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Comparative study on growth performance of Satpuda and Broiler

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Abstract

The present investigation entitled as, “Comparative studies on growth performance and carcass traits of Satpuda and Broiler chicken (vencobb-400)” was carried out to assess the comparative evaluation of growth performance, carcass traits and proximate composition of meat of Satpuda and Broiler.

Twenty-five-day-old chicks of each breed were purchased from the hatcheries, the experimental bird was reared in a deep litter system and fed on a standard ration. The experiment was continued up to six week and no mortality were observed during the experiment period. The average cumulative body weight at six week of age of Satpuda and Broiler is 453.19 and 1966.43. The weekly average body weight gain (in gm) of satpuda and broiler bird for First, second, third, fourth, fifth and sixth week are 27.66, 31.97, 67.49, 82.77, 87.39, 117.17 and 149.43.213.90, 286.67, 399.73, 420.97, 449.72 respectively for satpuda and broiler bird. The average cumulative feed intake for the sixth week of satpuda and broiler bird is 1373.18 0.33 gm and 3617.99 0.19 gm respectively, significance difference ($p < 0.05$) was observed in feed intake. The highest feed intake was observed in broiler breed at six week which is 904.98 gm compared to satpuda at 505.68 gm. The highest feed conversion ratio was observed 3.03 in satpuda at sixth week where as better feed conversion ratio was observed in Broiler at sixth week is 1.83. The carcass traits of satpuda and broiler chicken showed the significant difference ($p < 0.05$). The Percentage of carcass trait such as breast, gible, drumstick thigh and dressing percentage of satpuda and broiler were 28.21.3.87.21.27.9.76.63.51 and 31.92, 4.62, 23.48, 10.81.74.81. Moisture percent of satpuda and broiler were 71.49 and 71.62 which was at par. Significant difference was observed in protein percent of satpuda and broiler 19.19.60. Satpuda breast meat protein showed superiority over broiler breast meat protein (%) of breast meat was 3.23 and 3.30 of satpuda and broiler there is significance between fat (%) of satpuda and broiler. The ash (%) of breast meat was 1.26 and 1.22 and broiler, there is a significance difference between fat (%) of satpuda and broiler.

Keywords: Comparison, satpuda, broiler (vencobb-400), growth performance, body characteristics, growth parameter

1. Introduction

Poultry is one of the fastest growing segments of the agriculture sector in India today. The potential of poultry sector in employment generation and enhancing rural incomes is well recognised. The intensifying income and changing consumer preferences lead to significant market opportunities for higher-value agricultural products. India is one of the largest poultry producing country in Asia. Before 1960s, from being largely a backyard endeavor, Indian poultry sector has evolved into an effervescent agribusiness spurred by domestic economic growth and consumption dynamics.

The overall growth of industry is also due to the fact that it provides the main source of animal protein through meat and eggs at cheaper rate as compared to other sources of animal protein, low maintenance cost and minimum space requirements, broilers adapt easily to almost any condition and profits are quite high. In a developing country like India, poultry plays an important role in improving nutritional status of masses, which are mostly suffering from malnutrition due to inadequate and inferior quality protein in their diet and augmenting the income of weaker sections. While meat of chicken is having low cholesterol level it is the best from health point of view. The whole concept of Poultry farming during the last two decades or so has undergone a sea change. The poultry industry has now emerged as a highly structured and market-oriented enterprise. Thus the major objective of poultry farming is to increase the profit margin in poultry business by improving feed efficiency and growth rate. Modern intensive poultry industry demands more rapid growth in a confined housing environment which leads to greater susceptibility to stress in broilers.

Poultry industry has made a tremendous and remarkable progress evolving from a small scale backyard venture to the status of commercial, full fledge, self-sufficient and most progressive agro based industry enterprise particularly because of the small capital investment, increased returns, and quick turn over, comparatively less risk involved, low land requirement, easy to production and high feed efficiency. Due to increasing demand for poultry meat, short supply of mutton and limited acceptability of beef and pork in some countries as considering of religious and cultural points like India. The poultry production is under rapid expansion in the world. Poultry are much more prolific than other livestock and through careful scientific breeding policies; they have become efficient converters of vegetables protein into high quality animal protein food for human consumption. The importance of backyard poultry is well recognized by Government of India and special programs are formulated for its promotion. Hence, efforts have been diverted into producing dual purpose native hybrids with improved production profiles. These hybrids are readily accepted by the rural farmers owing to their phenotypic appearance of the local birds. Hence, the introduction of Satpuda has generated new opportunities for poultry production in rural areas. These breeds grow fast and require low input like feed, management, health care, housing etc. and sustain different vagaries of climatic and environmental changes.

