7.8% in Aftab feed, 9.4% in Surdarban feed (**Roy *et al*., 2004**).

***Total ash (TA)***

Ash content differed significantly (p<0.01) among the feed samples The average ash content of Broiler grower observed in this study was 5.85% (Table 1). The maximum and minimum moisture percent observed in current study were 7% and 4.5% (Table 2).The result is in close agreement with earlier studies where it was 6.3% in Nourish feed, 6.7% in Fresh feed (**Roy *et al*., 2004**). However the result slightly differs with the findings of other investigation where it reported 4.77% (**Vakili *et al*., 2015**), 6.8% in Aftab feed, 7% in Quality feed, 7.5% in Surdarban feed, 9.5% in Paragon feed (**Roy *et al*., 2004**).

***Calcium (Ca)***

Ca content differed significantly (p<0.01) among the feed samples. The average calcium content of Broiler grower observed in this study was 1.13% (Table 1). The maximum and minimum moisture percent observed in current study were 3.1% and 0.6% (Table 2). The result is in close agreement with earlier studies where it was 0.9 % in Nourish feed, 1.1% in Aftab feed, 1.1% in Fresh feed, 1.2% in both Quality and Sundarban feed, 1.3% in Paragon feed (**Roy *et al*., 2004**), 1.15% (**Vakili *et al*., 2015**).

***Phosphorus (P)***

P content differed significantly (p<0.01) among the feed samples .The average calcium content of Broiler grower observed in this study was 0.64% (Table 1). The maximum and minimum moisture percent observed in current study were 1.1% and 0.4%(Table 2).The result is in close agreement with earlier studies where it was 0.5% in Aftab feed, Quality feed, Paragon feed, Nourish feed, Fresh feed, Surdarban feed (**Roy *et al*., 2004**), 0.56% (**Vakili *et al*., 2015**).

Table 1. Chemical composition of different broiler grower feeds (N=118)

