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## The influence of curry leaves (*Murraya koenigii* L.) Powder as an herbal feed additive on body weight and weight gain in broilers

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### Abstract

The study aimed to examine the impact of dietary supplementation of curry leaves (*Murraya koenigii* L.) powder on the growth of broiler chickens. A total of 48 day-old broiler chicks were randomly divided into 4 groups with 12 birds each and further divided into 4 sub-groups of 3 birds each as replicates. The birds were reared under standard management practices and fed broiler starter and finisher rations with various treatments of curry leaves powder supplementation. The treatments included a control group (T0) with no supplementation, T1 with 5g of curry leaves powder per kg of feed, T2 with 7.5g of curry leaves powder per kg of feed, and T3 with 10g of curry leaves powder per kg of feed. The data was recorded for weekly body weight, weekly weight gain, weekly feed consumption, and FCR calculation. The results showed that the growth performance of broilers was positively affected by the dietary addition of curry leaves powder. Treatment T3 with 10g of curry leaves powder per kg of feed demonstrated the best growth performance compared to other treatments, with the highest average weekly body weight and weight gain. These findings suggest that the supplementation of curry leaves powder has the potential to enhance the growth of broiler chickens.

**Keywords:** Broilers, curry leaves powder, gain in weight, weekly body weight

### Introduction

The role of curry leaves in body weight gain in broilers is a topic of growing interest in the field of poultry nutrition. Curry leaves, also known as *Murraya koenigii*, are a popular ingredient in Indian cuisine and are renowned for their unique flavor and aroma. However, they also possess several medicinal properties and are commonly used in traditional medicine for their health benefits. Studies have shown that incorporating curry leaves into the diets of broilers can have a positive impact on their growth performance, with several trials demonstrating an increase in body weight gain compared to control groups. It is believed that the presence of bioactive compounds, such as carbazole alkaloids and essential oils, in curry leaves can stimulate feed intake and improve the overall digestive efficiency of the broilers.

Natural medicinal plants significantly add more value to the nutritional needs of humankind, in that they supply certain bioactive components, which are lacking in the routine diets and thus can be claimed for multifarious health benefits, including a reduction in various degenerative diseases [1]. Curry leaves powder showed improvement in breast meat yield and can be a natural replacer of antibiotic in broiler chicken diet [2]. The lipid oxidation and antioxidant effect were effectively inhibited in raw meat than cooked patties as determined by distillation and extraction methods [3]. The water extracts obtained from curry leaves and fenugreek leaves could be explored as natural antioxidants in poultry meat and meat products [4].

Cooked chicken chunks treated with curry leaves extract revealed higher sensory scores and possibility of using curry leaves as a potential natural antimicrobial/decontaminant and preservative for animal origin foods [5].

Herbs and homegrown herbal plants are consolidated in poultry diets to invigorate body weight (BW) pick up and improve feed proficiency. Curry leaves (*Murraya koenigii*) are restorative plants known for their antibacterial properties, the powder from the dried grounded leaves likewise have hostile to helminthic, against parasitic and against bacterial properties, which are strong against different contaminations.

However, an experiment was conducted by including different levels of curry leaves and their combinations in powdered form in the diet to study the serum biochemical parameters and immune responses in broilers.

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**Methodology**

**Materials:** The experiment was carried out in the Department of Animal Husbandry and Dairy SHUATS's small nutrition lab in Prayagraj, India. This examination's influence was evaluated in terms of Broiler development, feed consumption, and feed change proportion exhibits

**Experimental birds**

An all-out no. 48 day-old broiler chicks which were partitioned arbitrarily into four gatherings with four sub bunches including three chicks. They were taken care of starter apportion up to 3 weeks age (1 to 21 days) and afterward broiler finisher proportion up to 3-4 weeks age (22-28days). They were housed in cages in separate pens and given commercial food and water as needed. They were kept in a small animal laboratory in battery-style cages. Floor space for broilers was set at 0.75 square feet. Each was managed under the same circumstances. Weekly records of body weight and weight gain were kept. Statistics were used to analyze the data.

**Experimental design:** The details of experimental design have been described in table 01.

**Collections and preparations of ingredients**

The essential curry leaf powder (*Murraya koenigii*) leaves taken from the plant and leaves were naturally dried under sun for 3 days and powder was made by grinder to make fine powder and the powder was mixed in the broiler ration. The ration was supplemented as per dietary regimes of treatment. Broiler starter ration contained CP 22% and ME:2900 KCL and broiler finisher ration contained CP 19% ME:3000 KCL was fed at libtum to the birds.

**Parameters studied**

**Weekly body weight:** The differences in body weight

attained at the start and end of the week were used to compute the average weekly body weight the relevant time period for each replication.