Poultry production in India has taken a quantum leap in the last four decades, emerging from use of unscientific farming practices to commercial production systems with state-of-the-art technological interventions.

If we look at the figure given below we will come to know that how the poultry industries have made the tremendous growth The egg production in the country has increased from 78.48 billion In 2014-15 to 114.38 billion in 2019-20. (Economy survey-2021).

The per capita availability of egg was 86 eggs per annum in 2019-20. (Economy survey-2021)

The Indian poultry sector, today contributes 1.2 lakh crore to India's Gross Domestic Product (GDP), and is one of the major agriculture sectors providing employment and livelihoods, which produces 25 crore eggs and 1.3 crore birds per day.

2. Material and Methods

The present research work entitled "Comparative Studies on Growth Performance and Carcass Traits of Satpuda and Broiler Chicken (vencob-400)", was carried out at Poultry

Unit of Department of Animal Husbandry and Dairy Science section, College of Agriculture Dhule, Maharashtra State located at 20.9002⁰N and 74.7988⁰E at an altitude of 258 meter. The materials used and methodology adopted during the course of experimentation are detailed in this chapter.

2.1 Experimental Bird

VENCOBB-400 breed is developed after eight years of intense breeding and selection programme. As a result in addition to meeting above requirements this bird is adopted to tropical climate. At breeder level Vencobb 400 is an early maturing bird with early peak, sustained production and better feed efficiency (VENKY'S OFFICIAL WEBSITE)

Satpudadesi is multicoloured feathering resembling to desi fowl in appearance, having maximum average body weight of 1 kg and giving about 200 eggs per year. The bird is quite resistant to heat stress, have all the essential characteristics of raising poultry under village condition as contemplated.

The environment of Dhule district is quite hot and dry, the summer temperature raise up to 46 degree celcius and the birds either do not perform or fall prey to high environmental temperature. Hence the bird which can withstand such high temperature and yet perform well in rural condition was chosen for this study.

2.2 Housing and Management

Before arrival of Satpuda chicks the pens, waterers, feeders, brooders and floor were cleaned, washed, disinfected and fumigated. All the experimental chicks were reared on deep litter system of rearing on saw dust as a litter material in a well-ventilated house with identical management and surrounding conditions. Proper brooding of chicks was done by providing sufficient heat and light by using electric bulbs in each group for first three weeks of age. Afterwards, sufficient artificial light was provided during night hours throughout the experimental period. Fresh, clean and cool drinking water was provided *ad libitum* to the experimental birds.

The lime stone powder was spread over the floor, to prevent microbial infection. Foot bath containing a disinfectant was provided in front of the door of poultry house. Everyone entering the house was asked to dip his or her legs in the foot bath. The shoes or any foot wear was not allowed inside the poultry house as a preventive measure. All the precautionary measures against possible infection of diseases were taken throughout the experimental period.

Table 1: Vaccination schedule of experimental birds

Sr. No.	Disease	Vaccine	Age at vaccination	Dose/route
1	Ranikhet	Lasotavaccine (F1 Strain)	7 th day	One drop in eye (intraocular)
2	Gumboro (IBD)	Gumborovaccine	14 th day	One drop in eye (intraocular)
3	Gumboro (IBD)	Gumborovaccine	21 th day	Through drinking water
4	Ranikhet	Boosterdose	28 th day	Through drinking Water

2.3 Observations Recorded:

2.3.1 Body weight

The weight (g) of all the experimental birds was recorded individually on electronic weighing balance at weekly intervals.

The weights were recorded on 7th day morning before offering fresh water and feed and subsequently at 7 days interval. Live weight gains were calculated by subtracting live weight of previous week from that of current week.