|  |  |
| --- | --- |
| **Sample ID** | **Chemical components (g/100g)** |
| **DM** | **CP** | **CF** | **EE** | **Ash** | **Ca** | **P** |
|  | - | - | 4.5 | 7.4 | 6.0 | 3.1 | 0.8 |
|  | - | 23 | - | 5.5 | - | - | - |
|  | - | - | - | - | - | 1.2 | 0.7 |
|  | - | - | - | - | - | 1.2 | 0.6 |
|  | 90.5 | 20.1 | 4.8 | 5.5 | 5.9 | - | - |
|  | 91.0 | - | 4.5 | 7.3 | 5.3 | 1.0 | 0.7 |
|  | - | 22.4 | - | - | - | - | - |
|  | 91.0 | - | - | - | - | - | - |
|  | 89.8 | - | - | - | - | - | - |
|  | - | 21.1 | - | - | - | - | - |
|  | 89.0 | - | 6.6 | 6.0 | 6.0 | 1.3 | 0.8 |
|  | 90.5 | - | 6.3 | 6.6 | 5.4 | 1.4 | 0.9 |
|  | 89.3 | - | 6.5 | 6.4 | 5.3 | 1.1 | 0.7 |
|  | 89.5 | - | 5.4 | 7.0 | 5.1 | 1.2 | 0.7 |
|  | 89.5 | 24.3 | - | - | 6.0 | - | - |
|  | 89.9 | - | 5.9 | 6.4 | 5.5 | 1.3 | 0.7 |
|  | 89.4 | - | 6.2 | 7.0 | 4.9 | 0.9 | 0.5 |
|  | 88.6 | - | 4.8 | 6.9 | 5.4 | 1.1 | 0.6 |
|  | 89.1 | - | 4.2 | 6.3 | 5.4 | 0.9 | 0.5 |
|  | 89.1 | - | 4.8 | 4.7 | 6.0 | 1.1 | 0.7 |
|  | 88.6 | - | 4.1 | 6.4 | 5.5 | 1.0 | 0.5 |
|  | 89.7 | 21.4 | - | - | 5.5 | - | - |
|  | 90.4 | - | 6.8 | 7.2 | 5.9 | 1.8 | 0.7 |
|  | 90.4 | - | 6.0 | 7.4 | 5.3 | 1.6 | 0.7 |
|  | 91.2 | 19.5 | 6.1 | 6.7 | 4.9 | 1.6 | 0.9 |
|  | 90.3 | - | 6.2 | 7.4 | 5.9 | 0.8 | 0.6 |
|  | 90.1 | - | 5.7 | 7.6 | 5.4 | 0.8 | 0.6 |
|  | 89.1 | 20.2 | 6.1 | 6.5 | 5.2 | 0.6 | 0.5 |
|  | 90.3 | - | 6.0 | 7.0 | 6.2 | 0.9 | 0.5 |
|  | 89.5 | - | 5.9 | 7.0 | 5.8 | 0.7 | 0.5 |
|  | 87.8 | 23.8 | 6.2 | 5.9 | 6.5 | 0.8 | 0.6 |
|  | 88.6 | 21.4 | 5.9 | 5.6 | 6.0 | 1.2 | 0.7 |
|  | 90.0 | - | 6.1 | 6.6 | 6.1 | 1.0 | 0.6 |
|  | 89.6 | - | 6.8 | 7.3 | 5.7 | 1.0 | 0.6 |
| **Sample ID** | **Chemical components (g/100g)** |
| **DM** | **CP** | **CF** | **EE** | **Ash** | **Ca** | **P** |
|  | 89.5 | - | 7.1 | 6.8 | 6.3 | 0.8 | 0.6 |
|  | 86.8 | - | 5.9 | 5.9 | 5.5 | 0.9 | 0.5 |
|  | 89.9 | - | 6.4 | 7.0 | 6.5 | 0.8 | 0.6 |
|  | 87.8 | - | 6.3 | 7.0 | 5.8 | 0.6 | 0.4 |
|  | 90.6 | 23.1 | 5.6 | 6.6 | 6.3 | 0.9 | 0.7 |
