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## The effect of commercial and homemade concentrate mixture on haematological and biochemical profile of Osmanabadi weaned kids

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### Abstract

The experiment was conducted on Comparative study of commercial and homemade concentrate mixture on growth performance of Osmanabadi weaned kids at organised farm. The research was conducted by Complete Randomized Design (CRD) with three treatments: T<sub>1</sub>- Basal diet + Sugras as a concentrate mixture I (control), T<sub>2</sub> - Basal diet + Concentrate mixture II, T<sub>3</sub> - Basal diet + Concentrate mixture III. In present investigation total six kids in each treatment T<sub>1</sub>, T<sub>2</sub>, and T<sub>3</sub>, respectively. Analysis carried out by Complete Randomized Design. The results was showed that all three treatments are non statistically to each other but T<sub>2</sub> showed numerically higher value than T<sub>3</sub> and T<sub>1</sub>. The results obtained from experiment showed that supplemented treatments were found non significant with Haemato-biochemical parameters viz, serum globulin, hemoglobin, RBC count and total protein, serum albumin, WBC count and of experimental groups respectively.

**Keywords:** Osmanabadi kids, concentrate mixture, hematological and biochemical parameters (RBC, WBC, HB, total protein, serum albumin, serum globulin)

### Introduction

The goat justifies its designation as “the poor man’s cow”. The short generation interval of goats makes it possible to increase productive life more rapidly than cattle. Their small size and relatively low individual price bring them within the capacity of low income group. Rearing of larger animals like cattle and buffaloes is becoming more and more difficult every day. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP. (Anonymous, 2019) [2] population at about 535.78million. India has 192.49 million cattle, 109.85 million Buffalo, Goats 148.88 million and Sheep 74.26 million populations. India has second largest poultry market in the world and also second largest producer of fish in world. Register breed of Cattle; 41, Buffalo; 13, Goat; 28, Sheep; 42 founds in India. (20th Livestock Census 2019) [2]. In India, some goat breeds are basically reared for meat purpose. The goat meat, known as 'Chevon,' is preferred by the country's non-vegetarians because to its great taste, wonderful flavor, high protein (22g), low fat (12.3 g), calories (2Kcal), saturated fat 85mg and less cholesterol (94mg) than other species meat such as chicken, cattle, pork and mutton. Higher value of iron, potassium and thiamine associated with a low sodium level further aggravate the consumption of meat. Although goat meat intake is not associated with any religious attitude, it is critical to raise goats and increase their number at a faster rate.

### Materials and Methods

The present investigation was carried out on “Comparative study of commercial and homemade concentrate mixture on growth performance of Osmanabadi weaned kids at Organised farm”. The trial was conducted at Goat Unit, College of Agriculture VNMKV, Parbhani. For experiment the same age and uniform conformation of 18 weaned kids was selected from Goat Unit, College of Agriculture VNMKV, Parbhani. The experimental period was 90 days. The experiment was conducted during 1<sup>st</sup> Feb.2023 to 1<sup>st</sup> May 2023 at Goat Unit, College of Agriculture VNMKV, Parbhani. Kids was grouped under same weight and average age in three treatments groups and six kids in each group. All the kids are free from diseases and physiological disorders. The observation recorded during the research was haematological and biochemical parameters viz, Hemoglobin, RBC, WBC, total protein, serum albumin, serum globulin. The data was statistically analyzed by Complete Randomized Design (CRD).

**Results and Discussion**

The present research entitle “Comparative study of commercial and homemade concentrate mixture on growth performance of Osmanabadi weaned kids at Organised farm” was undertaken at Goat Unit, College of Agriculture VNMKV, Parbhani during the year 2022-2023. The experimental period was 90 days (Feb. 1 to May 1 2023) and observation from experiments was recorded and result was analyzed statistically.

**Haematological and biochemical parameters**

Haematological and biochemical parameters of Osmanabadi kids viz., total protein, serum albumin, serum globulin, WBCs, RBCs and hemoglobin were analyzed at initial (0<sup>th</sup> day) and final day (90<sup>th</sup> day). The data from the analysis are discussed as follows.