2.3.2 Feed intake

Daily feed intake was calculated from the amount of feed consumed by each group in a day. Average feed intake was calculated from the total feed offered and the feed left over on the next day morning. Weekly feed intake was calculated by adding up the daily average feed intake of the particular week. Cumulative feed intake of particular week was calculated by adding up the weekly average feed intake of the previous

weeks with the feed intake of that particular week. Value for the weekly feed intake per birds were calculated as below,

$$\text{Weekly feed intake (g/birds)} = \frac{\text{Total feed intake by birds during a week}}{\text{No of live chicks during that week}}$$

Similarly, cumulative feed in take was calculated with the addition of these values upto six week.

2.3.3 Feed conversion ratio

Weekly feed conversion ratio was calculated by dividing the weekly feed consumption by weekly weight gain. The weekly cumulative feed conversion ratio was estimated by dividing the cumulative feed consumption or total amount of feed consumed up to that particular week by the body weight gain recorded upto that week.

Weekly feed conversion ratio was calculated by using following formula-

$$\text{FCR} = \frac{\text{Feed consumption (g) during the week}}{\text{Gain in body weight (g) during the week}}$$

2.4 Statistical Analysis

The data generated during the experimental period was statistically analysed by “T test”

3. Result and Discussion

Result emerged out of the analysis of collected data empirical facts from the present study entitled as “Comparative studies on growth performance and carcass traits of Satpuda and Broiler (vencobb-400) Chicken”. The details of different parameter studied and result obtained from the research study are discussed in the chapter.

3.1 Proximate composition of satpuda and broiler ration

The Proximate composition of experimental satpuda and broiler starter and finisher ration are presented in table 2. The experiment ration contain adequate nutrient for growth as per BIS (1992).

Table 2: The proximate chemical composition of experimental satpuda and broiler ration (% DM basis)

Nutrient	Starter		Finisher	
	Satpuda	Broiler	Satpuda	Broiler
Crude Protein	21.25	23.0	19.29	20.12
Crude Fibre	6.63	4.69	5.45	3.80
Ether Extract	4.29	4.77	4.80	4.5
Total ash	7.18	7.4	6.9	6.9
Nitrogen Free extract	60.63	60.55	62.89	65.20

3.2 Growth Performance

3.2.1 Body weight changes

The Cumulative body weight changes of satpuda and Broiler Birds at different weekly interval is represented in table below.

Table 3: Initial Body Weight of satpuda and Broiler Bird (in gm).

Initial Weight (g)		
Sr. No	Satpuda	Broiler
1	38.38	45.5
2	39.19	44.9
3	38.22	46.3
4	37.33	47.6
5	40.65	46.3
6	38.56	45.25
7	37.44	44.45
8	36.31	47.3
9	39.25	48.35
10	38.16	46.2
11	40.97	45.37
12	38.88	46.23
13	39.59	44.8
14	37.39	45.9
15	39.48	46.2
16	38.47	49.3
17	36.53	48.45
18	39.76	46.3
19	40.79	47.25
20	39.35	46.55
21	38.45	47.45
22	37.73	47.2
23	38.55	46.3
24	39.63	45.32
25	39.48	46.95
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	38.74	46.47
Variance	1.48	1.45
Observations	25.00	25.00
df	48.00	
t Stat	-22.57	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	

The Initial average Body Weight of Satpuda and Broiler Bird were 38.74 ± 0.24 and 46.47 ± 0.24 g respectively, initial body weight of both bird showed significance difference ($p < 0.05$). Similar result were found by S. Jaturasitha *et al* (2022) [2] in comparison to broiler that initial weight of Native Thai

chicken was 30.91 less than that of Broiler 44.70 g, respectively ($p < 0.01$) in his experiment. Sonawane *et al.* (2020) also found the similar result in broiler (T_0) initial weight was 42.52 gm

Table 4: First Week Cumulative Body weight of Satpuda and Broiler Bird (in gm).

1 st Week		
Sr. No	Satpuda	Broiler
1	66.49	195.88
2	65.58	198.2
3	65.57	197.3
4	66.46	196.25
5	66.35	200.2
6	65.54	190.3
7	66.43	197.5
8	65.62	194.3
9	66.51	190.6
10	65.41	195.5
11	66.62	199
12	65.63	195.65
13	65.55	196.3
14	64.36	193.2
15	65.47	195.65
16	66.58	197.75
17	67.69	192.89
18	66.5	195.65
19	65.41	190.65
20	66.52	197.85
21	67.63	199.3
22	68.44	197.65
23	66.55	199.25
24	67.46	195.17
25	69.57	195.6
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	66.40	195.90
Variance	1.23	7.42
Observations	25.00	25.00
Hypothesized Mean Difference	0.00	
df	32.00	
t Stat	-220.12	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.69	

The first week average cumulative Body Weight of Satpuda and Broiler Bird were 66.40 ± 0.22 g and 195.90 ± 0.54 g respectively, first week body weight of bird showed significance difference ($p < 0.05$).