|  | 89.1 | 20.5 | 6.5 | 7.4 | 5.6 | 0.7 | 0.6 |
|  | 90.4 | 23.5 | 6.3 | - | 5.6 | 0.9 | 0.7 |
|  | 89.6 | 22.4 | 6.5 | - | 6.2 | 0.9 | 0.7 |
|  | 90.4 | 24.2 | 5.3 | - | 6.4 | 0.8 | 0.6 |
|  | 90.4 | 24.5 | 6.8 | 8.4 | 6.9 | 0.9 | 0.7 |
|  | 88.2 | 20.5 | 4.8 | 6.9 | 6.2 | 1.1 | 0.6 |
|  | 89.4 | 19.6 | 3.5 | 6.3 | 5.9 | 0.8 | 0.7 |
|  | 89.5 | 22.3 | 4.4 | 7.2 | 5.6 | 1.1 | 0.5 |
|  | 88.7 | 21.1 | 4.3 | 6.9 | 4.9 | 0.7 | 0.5 |
|  | 89.6 | 22.8 | 6.3 | 8.2 | 6.4 | 1.0 | 0.6 |
|  | 90.1 | 21.3 | 4.7 | 3.8 | 5.8 | 0.8 | 0.6 |
|  | 90.2 | 24.0 | 6.9 | 8.4 | 6.5 | 0.9 | 0.7 |
|  | 88.4 | 21.8 | 6.6 | 7.9 | 6.2 | 1.2 | 0.6 |
|  | 89.5 | 21.5 | 5.6 | 6.8 | 5.3 | 0.9 | 0.6 |
|  | 88.3 | 20.4 | 5.7 | 5.9 | 6.0 | 1.0 | 0.7 |
|  | 89.4 | 21.8 | 8.2 | 6.6 | 6.0 | 0.8 | 0.6 |
|  | 90.7 | 24.3 | 6.7 | 8.3 | 6.3 | 1.0 | 0.7 |
|  | 90.5 | 21.8 | 6.0 | 9.8 | 6.7 | 0.8 | 0.7 |
|  | 90.0 | 21.3 | 5.5 | 7.5 | 6.4 | 0.9 | 0.7 |
|  | 90.7 | 22.6 | 5.2 | 7.8 | 6.0 | - | - |
|  | 90.2 | 24.6 | 5.5 | 7.8 | 6.5 | 1.0 | 0.6 |
|  | 90.5 | 23.0 | 5.2 | 7.0 | 6.2 | 1.1 | 0.6 |
|  | 89.7 | 21.5 | 6.1 | 7.7 | 6.3 | 1.1 | 0.6 |
|  | 88.5 | 20.8 | 4.0 | 6.5 | 4.9 | 1.0 | 0.4 |
|  | 89.9 | 21.3 | 5.0 | 7.0 | 6.2 | 1.1 | 0.6 |
|  | 88.4 | 20.3 | 3.5 | 5.7 | 6.2 | 1.1 | 0.7 |
|  | 90.1 | 23.3 | 5.8 | 7.0 | 5.6 | - | - |
|  | 90.0 | 22.5 | 5.2 | 6.8 | 5.6 | - | - |
|  | 90.6 | 22.0 | 5.2 | 7.2 | 6.0 | 1.1 | 0.7 |
|  | 89.9 | 20.0 | 5.6 | 6.2 | 5.8 | 1.0 | 0.7 |
|  | 90.7 | 21.6 | 5.4 | 7.4 | 6.9 | 0.9 | 0.7 |
|  | 90.0 | 22.8 | 5.8 | 7.0 | 6.2 | 1.1 | 0.5 |
|  | 89.7 | - | 5.7 | 7.5 | 6.0 | 1.2 | - |
|  | 90.5 | 22.5 | 6.4 | 8.0 | 6.1 | 1.1 | 0.5 |
|  | 90.0 | - | 5.2 | 7.5 | 5.5 | 1.0 | 0.5 |
|  | 89.1 | 19.5 | 4.5 | 6.0 | 6.8 | 1.3 | 0.7 |
|  | 90.1 | 22.0 | 5.6 | 8.0 | 6.0 | 1.3 | 0.7 |
|  | 89.5 | 21.8 | 5.9 | 7.5 | 5.9 | 1.5 | 0.8 |
|  | 90.5 | 21.9 | 6.5 | 8.5 | 5.8 | 1.2 | 0.6 |
|  | 90.5 | 22.8 | 5.3 | 7.9 | 6.1 | 1.3 | 0.9 |
