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-Short Communication

STUDY ON NUTRITIONAL VALUE OF READY-MADE BROILER FEEDS COLLECTED FROM DIFFERENT FEED MILLS

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Poultry meat and eggs contribute approximately 33% of total animal protein supplied in the country (Ahmed and Islam, 1990). Produced meat and eggs are being popular throughout the country day by day. Hossain (1999) estimated that farm produced broilers, spent hens and cockerels contribute 55% of the total chicken and farm produced eggs 82% of the total eggs marketed in Dhaka city. According to FAO (1998) statistics, Bangladesh produced 1,04,000 tones hen eggs and 1,11,000 tones chicken meat having world position of 46 and 52 respectively in 1998.The latest information available from Rahman, M. (2007) showed that on an average a Bangladeshi takes only 2.25 kilograms of poultry meat per year against the minimum standard requirement of 43.8 kilograms per year which is a deficit of 94.86 percent and on the other hand, a Bangladeshi takes only 36 eggs per year against the yearly minimum requirement of 260 eggs which is a deficit of 88.46 percent. This data clearly indicate that the availability of poultry meat and egg is still very much lower in Bangladesh in spite of the significant development in the commercial sector during the last 10 years.

Keeping consistent with poultry industry, feed mill is increasing rapidly throughout the country in order to meet up the existing feed need of the farmers. The exact number of feed mills now in operation is not definitely known but a report stated that there are 40 feed mills with 900 dealers at the private sector who are producing and distributing poultry feeds all over the country (Latif, 1999). Although a good number of feed mills are in operation in the country only a few of these are serious in maintaining quality of their product. There are two main sources of poultry feed in Bangladesh. One is ready made feed i.e. compound feed or mixed feed manufactured by different feed mills available in Bangladesh and the other one is manually mixed feed prepared by farm owners. A report stated that, the feed requirement is about 1610 thousand metric tones per year, of which 472 thousand metric tones (i.e. 29.34%) is supplied by industrial feed and the remaining 1138 thousand metric tones are replenished by the feeds from other sources (i.e self-mixed feed) of the poultry farm (Khan and Husain, 2002).There is reason to believe that the feed manufactured by different feed mills used to nourish the all poultry farms existing in Bangladesh may or may not meet the standard with respect to quality. To get an exact picture of the feeding practices as well as to assess the quality of the compound poultry feeds being used in farms located in different areas of Bangladesh round the year, chemical analysis (nutritional quality) of the feeds responses seemed to be more worth-while. In view of above situation, the present study was undertaken with the objective to compare the quality of ready-made feeds collected from different feed mills in Bangladesh.

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The experiment was completed at Bangladesh Agricultural University Poultry Farm, Mymensingh from October/2002 to March/2003 through visual observation and laboratory analysis. During the experiment following points are considered.

Out of 20 feed mills 5 feed mills engaged in production were selected randomly to collect feeds. These feed mills are scatteredly spread in the different parts of Bangladesh.

Location of randomly selected feed mills:

T_1= Aftab Bahumukhi Farm Lmited ,Koliachar, Bazitpur, Kishoregonj .
T_2= Quality Feed Limited, Shirirchala, Bagher Bazar, Gazipur
T_3=Nourish Poultry Feed Limited ,Gusinga, Sreepur Gazipur
T_4= Fresh Feeds Limited, Meghnaghat; Sonargaon, Narayangonj
T_5= Sundarban Feeds Limited, Ambug, Zampur; Madanpur, Sonargaon, Narayangonj.

Five industrially prepared compound broiler feeds marketed throughout Bangladesh were collected from the above randomly selected feed mills on cash payment.
Prior to make sample for laboratory analysis the physical and sensorial characteristics such as moisture, colour, size, texture, nature, flavour, odour, taste, foreign particles, foreign bodies etc. of feeds were observed minutely just after received the materials.

To ascertain the variation of nutrient status of the given compound feeds, 30 samples were collected from purchased feeds. The samples were then analyzed in the laboratory for the determination of nutrient concentration. The analysis was carried out in the laboratories of the Department of Poultry Science, B.A.U. Mymensingh; Bangladesh Institute of Nuclear in Agriculture, Mymensingh; Department of Livestock Services, Dhaka. The procedure for the estimation of dry matter (DM), crude protein (CP), crude fibre (CF), ether extract (EE), ash, nitrogen free extract (NFE) etc. were those of AOAC (1990). Metabolizable energy content of the samples was determined indirectly by using the values of CF, EE and Ash contents (%) fitted to a formula suggested by Wiseman (1987).
All the analytical data were recorded carefully and prepared accordingly for statistical analysis. All recorded and calculated data were statistically analyzed for analysis of variance in a Completely Randomized Design (CRD) using a SAS statistical Computer package program. Significant differences between means were identified by Least Significance Differences (LSD).