Percent Body weight gain in satpuda and broiler over initial body weight for first week is 71.39 and 76.27. Padvi, 2019 [36] also found the similar result in T_0 body weight changes in broiler at first week of experiment period is 195.88 gm

Table 5: Second Week Cumulative Body weight of Satpuda and Broiler Bird (in gm).

2 nd Week		
Sr. No	Satpuda	Broiler
1	99.38	409.78
2	97.45	408.59
3	98.64	407.47
4	99.83	410.35
5	97.22	408.23
6	98.51	409.14
7	99.6	408.82
8	99.83	407.71
9	98.72	408.95
10	96.65	410.66
11	97.51	411.53
12	98.93	412.24
13	99.85	410.15
14	95.73	408.31
15	94.59	409.06
16	96.68	406.32
17	97.77	410.45
18	98.93	408.56
19	99.84	409.24
20	98.25	407.1
21	97.61	409.22
22	98.86	410.44
23	99.99	412.56
24	98.83	408.78
25	99.96	409.88
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	98.37	409.34
Variance	2.02	2.27
Observations	25.00	25.00
Hypothesized Mean Difference	0.00	
df	48.00	
t Stat	-750.26	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	

The second week average cumulative body weight of satpuda and broiler bird were 98.37 ± 0.28 g and 409.34 ± 0.30 g respectively, second week body weight of bird showed significance difference ($p < 0.05$).

Percent Body weight gain in satpuda and broiler over first

week body weight for second week is 48.14 and 108.95.

Similar finding of the present study for second week body weight gain in broiler were given by, the second week body weight of broiler is 99.29 gm (Rathod, 2020) ^[40].

Table 6: Third Week Cumulative Body weight of Satpuda and Broiler Bird (in gm).

3 rd Week		
Sr. No	Satpuda	Broiler
1	165.28	695.25
2	166.7	694.3
3	167.84	695.95
4	166.43	699.55
5	165.52	693.45
6	164.61	694.9
7	165.53	697.2
8	165.32	699.25
9	164.41	698.3
10	165.54	695.45
11	167.45	697.65
12	166.36	693.4
13	165.57	694.75
14	164.38	696.9
15	165.49	697.63
16	167.51	700.25
17	166.5	691.23

18	167.43	697.63
19	164.32	695.69
20	165.54	693.55
21	164.63	692.99
22	166.47	693.69
23	167.55	699.1
24	164.45	697.75
25	165.63	694.33
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	165.86	696.01
Variance	1.23	5.64
Observations	25.00	25.00
df	34.00	
t Stat	-1011.20	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.69	

The third week average cumulative body weight of satpuda and broiler bird were $165.86 \pm 0.22g$ and $696.01 \pm 0.47g$ respectively, third week body weight of bird showed significance difference ($p < 0.05$).

Percent Body weight gain in satpuda and broiler over second week body weight for third week is 68.86 and 70.03. Similar finding were given by (Rathod, 2019) that the third week body weight of satpuda bird were 155.33 gm.

Table 7: Fourth Week Cumulative Body weight of Satpuda and Broiler Bird (in gm).

4th Week		
Sr. No	Satpuda	Broiler
1	247.89	1089.89
2	248.76	1110.63
3	259.83	1090.35
4	246.69	1015.25
5	255.58	1085.63
6	246.76	1115.83
7	247.85	1090.93
8	248.79	1095.94
9	247.68	1097.9
10	246.57	1099.55
11	248.66	1095.59
12	247.75	1093.43
13	246.91	1095.47
14	247.82	1090.35
15	248.73	1093.27
16	246.84	1092.72
17	246.99	1094.33
18	247.78	1097.35
19	248.87	1120.53
20	249.86	1119.75
21	245.75	1115.57
22	246.81	1117.97
23	247.92	1089.79
24	248.73	1090.23
25	249.84	1095.32
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	248.63	1095.74
Variance	8.90	396.27
Observations	25.00	25.00
df	25.00	
t Stat	-210.42	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.71	

The Fourth week average cumulative Body Weight of Satpuda and Broiler Bird were $248.63 \pm 0.59 g$ and $1095.74 \pm 3.98 g$ respectively, Fourth week body weight of bird showed significance difference ($p < 0.05$). Percent Body weight gain in satpuda and broiler over third

week body weight for fourth week is 50.16 and 57.43 Sarkar *et al.* (2008) ^[44] also concluded that the Commercial broilers attained the target weights of 850, 1000 and 1250 g at the age of 21, 24 and 28 days.

