Haryana Vet. (June, 2023) **62(1),** 155-157 ISSN 0033-4359 (P) **Short Communication**

EFFECT OF SUPPLEMENTATION OF *MORINGA OLIEFERA* LEAF MEAL AND *TINOSPORA CORDIFOLIA* POWDER ON PERFORMANCE OF BROILER CHICKEN

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SUMMARY

An experiment was carried out on 240, day-old broiler chicks for a period of six weeks. The experimental birds were randomly distributed into four treatment groups with four replications of each treatment; having fifteen birds replicate each. The maize-soya based ration was formulated as per BIS (2007) for control treatment (T_0). The treatment group (T_1) was offered the *Moringa oliefera* leaf meal (MOLM) at 0.5% and *T. cordifolia* powder (TCP) at 0.5% of in diet. The treatment group (T_2) was given the *M. oliefera* leaf meal (MOLM) at 0.75% and *T. cordifolia* powder (TCP) at 0.75% of in diet. The treatment group (T_3) received the *M. oleifera* leaf meal (MOLM) at 1.0% and *T. cordifolia* powder (TCP) at 1.0% of in diet. The supplementation of *M. oleifera* leaf meal and *T. cordifolia* powder gives significantly higher ($P<0.05$) overall body weights, body weight gain, feed intake while significantly lower ($P<0.05$) FCR compared to control group.

Keywords: Broiler birds, *Moringa oliefera*, *Tinospora cordifolia*, Body weight and FCR

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Poultry serves as a vital tool to provide nutritional security and supplementary income. As indiscriminate use of antibiotics in poultry industry is reported to be rising, use of herbal and plant derivatives may prove to be a potential alternative for promoting poultry output (Safamehr *et al.*, 2012). Herbals with their low toxicity to the host system, sufficient absorption, and capacity to reach the target organ without being degraded by host enzymes, with their immunomodulatory activity have been used (Arivuchelvan *et. al.*, 2012). *Moringa oleifera* leaves are high in lipids, proteins, vitamins, minerals and have antibacterial properties (Onunkwo and George 2015). Furthermore, due to the presence of phytochemicals in their leaves, that helps to prevent the production of reactive oxygen species (ROS) and free radicals (Ogbunugafor *et. al.*, 2011). *Tinospora cordifolia* entire plant has a wide range of health benefits and has long been used as a traditional medicine to treat a variety of human problems (Bhattacharyya and Bhattacharyya, 2013).

The presence of arabinogalactan in *Tinospora cordifolia* leaves has been shown to have immuno-modulatory, antimicrobial, antioxidant, hepatoprotective, anti-stress activities (Sinha *et. al.*, 2004). In this context, this study was conducted to explore the beneficial aspects of these materials in broiler production.

MATERIALS AND METHODS

An experiment was carried out on 240, day-old broiler chicks for a period of six weeks. The experimental chicks were divided randomly into four treatment groups having four replicates of fifteen birds each. All the standard managemental practices like fumigation, cleaning, etc. before arrival of chicks, housing, feeding, watering, vaccination were followed strictly. The chicks were reared in deep litter system. The maize soya based ration was formulated as per BIS (2007) for broiler chicks as pre-starter, starter and finisher ration for control treatment (T_0). The treatment group (T_1) was offered the *Moringa oliefera* leaf meal (MOLM) at 0.5% and *Tinospora cordifolia* powder (TCP) at 0.5% of in the diet. The treatment group (T_2) was given the *Moringa oliefera* leaf meal (MOLM) at 0.75% and *Tinospora cordifolia* powder (TCP) at 0.75% of in the diet. The treatment group (T_3) was received the *Moringa oleifera* leaf meal (MOLM) at 1.0% and *Tinospora cordifolia* powder (TCP) at 1.0% of in the diet. By using an electric weighing machine the birds were weighed on 0^{th} day and at the end of each week. The weekly gain in live body weight was calculated based on 0^{th} day and weekly live body weights from all the experimental birds. The daily feed intake of birds was recorded as per group. Weekly feed consumption and feed conversion ratio (FCR) was calculated to determine unit quantity of feed required to gain unit live body weight under different treatment groups. The feedstuffs were analyzed as per AOAC (2005). The data obtained was analysed as per Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

The details of performance of broiler birds

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Table 1. Performance of Broiler Birds Supplemented with Moringa oliefera leaf meal and Tinospora cordifolia Powder

