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## Effect of herbal feed additives on cost of production of broilers during summer season of Konkan region

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**Abstract**

The trial was conducted to evaluate effect of herbal feed additives on cost of production of broilers during summer season of Konkan region. A total of 162 day-old broiler chicks of Vencobb-400 strain were randomly divided into nine treatment groups with three replications of 18 chicks in each treatment using Factorial Randomized Block Design. In order to evaluate seasonal impact of research was conducted in summer (S1), rainy (S2) and winter season (S3). The control group (T0) fed on basal diet without any supplementation and other eight treatments groups were supplemented with 0.1 per cent FSP (T1), 0.2 per cent FSP (T2), 0.1 per cent GSP (T3), 0.2 per cent GSP (T4), 0.1 per cent FSP and 0.1 per cent GSP (T5), 0.1 per cent FSP and 0.2 per cent GSP (T6), 0.2 per cent FSP and 0.1 per cent GSP (T7) and 0.2 per cent FSP and 0.2 per cent GSP (T8), respectively. It was found that treatment T2 showed (Rs.30.38) more profit as compared to other treatment groups followed by T8 (Rs.29.88), T7 (Rs.28.64), T1 (Rs.26.94), T5 (Rs.26.67), T3 (Rs.25.05), T4 (Rs. 24.49), T6 (Rs.23.61) and T0 (Rs.14.75). Thus results indicated that addition of FSP at 0.2 per cent level in broiler diet showed more net profit as compared to different levels of FSP and GSP and control in summer season.

**Keywords:** Herbal feed additives, broilers, cost, summer season

**Introduction**

Indian Poultry Industry is one of the fastest growing segments of the agricultural sector today in India. Poultry (*Gallus domesticus* L.) production is one of the areas in livestock with significant contribution to human food. In recent years poultry products become very popular food for the about 68 per cent of non vegetarian population. Chickens are widely reared in India and total population of poultry in India is reported to be about 729.21 million (Anonymous, 2012) [1]. Indian poultry industry is growing at the rate of 8 to 10 percent for eggs and 11 to 12 per cent for broiler production (Sasidar and Murari, 2015) [7] due to improved breeds of poultry. Poultry meat has significant role in Indian diet and India is the fourth largest producer of poultry meat in world. Broilers are chickens produced specifically for meat production, these includes small fryers to large roaster type chicken. The term "antibiotic growth promoter" is used to describe any medicine that destroys or inhibits bacteria and is administered at a low, sub-therapeutic dose. The use of antibiotics for growth promotion has arisen with the intensification of livestock farming. Infectious agents reduce the yield of farmed food animals and, to control these, the administration of sub-therapeutic antibiotics and antimicrobial agents has been shown to be effective. So, researchers are now concentrating efforts on the use of our ancient medicinal system to find beneficial herbs and plants, which can be safely used to increase production. It is conceivable that herbal agents could serve as safer alternatives as growth promoters due to their suitability and preference, lower cost of production, reduced risks toxicity and minimum health hazards. Herbal agents could serve as safer alternatives as growth promoters due to lower cost, reduced toxicity and minimum health hazards. Biological trials of certain herbal formulations as growth promoter have shown encouraging results and some of the reports have demonstrated improved weight gain and feed efficiency, lowered mortality, and increased immunity and viability in poultry (Kumar, 1991) [5]. Fenugreek (*Trigonella foenum-graecum* L.) is a well-known medicinal plant that grows in nature and mainly cultivated in India, Pakistan and China. Fenugreek seeds have many therapeutic effects like hypoglycemic, anthelmintic, antibacterial, anti-inflammatory, antipyretic, and antimicrobial properties (Bash *et al*, 2003) [2].

Guduchi is also well known for its immunomodulatory, antioxidant, antibacterial and antiviral properties.

### Material and Methods

The experiment was conducted at poultry unit of Instructional Farm, Department of Animal Husbandry and Dairy Science, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Ratnagiri (Maharashtra). The trial was conducted with 162, day old 'Vencobb' broiler chicks, procured from M/S Venkateshwara Hatchery, Pvt. Ltd., Pune. The birds were of the same hatch and were reared under uniform management condition up to six weeks of age during summer. During experimental period, a commercial broiler starter and broiler finisher crumbles were used. In the first phase the birds fed with maize crumbles (from 1-4 days) then (from days 1 to 21) the birds were fed with a starter diet and a finisher diet was provided in the second phase (from days 22 to 42). The experimental diets and drinking water were provided ad libitum. The control group (T<sub>0</sub>) fed on basal diet without any supplementation and other eight treatments groups were supplemented with 0.1 per cent Fenugreek Seed Powder (T<sub>1</sub>), 0.2 per cent Fenugreek Seed Powder (T<sub>2</sub>), 0.1 per cent Guduchi Stem Powder (T<sub>3</sub>), 0.2 per cent Guduchi Stem Powder (T<sub>4</sub>), 0.1 per cent Fenugreek Seed Powder and 0.1 per cent GSP (T<sub>5</sub>), 0.1 per cent Fenugreek Seed Powder and 0.2 per cent Guduchi Stem Powder (T<sub>6</sub>), 0.2 per cent Fenugreek Seed Powder and 0.1 per cent Guduchi Stem Powder (T<sub>7</sub>) and 0.2 per cent Fenugreek Seed Powder and 0.2 per cent Guduchi Stem Powder (T<sub>8</sub>), respectively. The cost of broiler was calculated by using inputs viz., cost of day old chicks, feed and herbal additives. The prevailing market rates of feed and herbal additives were considered for this purpose. Cost was calculated per kg live body weight of broiler by using formulae as per Narhari and Rajni (2005) [6].