Table 8: Fifth Week Cumulative Body weight of Satpuda and Broiler Bird (in gm).

5 th Week		
Sr. No	Satpuda	Broiler
1	335.48	1510.29
2	334.53	1525.35
3	335.62	1519.3
4	334.71	1520.65
5	334.85	1515.3
6	335.56	1519.65
7	335.44	1520.25
8	335.35	1517.65
9	335.26	1519.35
10	336.17	1517.7
11	337.69	1516.23
12	338.59	1507.25
13	335.4	1511.65
14	334.51	1509.78
15	335.62	1515.63
16	336.75	1521.69
17	337.84	1516.7
18	335.93	1518.6
19	334.82	1517.35
20	335.61	1520.23
21	336.75	1513.95
22	335.64	1516.35
23	336.53	1519.69
24	337.42	1517.43
25	338.31	1509.68
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	336.02	1516.71
Variance	1.38	18.43
Observations	25.00	25.00
df	28.00	
t Stat	-1326.25	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.70	

The Fifth week average cumulative Body Weight of Satpuda and Broiler Bird were 336.02±0.23 g and 1516.71±0.85.g respectively, Fifth week body weight of bird showed significance difference ($p < 0.05$).

Percent Body weight gain in satpuda and broiler over fourth week body weight for fifth week is 35.39 and 38.41 Similar to present study, fifth week body weight of satpuda was 302.58 gm observed by (Rathod, 2020) ^[40]

Table 9: Sixth Week Cumulative Body weight of Satpuda and Broiler Bird (in gm).

6 th Week		
Sr. No	Satpuda	Boriler
1	450.82	2090.2
2	451.93	2050.35
3	452.72	1990.57
4	453.81	1998.67
5	453.92	2010.2
6	452.83	1995.35
7	451.73	2000
8	451.92	2012.33
9	452.81	1980.89
10	452.12	1990.84
11	453.63	2016.74
12	452.72	1997.67
13	453.81	2050.35
14	461.91	1999.53
15	453.82	1993.68
16	452.93	1990.58
17	451.85	1997.75
18	452.76	2008.77
19	453.67	1993.27
20	455.88	1990.79

21	453.99	1987.56
22	452.8	1989.93
23	450.81	2015.63
24	451.92	1999.28
25	452.63	1989.75
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	453.19	1966.43
Variance	4.53	39858.01
Observations	25.00	25.00
df	24.00	
t Stat	-37.90	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.71	

The Sixth week average cumulative Body Weight of Satpuda and Broiler Bird were 453.19±0.42 g and 1966.43±0.42 g. respectively, sixth week body weight of bird showed significance difference ($p < 0.05$).

Percent Body weight gain in satpuda and broiler over fifth week body weight for sixth week is 34.86 and 29.65

The highest percent body weight gain was observed in broiler at second week age was 108.95 and lowest percent body gain was observed in sixth week of age is 29.65.

The highest percent body weight gain was observed in satpuda at first week age was 71.39 and lowest percent body

gain was observed in sixth week of age is 34.86.

The finding of present study are in accordance with (Sonawane *et al* 2021) ^[19] as he observed the body weight of Broiler at sixth week of age is 2, 076.97 gm.

3.2.2 Body Weight Gain

The weekly average body weight gain (ingm) of satpuda and broiler bird for first, second, third, fourth, fifth and sixth week are 27.66, 31.97, 67.49, 82.77, 87.39, 117.17 and 149.43, 213.90, 286.67, 399.73, 420.97, 449.72 respectively for satpuda and broiler bird.

Table 10: Average weekly body weight gain of satpuda and broiler bird(in gm).