The results of visual observation in the present investigation, the quality of compound feeds collected from the nearby local markets of selected feed mills T_1 (Aftab), T_2 (Quality) and T_3(Nourish) etc. appeared to be comparatively better than those procured from the T_4 (Fresh) and T_5 (Sundarban) feed mills. Most of the visual characteristics like color, size, texture, moist etc. are taken in consideration and found that the feeds of T_1 (Aftab), T_2 (Quality) and T_3 (Noursh) feed mills were found better than others.

The results of chemical analysis of feeds manufactured in different feed mills are presented in the table-1.The chemical compositions of the feed samples of five different feed mills are shown in the Table of broiler finisher. The information regarding the levels of nutrients in the feeds as claimed by different feed company and desired levels required for the strain of birds in this study are also included in the tables for comparison. For convenience of better presentation, the quality of a feed with respect to its nutrient contents, the analytical values of nutrients of different feed mills are also discussed here.

Table 1. Nutritional composition of broiler feeds of five different feed mills

Broiler Starter

Nutrient components	Treatments (feed mills)					Level of Significance
	Aftab feed	Quality feed	Nourish feed	Fresh feed	Sundarban feed	
	T_1	T_2	T_3	T_4	T_5	
ME(kcal/kg)	$3262^{ab}\pm103.29$	$3036^{c}\pm173.81$	$3370^{a}\pm41.77$	$3170^{bc}\pm89.54$	$3185^{bc}\pm72.91$	**
DM %	89.7±0.85	89.8±0.89	90.0±1.09	88.9±1.07	88.5±1.11	NS
CP %	23.0±2.48	23.5±1.10	22.9±1.37	21.6±1.25	21.6±1.74	NS
EE %	6.7±1.71	5.3±0.78	5.4±0.93	6.1±0.52	6.2± 2.02	NS
CF %	$4.7^{bc}\pm0.66$	$6.4^{a}\pm1.56$	$3.5^{c}\pm0.52$	$5.84^{ab}\pm0.92$	$5.4^{ab}\pm0.99$	*
Ash %	$8.7^{a}\pm0.85$	$9.1^{a}\pm0.76$	$6.5^{b}\pm0.70$	$8.4^{a}\pm0.47$	$8.5^{a}\pm0.49$	**
NFE %	$55.8^{b}\pm3.68$	$55.5^{b}\pm3.13$	$61.4^{a}\pm2.22$	$57.9^{ab}\pm1.94$	$58.^{ab}\pm1.33$	*
Ca %	$1.3^{ab}\pm0.14$	$1.46^{a}\pm0.06$	$1.1^{c}\pm0.11$	$1.3^{ab}\pm0.07$	$1.2^{bc}\pm0.05$	**
TP %	0.51±0.10	0.48±0.27	0.51±0.06	0.48±0.03	0.54±0.02	NS
			Broiler grower			
ME (Kcal/kg)	$3344^{a}\pm119.88$	$3095^{b}\pm207.11$	$3329^{ab}\pm59.96$	$3264^{ab}\pm76.87$	$3180^{ab}\pm264.38$	*
DM %	89.4±1. 47	89.5±0.75	90.4±2.17	88.7±0.68	88.4±0.87	NS
CP %	$21.0^{ab}\pm1.01$	$23.2^{a}\pm2.46$	$22.4^{a}\pm1.88$	$19.5^{b}\pm0.57$	$19.8^{b}\pm0.94$	**
EE %	$7.8^{ab}\pm2.27$	$5.4^{b}\pm0.84$	$7.3^{ab}\pm1.98$	$7.7^{ab}\pm0.97$	$9.4^{a}\pm 1.49$	*
CF %	5.2±0.42	6.7±1.41	5.3±1.41	6.1±1.36	7.8±3.29	NS
Ash %	$6.8^{b}\pm1.17$	$7^{b}\pm2.78$	$6.3^{b}\pm0.91$	$6.7^{b}\pm0.87$	$7.5^{ab}\pm0.59$	NS
NFE %	59.1±2.82	57.6±4.81	58.3±1.12	60.1±0.84	55.2±4.07	NS
Ca %	$1.1^{ab}\pm0.20$	$1.2^{a}\pm0.08$	$0.9^{b}\pm0.07$	$1.1^{ab}\pm0.11$	$1.2^{a}\pm0.11$	*
TP %	0.50±0.05	0.54±0.03	0.48±0.03	0.51±0.03	0.53±0.02	NS
			Broiler Finisher			
ME (kcal/kg)	$3404^{a}\pm213.47$	$3050^{b}\pm177.15$	$3394^{a}\pm66.78$	$3225^{ab}\pm73.06$	$3203^{ab}\pm119.25$	*
DM %	89.4±1.63	89.2±1. 19	90.4±1.91	88.4±0.97	88.3±0.86	NS
CP %	20.2±1.31	22.8±3.29	20.6±2.46	19.2±1.35	19.5±1.80	NS
EE %	8±3.29	6±1.81	7.4±1.39	7.2±. 72	7.8± 1.67	NS
CF %	$4.8^{b}\pm1.10$	$7.1^{a}\pm1.60$	$4.5^{b}\pm1.38$	$5.5^{ab}\pm1.15$	$6.3^{ab}\pm1.03$	*
Ash %	$6.3^{b}\pm0.89$	$7.9^{ab}\pm1.62$	$6.3^{b}\pm0.45$	$8.6^{a}\pm0.89$	$8.2^{a}\pm0.4$	*
NFE %	60.6±4.23	55.9±6.95	61.0±1.04	59.3±1.38	58.1±1.92	NS
Ca %	$1.1^{c}\pm0.14$	$1.2^{ab}\pm0.03$	$0.9^{d}\pm0.03$	$1.1^{bc}\pm. 11$	$1.3^{a}\pm0.03$	*
TP %	0.52±0.05	0.57±0.04	0.52±0.02	0.53±0.03	0.54±0.05	NS