|  | 90.7 | 22.8 | 4.9 | 7.6 | 5.7 | 1.3 | 0.8 |
|  | 90.5 | 22.3 | 4.2 | 7.8 | 6.0 | 1.3 | 0.7 |
|  | 90.4 | 21.7 | 4.4 | 7.4 | 6.3 | 2.1 | 1.1 |
| **Sample ID** | **Chemical components (g/100g)** |
| **DM** | **CP** | **CF** | **EE** | **Ash** | **Ca** | **P** |
|  | 90.7 | 22.4 | 6.0 | 8.0 | 6.0 | 1.4 | 0.9 |
|  | 90.0 | 21.0 | 3.5 | 5.8 | 5.8 | 1.3 | 0.7 |
|  | 90.5 | 22.2 | 5.1 | 7.2 | 6.1 | 0.8 | 0.5 |
|  | 90.2 | 22.4 | 5.1 | 8.0 | 5.4 | 0.8 | 0.4 |
|  | 89.7 | 20.3 | 5.3 | 9.2 | 5.9 | 1.3 | 0.6 |
|  | 89.2 | 20.3 | 5.7 | 7.6 | 5.0 | 0.8 | 0.4 |
|  | 90.8 | 21.7 | 4.5 | 8.8 | 6.1 | 1.8 | 0.9 |
|  | 90.0 | 20.5 | 4.9 | 6.6 | 6.9 | 2.4 | 1.1 |
|  | 89.8 | 21.4 | 4.2 | 8.0 | 5.5 | - | - |
|  | - | 20.3 | 4.6 | - | - | - | - |
|  | 89.5 | 22.2 | 5.9 | 8.3 | 6.2 | 1.0 | 0.5 |
|  | 90.1 | 22.4 | 6.1 | 8.2 | 5.8 | 1.0 | 0.5 |
|  | 88.7 | 22.8 | 6.2 | 7.9 | 5.5 | 1.0 | 0.5 |
|  | 88.7 | 22.2 | 5.9 | 7.8 | 5.5 | 1.1 | 0.6 |
|  | 89.5 | 22.3 | 6.4 | 6.2 | 6.0 | 1.6 | 0.9 |
|  | 89.4 | 22.2 | 6.4 | 7.3 | 6.3 | 1.1 | 0.6 |
|  | 89.4 | 21.8 | 3.5 | 6.5 | 6.4 | 1.3 | 0.7 |
|  | 89.8 | 22.5 | 5.4 | 7.2 | 5.5 | 1.4 | 0.8 |
|  | 89.1 | 20.8 | 6.2 | 7.5 | 5.4 | 1.0 | 0.5 |
|  | 86.6 | 21.2 | 6.1 | 5.7 | 4.9 | 1.3 | 0.7 |
|  | 89.2 | 21.0 | 5.5 | 8.4 | 5.6 | 1.1 | 0.5 |
|  | 90.0 | 23.3 | 4.5 | 5.8 | 6.3 | - | - |
|  | 89.2 | - | 6.3 | 6.4 | 7.0 | 1.7 | 0.6 |
|  | 89.4 | - | 6.5 | 6.4 | 7.0 | 1.8 | 0.8 |
|  | 89.3 | - | 6.0 | 7.2 | 4.5 | 1.6 | 0.8 |
|  | 90.6 | - | 3.8 | 7.0 | 5.9 | 1.3 | 0.7 |
|  | 89.6 | - | 6.8 | 7.6 | 6.0 | 1.5 | 0.7 |
|  | 89.0 | - | 5.4 | 7.7 | 5.8 | 1.2 | 0.5 |
|  | 90.7 | - | 4.3 | 7.5 | 5.5 | 1.4 | 0.8 |
|  | 89.6 | - | 5.0 | 7.3 | 5.5 | 1.0 | 0.6 |
|  | 89.6 | - | 6.0 | 6.7 | 5.6 | 1.5 | 0.6 |
|  | 89.7 | - | 4.4 | 6.9 | 5.7 | 0.9 | 0.4 |
|  | 89.6 | - | 3.8 | 7.8 | 5.5 | 0.9 | 0.4 |
|  | 89.8 | - | 4.0 | 6.9 | 5.2 | 0.9 | 0.5 |
|  | 89.7 | - | 4.7 | 6.6 | 5.4 | 0.9 | 0.5 |
|  | 88.9 | - | 3.4 | 6.9 | 5.3 | 1.0 | 0.5 |