Week	Satpuda	Broiler
1	27.66	149.43
2	31.97	213.9
3	67.49	286.67
4	82.77	399.73
5	87.39	420.97
6	117.17	449.72

The Broiler Bird shown the significant weekly body weight gain as compared to Satpuda, the sixth week of experimental period the average body weight gain were 117.17 g and 449.17 g respectively for satpuda and broiler

Azharul *et al.* (2016) ^[6] stated that the final body weight of Sonali and Fayoumi was 1001 g and 959 g with a trend to be higher for Sonali ($P=0.08$).

Our finding regarding broiler weekly body weight gain are similar to Sonawane *et al.*, (2021) ^[19].

3.3 Feed Intake and Feed Efficiency

3.3.1 Cumulative feed Intake

The average cumulative feed intake of experimental satpuda and broiler bird was recorded at weekly interval through out the experimental period.

The average cumulative feed intake of satpuda and broiler chicks are shown in the following table represented below.

Table 11: First week average cumulative feed intake of satpuda and broiler (in gm).

Sr. No	Satpuda	Broiler
1	37.5	174.5
2	38.65	175.23
3	39.74	174.13
4	37.83	173.25
5	38.92	174.36
6	37.51	175.57
7	38.4	175.48
8	39.31	175.39
9	38.22	173.2
10	39.23	174.81
11	38.34	175.92
12	39.45	174.63
13	38.56	174.54
14	37.67	173.46
15	36.78	174.38
16	39.9	172.29

17	37.58	175
18	38.47	174.25
19	36.36	173.33
20	39.25	172.42
21	37.14	174.51
22	38.53	172.6
23	37.42	173.8
24	39.31	174.92
25	37.65	175.29
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	38.31	174.29
Variance	0.89	1.03
Observations	25.00	25.00
df	48.00	
t Stat	-489.97	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	

The average cumulative feed intake for the first week of satpuda and broiler bird is 38.31 ± 0.18 g and 174 ± 0.20 g respectively, significance difference ($p < 0.05$) was observed in feed intake.

Table 12: Second week average cumulative feed intake of satpuda and broiler (in gm).

2nd Week		
Sr. No	Satpuda	Broiler
1	121.67	552.67
2	122.58	550.89
3	121.46	552.7
4	123.32	554.61
5	122.23	553.52
6	125.82	552.43
7	124.71	550.34
8	123.6	550.25
9	121.85	552.3
10	123.94	553.19
11	122.43	552.28
12	125.21	551.37
13	123.15	551.46
14	124.54	552.46
15	123.43	552.55
16	124.32	552.46
17	125.02	551.82
18	121.31	552.91
19	122.4	550.1
20	123.5	554
21	122.74	553.25
22	124.47	553.28
23	121.53	552.35
24	123.84	552.38
25	124.92	550.46
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	123.36	552.24
Variance	1.71	1.38
Observations	25.00	25.00
df	47.00	
t Stat	-1219.33	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	

The average cumulative feed intake for the second week of satpuda and broiler bird is 123.36 ± 0.26 g and 552.24 ± 0.23 g respectively, significance difference ($p < 0.05$) was observed in feed intake.

Table 13: Third week average cumulative feed intake of satpuda and broiler (in gm).

Sr. No	3 rd Week	
	Satpuda	Broiler
1	286.95	1150.35
2	286.8	1152.25
3	287.71	1150.35
4	286.62	1150.56
5	288.33	1152.65
6	287.26	1153.75
7	286.15	1152.53
8	287.5	1150.78
9	288.41	1152.8
10	286.32	1150.9
11	286.23	1152.29
12	287.14	1150.48
13	287.85	1152.67
14	287.61	1150.86
15	288.7	1152.35
16	288.81	1152.44
17	286.92	1150.53
18	286.63	1152.22
19	287.54	1150.31
20	287.45	1154
21	288.36	1150.23
22	290.27	1150.35
23	285.18	1150.56
24	286.29	1151.65
25	286.3	1152.56
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	287.33	1151.62
Variance	1.19	1.37
Observations	25.00	25.00
df	48.00	
t Stat	-2700.92	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	

The average cumulative feed intake for the third week of satpuda and broiler bird is

287.33±0.21 g and 1151.62±0.234 g respectively, significance difference ($p < 0.05$) was observed in feed intake.

Table 14: Fourth week average cumulative feed intake of satpuda and broiler (in gm).