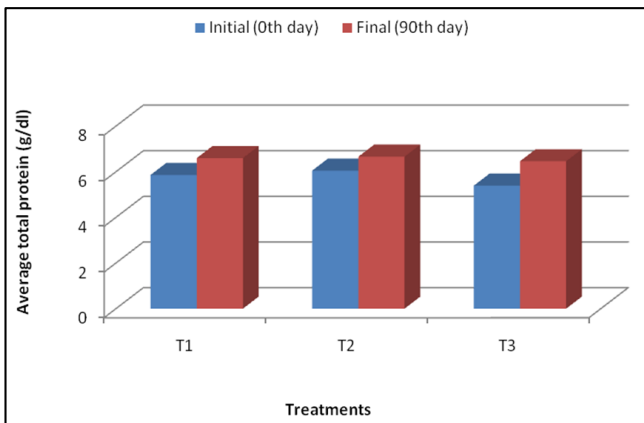
**1. Total Protein**

The data regarding the total protein of Osmanabadi kids blood obtained at initial (0<sup>th</sup> day) and final day (90<sup>th</sup> day) analyzed and illustrated in Table 1.

It was observed from the Table 1. that the initial average total protein of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 5.86, 6.05, and 5.39 (g/dl), respectively. Initial data obtained from all the treatments showed no significant difference. The final average total protein of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 6.60, 6.66 and 6.46 (g/dl), respectively. Final data obtained from all the treatments showed higher values of total protein with no significant difference ( $p < 0.05$ ) between the all treatments.

**Table 1:** Effect of feeding commercial and homemade concentrate mixture on average total protein (g/dl) of Osmanabadi kids

Period	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	SE (M)	CD(0.05)
Initial (0 <sup>th</sup> day)	5.86	6.05	5.39	0.261	NS
Final (90 <sup>th</sup> day)	6.60	6.66	6.46	0.307	NS



**Fig 1:** Average total protein (g/dl)

**2. Serum albumin**

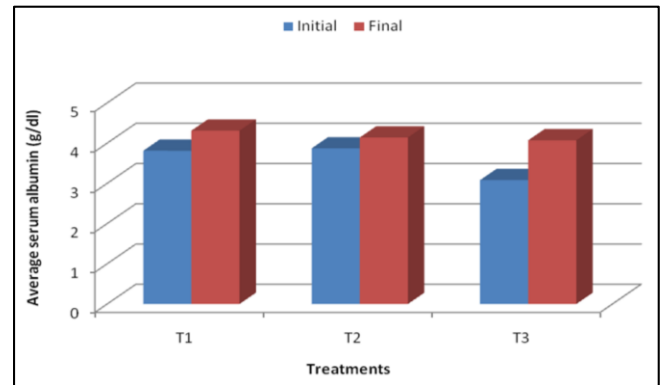
The data of the serum albumin of Osmanabadi kids blood obtained at initial (0<sup>th</sup> day) and final day (90<sup>th</sup> day) analyzed and illustrated in Table 2.

It was observed from the Table 2 that the initial average serum albumin of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 3.81, 3.87 and 3.08 (g/dl), respectively. Initial data obtained from all the treatments showed no significant difference ( $p < 0.05$ ) among the treatments. The final average serum albumin of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 4.31, 4.14 and 4.07 (gm/dl), respectively which found within normal range. Data from the final reading also showed higher values of serum albumin with non-

significant difference between the treatments. This is similar to the findings of Paliwal *et al.* (1989)<sup>[9]</sup> who reported serum albumin ranged from 3.23 to 3.41 g/di in growing buffalo calves fed different types of guar seed meal. According to the findings of Anbarasua *et al.* (2004)<sup>[11]</sup> who reported that serum protein (albumin) level did not differ significantly due to the replacement of 50% dietary protein by saponin containing leaf meal mixture.