AGE	T_0	T_1	T_2	T_3	CV	P-Value
Weekly live body weight (g)						
Day- old	47.14±0.47	48.06±0.27	48.09±0.60	48.46±0.30	1.94	0.234
1st week	219.18±4.47	216.64±1.35	209.48±6.80	204.09±5.73	3.96	0.24
6th week	2536.53±15.50^{b}	2658.30±24.35^{a}	2722.65±45.27^{a}	2697.17±23.19^{a}	3.40	0.003
Weekly feed intake (g)						
1st week	179.34±1.47	186.32±2.23	184.29±1.29	183.90±2.09	2.28	0.98
6th week	1013.31±20.33	1003.18±56.98	1049.34±29.13	1011.41±25.22	6.54	0.80
Overall	4083.17±50.51^{b}	4059.52±46.71^{b}	4287.42±44.33^{a}	4175.24±68.33^{ab}	3.20	0.04
Weekly gain in live body weight (g)						
1st week	172.03±4.12^{a}	168.58±1.36^{ab}	160.63±3.08^{bc}	155.63±2.79^{c}	5.21	0.00
6th week	472.08±14.47	504.75±39.70	502.25±9.76	494.34±13.59	8.67	0.73
Overall	2439.62±63.20^{b}	2607.86±22.13^{a}	2674.80±45.89^{a}	2650.03±21.39^{a}	4.66	0.00
Weekly feed conversion ratio (g)						
1st week	1.02±0.03^{b}	1.10±0.01^{ab}	1.14±0.02^{a}	1.17±0.03^{a}	6.90	0.01
6th week	2.12±0.04	1.99±0.07	2.08±0.04	2.03±0.03	5.06	0.32
Overall	1.67±0.05	1.55±0.01	1.60±0.01	1.57±0.01	4.47	0.06

Note: a, b, c, ab bearing different superscripts in a row differ significantly (P<0.05).

supplemented with *Moringa oliefera* leaf meal and *Tinospora cordifolia* powder is is presented in table 1. The body weight of broiler birds in groups T_0, T_1, T_2 and T_3 at the end of the first week were non-significant. The average BW of broilers in groups T_0, T_1, T_2 and T_3 did not showed a significant difference in the first, third and fourth weeks. The average body weight at the end of the sixth week was significantly higher (P<0.05) in broilers of a group T_2, T_3, T_1 and lower in the control group T_0. The results of present study are in accordance with the results of Agashe *et al.* (2017) and Priya *et al.* (2020) who observed significantly higher weekly body weight in treatment groups supplemented with *Moringa oliefera* leaf meal and *Tinospora cordifolia* compared to control group.

At the end of the first week, second week, third week, fourth week, fifth week the average feed intake of broilers representing groups (T_0), (T_1), (T_2) and (T_3) were observed non-significant. Cumulative feed intake was significantly higher in broilers of a group (T_2), (T_3) and lower in control group (T_0). During the entire experimental period of six weeks, no significant difference in average feed intake was observed but the average cumulative feed intake of broiler showed a significant difference (P<0.05). Similar results were recorded by Cui *et al.* (2018), Tazi, (2014) and David *et al.* (2012) who conducted an experiment on Moringa-based feed additives on the growth performance of broilers and found significant differences in feed intake of broilers. At the end of the first week, the average body weight gain of broilers representing (T_0), (T_1), (T_2) and (T_3) were noticed as significant while non-significant in second week, third week. fourth week, fifth week and sixth week but cumulative body weight gain significantly higher in broilers of a group (T_2), (T_3), (T_1) and lower in the control group (T_0). Similar results were observed by Onu *et al.* (2011) and Singh *et al.* (2018) who studied the influence of *Moringa oleifera* leaf meal on the growth performance broiler birds. At the end of first week, the FCR of broilers representing groups (T_0), (T_1), (T_2), and (T_3) were noticed as significant. FCR of broilers in groups (T_0), (T_1), (T_2) and (T_3). At the end of the third week, fourth week, fifth week and sixth week FCR of broilers for groups (T_0), (T_1), (T_2) and (T_3) did not differ significantly. The overall FCR of broiler did not differ significantly. Similar results were recorded by Banjo *et al.* (2012), Singh *et al.* (2014) and Hassan *et al.* (2016).

CONCLUSION

The results of present study indicate that, the supplementation of *Moringa oleifera* leaf meal and *Tinospora cordifolia* powder improves overall body weight, body weight gain and feed intake lowered feed conversion ratio compared to the un-supplemented group.

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