Sr. No	4 th WEEK	
	Satpuda	Broiler
1	565.39	1950
2	566.26	1950.1
3	565.62	1952.28
4	566.71	1954.37
5	564.5	1950.46
6	566.41	1952.55
7	566.23	1950.64
8	568.7	1952.73
9	569.92	1954.81
10	568.63	1954.92
11	565.54	1952.1
12	565.36	1950
13	568.27	1950.53
14	568.18	1951.4
15	565.29	1950.31
16	565.3	1950.29
17	566.14	1951.18
18	564.32	1952.56

19	566.62	1950.65
20	566.8	1950.8
21	567.71	1950.92
22	565.33	1952.1
23	566.14	1953.22
24	565.23	1956.61
25	568.3	1950.5
t-Test: Two-Sample Assuming Unequal Variances		
	<i>SATPUDA</i>	<i>BROILER</i>
Mean	566.52	1951.84
Variance	2.13	3.20
Observations	25.00	25.00
df	46.00	
t Stat	-2999.09	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	

The average cumulative feed intake for the fourth week of satpuda and broiler bird is 566.52 ± 0.29 g and

respectively, significance difference ($p < 0.05$) was observed in feed intake.

Table 15: Fifth week average cumulative feed intake of satpuda and broiler (in gm).

5 th Week		
Sr. No	Satpuda	Broiler
1	867.97	2710.25
2	867.8	2712.3
3	868.71	2710.5
4	866.61	2713.6
5	868.3	2710.7
6	867.59	2710.8
7	866.48	2712.9
8	867.37	2710
9	868.26	2713.32
10	866.15	2714.51
11	867.04	2715.4
12	867.83	2716.3
13	868.92	2715.2
14	866.71	2716.1
15	869.6	2713.6
16	865.59	2714.8
17	866.48	2710.9
18	867.37	2710.8
19	866.26	2712.7
20	868.15	2712.8
21	869.04	2715.9
22	869.13	2710.3
23	866.52	2715.4
24	866.41	2712.5
25	867.3	2713.6
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	867.50	3608.97
Variance	1.16	24129357.42
Observations	25.00	25.00
df	24.00	
t Stat	-2.79	
P(T<=t) one-tail	0.01	
t Critical one-tail	1.71	

The average cumulative feed intake for the fifth week of satpuda and broiler bird is 867.50 ± 0.21 g and

respectively, significance difference ($p < 0.05$) was observed in feed intake.

Table 16: Sixth week average cumulative feed intake of satpuda and broiler (in gm).

6 th Week		
Sr. No	Satpuda	Broiler
1	1372.6	3617.5
2	1370.54	3618.46
3	1374.32	3617.35
4	1372.1	3618.2
5	1374.23	3619.11
6	1375.45	3617.42
7	1374.37	3615.53
8	1373.89	3616.64
9	1375.98	3617.7
10	1372.23	3618.81
11	1374.34	3617.92
12	1373.45	3616.83
13	1375.36	3618.54
14	1372.63	3619.43
15	1373.36	3618.36
16	1371.3	3617.25
17	1373.28	3618.1
18	1374.82	3619.31
19	1375.29	3619.22
20	1372.93	3618.17
21	1372.9	3616.56
22	1370.28	3617.47
23	1372.2	3618.38
24	1370.25	3619.29
25	1371.3	3618.18
t-Test: Two-Sample Assuming Unequal Variances		
	Satpuda	Broiler
Mean	1373.18	3617.99
Variance	2.73	0.96
Observations	25.00	25.00
df	39.00	
t Stat	-5843.64	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	

The average cumulative feed intake for the sixth week of satpuda and broiler bird is 1373.18±0.33 g and 3617.99±0.19 g respectively, significance difference ($p<0.05$) was observed

in feed intake.

3.3.2 Weekly feed Intake

Table 17: Average weekly feed intake of Satpuda and Broiler birds (in gm).

Week	Satpuda	Broiler
1	38.31	174.29
2	85.03	377.95
3	163.97	599.38
4	279.19	800.22
5	300.98	761.17
6	505.68	904.98

The weekly average feed intake of satpuda and broiler were recorded at weekly interval starting from first week to sixth. Average weekly feed intake of satpuda and broiler bird is given in the table 17 broiler breed have more average feed intake than that of satpuda breed. The highest feed intake was observed in broiler breed at six week which is 904.98 gm

compared to satpuda at 505.68 gm.