Values indicate, Mean ± SD, Means bearing uncommon superscripts in a row differ significantly *, P<0.05; **, P<0.01; NS, Non-significant

The analytical values of nutrient of the feed samples are shown in the Table of broiler starter. In case of broiler starter rations, the analytical values of most of the nutrient contents of the feed samples differed significantly except the DM, CP, EE and TP content of feeds. It is evident from the broiler starter Table that significantly higher ME content was found in T_3 and T_1 groups, in comparison with feeds of other feed mills (P<0.01). ME content (3036 kcal) of T_2 group was the lowest of all which

was statistically similar to T_4 and T_5 groups. In the crude fibre contents of feed samples, significant ($P<0.05$) variation was also obtained between T_2 and T_3 dietary groups and the difference among the T_1, T_4 and T_5 groups were non-significant. Ash content was significantly higher in T_2 in comparison with feeds of other feed mills. The ash contents in feeds in the dietary treatments T_1, T_2, T_4 and T_5 were similar ($P<0.05$). NFE was highest in T_3 and was similar to T_4 and T_5 but significantly lower NFE was observed in T_1 and T_2 ($P< 0.05$). Although calcium content of feed sample differed significantly among different feed mills, the values obtained through analysis were very closer to the real requirement.

The analytical values of broiler grower ration of different feed mills are presented in briler starter ration. ME, CP, EE and Ca content of feed samples differed significantly, while other nutrients showed no difference. Significantly higher ME (3344 kcal) content was observed in T_1 group in comparison with T_2 group but not with the remaining groups. Feed from T_1, T_2 and T_3 dietary groups, were found to contain the higher amounts of CP than those of T_4 and T_5 ($p<0.01$). Ether extract contents of feed from different feed mills showed significant difference between T_2 and all other dietary groups ($p<0.05$). Calcium content of different feed mills differed significantly ($P<0.05$) between T_3 and T_5 and between T_3 and T_2 ($P<0.05$).

The Table of finisher gives us an idea about the nutritional variation of the feed samples obtained from different feed mills. It was evident from the finisher ration that, significant variation was also found in the several nutrient contents of this ration specially in case of ME, CF, Ash and Ca, while no difference were observed among the nutrient contents of the remaining feed samples. Significantly higher ME content was found in T_1 group (3404 kcal) which was statistically similar to all the dietary groups except T_2 group. ME (3050 kcal) content was found to be above 3000 kcal/kg in feeds prepared by different manufacturers. The amounts were much higher in T_2 and T_3 groups which differed significantly from T_1. The Ca concentrations in all type of feeds were satisfactory although comparatively little higher concentrations were noted in T_2 and T_5.

However, there were significant differences in nutrient composition at all levels of feed of the different feed samples. The significant differences were also found in nutrient composition among feeds of six different feed mills (Roy, *et al.* 2004)

The quality of feed is evaluated among the five feed mills. Within the feed mills we observed the quality differences. We evaluated them and the feeds obtained from the feed mills of Aftab (T_1) and Quality (T_2) are found to be better in quality and than those received from the others feed mills Nourish (T_3), Fresh (T_4) and Sundarban (T_5). In Bangladesh no remarkable work has been reported on quality control of feed mills. Although we had selected a few feed mill as a sample, but we should further work for evaluate and maintain the feeding standard of different feed mills available in Bangladesh to maintain the quality.

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