### Results and Discussion

#### Cost of production of broilers

The cost of production of broilers fed with different dietary treatments showed in Table 1. The cost production of per

broiler including additional cost of herbal feed additives in summer season was found Rs. 135.81, 136.39, 134.92, 137.09, 138.83, 139.60, 141.93, 137.99 and 138.01 for T<sub>0</sub> to T<sub>8</sub> groups, respectively. The cost of production per broiler was numerically higher by about Rs. 141.93 and 138.83 in T<sub>6</sub> and T<sub>4</sub> group respectively as compared to other treatment groups and control group (T<sub>0</sub>) due to higher feed intake. However, gross profit per boilers was to found to be highest in T<sub>2</sub> (Rs.30.38) followed by T<sub>8</sub> (Rs.29.88) T<sub>7</sub> (Rs.28.64), T<sub>1</sub> (Rs.26.94), T<sub>5</sub> (Rs.26.67), T<sub>3</sub> (Rs.25.05), T<sub>4</sub> (Rs. 24.49), T<sub>6</sub> (Rs.23.61) and T<sub>0</sub> (Rs.14.75) group.

Thus the among the nine treatments, T<sub>2</sub> group was best in respect of higher gross profit per kg live weight of broiler due to higher body weight in summer season. The gross higher gross profit per kg live weight of broiler in T<sub>2</sub> was due to increased body weight and improved FCR as compared to other eight groups. The better performance of broiler supplemented with 0.2 per cent fenugreek seed powder (T<sub>2</sub>) might be due to several beneficial effects of the herbs *Trigonella foenum graecum* a antibacterial, antioxidant anti-inflammatory, antipyretic, antimicrobial hepatoprotective properties (Bash *et al*, 2003) [2], *Tinospora cordifolia*, contain levamisole promotes the performance of the intestinal flora thereby improving digestion and enhancing the utilization of energy, leading to improved growth of broiler birds it has antioxidant, as appetizer, anti-diarrheal, antimicrobial antiviral anti-inflammatory activity and aflatoxin reducing properties in broiler chicken (Devegowda *et al.*, 1990 and Duru, 2013) [3, 4]. The beneficial effects of fenugreek seed powder at a dose of 0.2 per cent in the broiler diet in summer season of Konkan region, which might be due to hormesis effect of the herbs incorporated as herbal feed additive.

From this study it can be concluded that dietary supplementation of fenugreek seed powder and guduchi stem powder has beneficial effect on net profit per kg live weight of broiler in summer season of Konkan region, it can be concluded that 0.2 per cent of fenugreek seed powder and guduchi stem powder has potential as acceptable growth promoter for broiler chickens in summer season.

**Table 1:** Cost of broiler production in different treatment groups in summer season of Konkan region.

Sr. No.	Cost of production of broiler in summer season	Costs/kg (Rs)	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	T <sub>7</sub>	T <sub>8</sub>
1.	Expenditure										
	1.Chick cost(A)= 1.05 x cost of day-old chick (Rs)	40.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00
	2.Feed cost (B)=Live weight in kg x FCR x Feed cost/kg (Rs)	28.00	79.26	79.52	77.97	79.22	79.57	81.18	82.05	79.49	78.36
	A+B		121.26	121.52	119.97	121.22	121.57	123.18	124.05	121.49	120.36
	3.Miscellaneous Expenditure (C)=Add 12% (A +B) (Rs)		14.55	14.58	14.40	14.55	14.59	14.78	14.89	14.58	14.44
	4.Additional cost of feed additive										
	a. Fenugreek seed powder cost /kg (Rs)	95.00	0.00	0.28	0.56	0.00	0.00	0.29	0.29	0.57	0.56
	b. Guduchi stem powder cost /kg (Rs)	450.00	0.00	0.00	0.00	1.32	2.67	1.35	2.70	1.35	2.65
	5.Total cost of feed additives (D) (Rs)		0.00	0.28	0.56	1.32	2.67	1.64	2.99	1.92	3.21
	6.Production cost per kg live weight of broiler (A+B+C+D) (Rs)		135.81	136.39	134.92	137.09	138.83	139.60	141.93	137.99	138.01
2.	Returns										
	1.Sale of one live broiler bird @ Rs.100/kg		159.30	186.68	193.81	182.90	183.86	190.38	185.80	193.38	196.82
3.	Gross returns per broiler (Rs)		23.49	50.29	58.89	45.81	45.03	50.78	43.87	55.39	58.81
4.	Net profit per kg live weight of broiler bird (Rs)		14.75	26.94	30.38	25.05	24.49	26.67	23.61	28.64	29.88

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