Our finding are in accordance with (Rathod, 2020) ^[40] and (Padavi, 2020) for T₀group in satpuda and broiler

3.3.3 Average weekly cumulative feed conversion ration (FCR)

Table 18: Average weekly cumulative feed conversion ratio (FCR)

Week	Satpuda	Broiler
1	0.57	0.88
2	1.25	1.34
3	1.73	1.65
4	2.27	1.78
5	2.58	1.78
6	3.03	1.83

The (table 18) represent the average cumulative weekly feed conversion ratio of satpuda and broiler bird from first week to sixth week respectively.

The highest feed conversion ratio was observed 3.03 in satpuda at sixth week where as better feed conversion ratio was observed in Broiler at sixth week is 1.83

Khawaja *et al.* (2012) reported the feed conversion was poor ($p < 0.05$) in Desi and better in RIR breed.

S. Jaturasitha *et al.* (2022) [2] observed that feed conversion ratio at & 2 and 2&4 weeks of thai native chicken were higher than of Broiler ($p < 0.01$) but there was no significant difference at 4 & 6 weeks.

3.3.4 Average weekly feed conversion ration (FCR)

Table 19: Average weekly feed conversion ratio(FCR)

Week	Satpuda	Broiler
1	1.38	1.18
2	2.65	1.77
3	2.42	2.09
4	3.37	2
5	3.44	1.8
6	4.31	2

Proximate Composition of Ration

Nutrient	Starter		Finisher	
	Satpuda	Broiler	Satpuda	Broiler
Crude Protein	21.25	23.0	19.29	20.12
Crude Fibre	6.63	4.69	5.45	3.80
Ether Extract	4.29	4.77	4.80	4.5
Total ash	7.18	7.4	6.9	6.9
Nitrogen Free extract	60.63	60.55	62.89	65.20

4.1 Growth performance

Significance difference was observed in cumulative body weight of satpuda and broiler, final Body weight of satpuda and broiler were 453.19±0.42 gm and 1966±39.9. gm

The highest percent body weight gain was observed in broiler at second week age was 108.95 and lowest percent body gain was observed in sixth week of age is 29.65.

The highest percent body weight gain was observed in satpuda at first week age was 71.39 and lowest percent body gain was observed in sixth week of age is 34.86.

Weekly body weight gain of satpuda and broiler have shown the significance difference, The weekly average body weight gain (in gm) of satpuda and broiler bird for first, second, third, fourth, fifth and sixth week are 27.66, 31.97, 67.49, 82.77, 87.39, 117.17 and 149.43, 213.90, 286.67, 399.73, 420.97, 449.72 gm respectively for satpuda and broiler bird.

The average cumulative feed intake for the sixth week of satpuda and broiler bird is 1373.18±0.33 and 3617.99±0.19 respectively, significance difference was observed in feed intake.

Broiler breed have more average feed intake than that of satpuda breed. The highest feed intake was observed in broiler breed at six week which is 904.98 gm compared to satpuda at 505.68 gm.

The highest weekly FCR was observed 4.31 in satpuda at sixth week as compared to 2.0 in broiler at six week both the value show significance difference, highest FCR in broiler was observed 2.09 at third week of experimental period

The highest weekly cumulative feed conversion ratio was observed 3.03 in satpuda at sixth week where as better feed

The above table 19 represent the average weekly feed conversion ratio of satpuda and broiler bird from first week to sixth week respectively.

The highest FCR was observed 4.31 in satpuda at sixth week as compared to 2.0 in broiler at six week both the show significance difference in FCR ($p < 0.05$)

Highest FCR in broiler was observed 2.09 at third week of experimental period.

Khawaja *et al.* (2012) in his finding stated that the poor ($p < 0.05$) feed conversion was also observed in Fayoumi chickens and better feed conversion was recorded in RIR and both crossbred chickens during growing phase.

Our result are similar with Sonawane *et al.* (2021) [19] for first and second week FCR in T₀ group in broiler.

4. Summary and Conclusions

The present study entitled “Comparative study on growth performance and carcass traits of Satpuda and Broiler chicken (vencobb-400)” was carried out to study comparatively on the body weights, feed consumption, feed conversion ratio (FCR), meat characteristics and proximate composition of meat of Satpuda and Broiler.

conversion ratio was observed in Broiler at sixth week is 1.83.

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