Table 2. Statistical analysis of the chemical composition for different broiler grower feeds

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameters**  | **Maximum**  | **Minimum** | **Mean** | **Median** | **Mode** | **STD** | **p-value** |
| DM | 91.2 | 86.6 | 89.7 | 89.7 | 90.5 | 0.82 | <0.001 |
| CP | 24.6 | 19.5 | 21.89 | 21.9 | 22.4 | 1.23 | <0.001 |
| CF | 8.2 | 3.4 | 5.48 | 5.6 | 6.5 | 0.95 | <0.001 |
| EE | 9.8 | 3.8 | 7.08 | 7.0 | 7.0 | 0.90 | <0.001 |
| Ash | 7.0 | 4.5 | 5.85 | 5.9 | 6.0 | 0.49 | <0.001 |
| Ca | 3.1 | 0.6 | 1.13 | 1.1 | 1.0 | 0.36 | <0.001 |
| P | 1.1 | 0.4 | 0.64 | 0.6 | 0.65 | 0.13 | <0.001 |

**Conclusion**

Broiler grower feed is very vital type feed during the growing stage of broiler chicks. It contains all types of necessary nutrients in pellet form for broiler chicks and it is easily digested. However, current study indicates that the quality of broiler grower feed is slightly variable. Therefore, to formulate least cost balanced ration, broiler grower feeds must be analyzed first in the laboratory and then incorporate it into the practical ration.

**References**

Akbar MA, Amin MR, Ali MA, Bhuiyan MSA, Kabir AKMA and Siddiki SR (2013). Animal Husbandry: A Business Education for Today and Tomorrow 3rd Annual Conference and Seminar 2013. Bangladesh Society for Animal Production Education and Research (BSAPER): 21-34.

Bulbul SM and Hossain MD (1989). Probable problems of poultry feed formulation in Bangladesh. Poultry Advisor, 12(3): 27-29.

Chowdhury SD (2011). Commercial poultry farming in Bangladesh: the rolling tears of farmers and its consequences. In Proceedings of the 7th International Poultry Show and Seminar: 01-12.

###  Hossain ME, Akter K and Das GB (2016). Nutritive value of fish meal. [Online Journal of Animal and Feed Research](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwi87sDhvLnXAhUKlpQKHTq6Df8QFggmMAA&url=http%3A%2F%2Fwww.ojafr.ir%2F&usg=AOvVaw3teAY1F1Ib1hynM2A3Si0_), 6(1): 14-19.

Roy BC, Ranvig H, Chowdhury SD, Rashid MM and Chwalibog A (2004). Evaluation of compound broiler feeds manufactured in Bangladesh. Livestock Research and Rural Development, 16(11): 1-8.

Vakili R, Torshizi ME, Yaghobzadeh MM and Khadivi H (2015). Determination of Chemical Composition and Physical Feed Quality with Different Processing parameters in Broiler Feed Mill Factories. In Biological Forum 7(1): 1098. Research Trend.

Winer BJ, Brown R and Michels KM (1991). Statistical Principles in Experimental Design. McGraw-Hill, New York.

**Acknowledgement**

The author wishes to acknowledge the immeasurable grace and profound kindness of Almighty “GOD” the supreme authority and supreme ruler of universe, who empowers the author to complete the work successfully.

The author great pleasure to express his deepest sense of gratitude and indebtedness to his supervisor Md. Emran Hossain, Associate Professor, department of Animal Science and Nutrition, Chittagong Veterinary and Animal Sciences University for his scholastic guidance, valuable suggestions, constant inspiration and encouragement throughout the entire period of my study.

The author gratefully admits the help of Dr. Paritosh Kumar Biswas, Professor, **Department of Microbiology and Veterinary Public Health, Faculty of Veterinary Medicine, Chittagong Veterinary and Animal Sciences University** for his scholastic guidance, and valuable suggestion during the entire period of the study and also would like to express his special gratitude to his family and friends for their immeasurable support.

The author expresses sincere gratitude to all technical staff members of PRTC, Chittagong veterinary and Animal Sciences University for their cordial support during the report work.

 **The Author**

**Biography**

I am Pronesh Dutta, son of Mr. Nani Gopal Dutta and Mrs. Shika Biswas. I passed Secondary School Certificate examination in 2009 (G.P.A-5.00) from Chittagong Governtment High School, Chittagong followed by Higher Secondary Certificate examination in 2011 (G.PA-5.00) from Hazera Taju University College, Chittagong. Now I am an intern veterinarian under the Faculty of Veterinary Medicine. I enrolled for Doctor of Veterinary Medicine (DVM) degree in Chittagong Veterinary and Animal Sciences University (CVASU), Bangladesh. I have immense interest to work in the field of Wildlife Health and conservation.