**Table 2:** Effect of feeding commercial and homemade concentrate mixture on average serum albumin (g/dl) of Osmanabadi kids

Period	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	SE (M)	CD(0.05)
Initial	3.81	3.87	3.08	0.253	NS
Final	4.31	4.14	4.07	0.304	NS



**Fig 2:** Average serum albumin (g/dl)

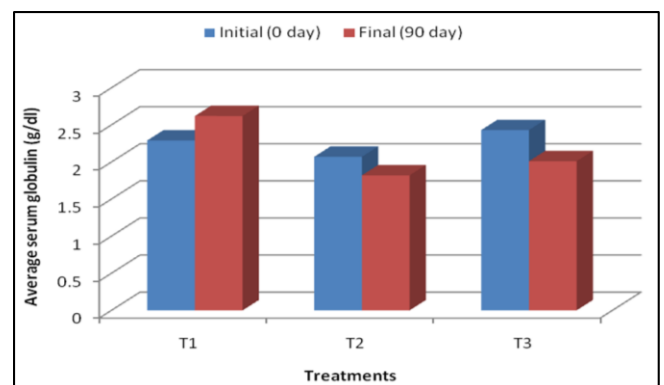
**3. Serum globulin**

The data regarding the serum globulin of Osmanabadi kids blood obtained at initial (0<sup>th</sup> day) and final day (90<sup>th</sup> day) analyzed and illustrated in Table 3.

The data from the Table 3. showed that the initial average serum globulin of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 2.29, 2.07 and 2.43 (g/dl), respectively. Initial data obtained from all the treatments showed no significant difference among the treatments. The final average serum globulin of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 2.62, 1.82 and 2.01(g/dl), respectively. Final data obtained from all the treatments showed non significant difference. This is similar to the findings of Paliwal *et al.* (1989)<sup>[9]</sup> who reported serum globulin varied from 3.59 to 4.67 g/dl in growing buffalo calves fed different type of guar seed/meal.

**Table 3:** Effect of feeding commercial and homemade concentrate mixture on average serum globulin (g/dl) of Osmanabadi kids.

Period	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	SE(M)	CD(0.05)
Initial (0 day)	2.29	2.07	2.43	0.179	NS
Final (90 day)	2.62	1.82	2.01	0.384	NS



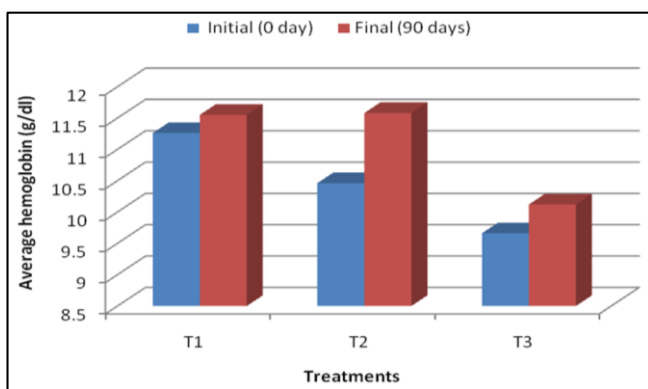
**Fig 3:** Average serum globulin (g/dl)

#### 4. Haemoglobin

The Table 4 showed the initial average hemoglobin of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 11.26, 10.46 and 9.66 (g/dl), respectively. Initial data obtained from all the treatments showed no significant difference among the treatments. The final average hemoglobin of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 11.55, 11.58 and 10.12 (g/dl), respectively. The statistical analysis on hemoglobin level of Osmanabadi kids resulted that the average hemoglobin of kids at final observation in T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> treatment group differ non significantly. The final average hemoglobin was observed numerically higher in T<sub>2</sub> (11.58 g/dl) followed by T<sub>1</sub> (11.55 g/dl) and T<sub>3</sub> (10.12 g/dl).