**Weekly body weight gain:** The average weekly live weight was calculated from the differences in body weight attained at the end and the start of the concerned period for all the replicates.

**Table 1:** Details of Dietary treatment

Groups	Dietary treatments
T <sub>0</sub> (control)	Standard broiler chicken diet
T <sub>1</sub>	Standard broiler chicken diet + curry leaf powder @ 5g/kg feed
T <sub>2</sub>	Standard broiler chicken diet + curry leaf powder @7.5g/kg feed
T <sub>3</sub>	Standard broiler chicken diet + curry leaf powder @10g/kg feed

**Results and Discussion**

From the perusal of data on weekly body weight of broilers, contained in Table 2, it may be noted that mean body weight of broilers, irrespective of weeks at one, two, three, four weeks of age was 429.95g, 500.4 g, 570.85g, and 641.3 g, respectively. The differences in these were significant, which indicate a significant effect of age on weekly body weight of broilers in all treatments

**Table 2:** ANOVA for data on weekly body weight of broiler chicks

Treatments	W1	W2	W3	W4	Mean
T <sub>0</sub>	180.15	429.95	812.80	1266.80	672.42
T <sub>1</sub>	180.62	500.40	840.65	1348.40	717.51
T <sub>2</sub>	172.30	570.85	882.80	1393.40	754.83
T <sub>3</sub>	175.62	641.30	904.27	1475.85	799.26
Mean	177.17	535.625	860.13	1371.11	

**Table 3:** ANOVA for data on weekly body weight of per broiler

Source	d.f	S.S.	M.S.S.	F. Cal.	F. Tab. 5%	Result
Replication	3	34960.25	11653.4	0.01668	3.86	NS
Treatment	3	3084858	1028286	2.14	3.86	NS
Error	9	17848.17	1983.13	-	-	-
Total	15	4148740.9				-

**Table 4:** ANOVA for data on weekly gain in weight (g) per broiler in different treatments

Treatments	W1	W2	W3	W4	Mean
T <sub>0</sub>	131.98	315.31	497.48	769.31	428.52
T <sub>1</sub>	134.35	334.7	505.95	838.47	453.36
T <sub>2</sub>	125.24	302.85	579.94	866.00	468.50
T <sub>3</sub>	127.07	307.57	596.7	879.15	477.62
Mean	129.66	315.10	545.01	838.23	

From the perusal of data on weekly average gain in weight per broilers after five weeks of age, contained in Table 4. It may be noted that mean gain in weight per broiler, irrespective of weeks, at first, second, third and four weeks of age 129.66, 315.10, 545.01 and 838.23g respectively. The differences in the average gain in body weight of broilers, both due to treatments and weeks were significant (Table 4)

**Table 5:** ANOVA for data on weekly gain in weight of per broilers

Source	d.f	S.S.	M.S.S.	F. Cal.	F. Tab.5%	Result
Replication	3	5527.777	1842.592	1.66	3.86	NS
Treatment	3	1121478	373825.9	336.8	3.86	S
Error	9	9989.225	1109.914			-
Total	15	1136995				-

**Discussion**

There was a proportionate increase in body weight in groups fed with graded levels of dried ginger powder either alone or

in combination with curry leaf when compared to control which might be due to the antioxidant property of curry leaf powder [6] A significant effect on the physio-chemical,

microbiological and sensory quality of chicken meat patties due to the incorporation of various antioxidants during refrigeration was resulted [7] curry leaf powder contained high amount of cardiac glycosides, flavonoids and phenols. Improved physicochemical properties of spent layers meat [8]. Dietary Curry leaves has potential to reduce the yolk cholesterol contents while altering the serum cholesterol level favorably in layer chicken [9]. Herbal powder had no deteriorous effect on birds but improved weight gain, feed efficiency and economic return in production [10].

### Conclusion

The mean body weight of day-old chicks in different treatments viz. T<sub>0</sub>, T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> was 48.16, 46.27, 47.05 and 48.55g, respectively. The differences in the body weight of day chicks in different treatments were found non-significant. The mean body weight of broiler chicks at fourth week of age in T<sub>0</sub>, T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> was 1266.8, 1344.575, 1445.95, 1475.85 g, respectively. The differences in the body weight of chicks at four weeks of age due to treatments were found non-significant. The mean average gain in weight per broiler at fourth week of age in T<sub>0</sub>, T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 769.31, 838.47, 866.00g and 879.15g respectively. The differences in the average gain in weight per broiler between the treatments were found non-significant. It may be concluded that there was a beneficial effect of curry leaves powder supplementation in the diet of broilers on body weight and gain in weight of broilers. According to body weight and gain in weight, T<sub>3</sub> i.e., mixture of curry leaves powder @ 10g/kg feed was found to be best compared to all treatments

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