**Table 4:** Effect of feeding commercial and homemade concentrate mixture on average hemoglobin (g/dl) of Osmanabadi Kids

Period	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	SE (M)	CD (0.05)
Initial (0 day)	11.26	10.46	9.66	0.712	NS
Final (90 days)	11.55	11.58	10.12	0.436	NS



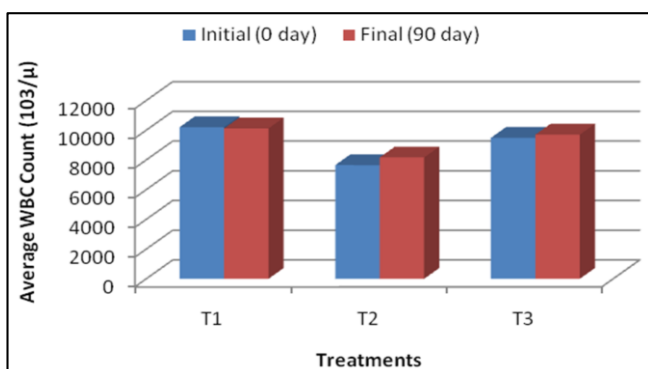
**Fig 4:** Average hemoglobin (g/dl)

#### 5. WBC Count

Table 5. showed the initial average WBC count of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 10200, 7650 and 9483.33 (10<sup>3</sup>/μ), respectively. Initial data obtained from all the treatments showed no significant difference among the treatments. The final average WBC count of treatments T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> were 10116.66, 8166.67 and 9700 (10<sup>3</sup>/μ), respectively. The statistical analysis on the WBC count of Osmanabadi kids, explained that the average WBC count of all the treatments of kids at final observation differs non significant.

**Table 5:** Effect of feeding commercial and homemade concentrate mixture on average WBC Count (10<sup>3</sup>/μ) of Osmanabadi Kids

Period	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	SE (M)	CD (0.05)
Initial (0 day)	10200	7650	9483.33	1055.16	NS
Final (90 day)	10116.66	8166.67	9700	956.62	NS



**Fig 5:** Average WBC Count (10<sup>3</sup>/μ)

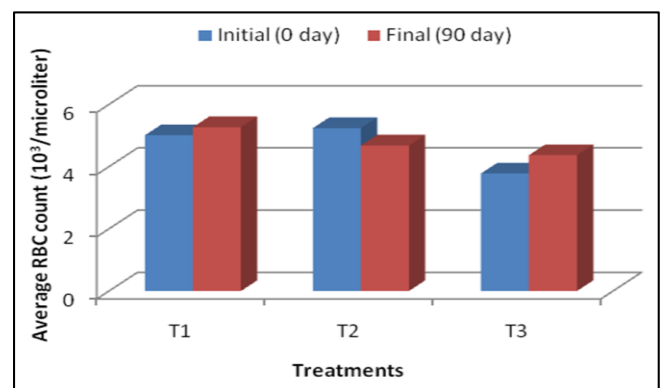
#### 6. RBC Count

The data showing the RBC count of experimental kids obtained at initial (0<sup>th</sup> day) and Final day (90<sup>th</sup> day) are analyzed and presented in Table 6.

The Table 6. showed that initial average RBC count of kids was 5.01, 5.24 and 3.78 (10<sup>3</sup>/μ) for treatment T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> respectively. The final average RBC count of kids was 5.27, 4.68 and 4.37 (10<sup>3</sup>/μ) for treatment T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub>, respectively. There was significant difference observed in initial average RBC count among the final average RBC was no significant difference in observed treatments. Data from the final observation also showed higher values of RBCs with non-significant difference between the treatments.

**Table 6:** Effect of feeding commercial and homemade concentrate mixture on average RBC count (10<sup>3</sup>/micro liter) of Osmanabadi Kids

Period	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	SE (M)	CD(0.05)
Initial (0 day)	5.01	5.24	3.78	0.315	0.96
Final (90 day)	5.27	4.68	4.37	0.361	NS



**Fig 6:** Average RBC count (10<sup>3</sup>/micro liter)

#### Conclusion

The commercial and homemade concentrate mixture improved total protein, serum albumin and serum globulin, hemoglobin, RBC count and WBC count. All the blood biochemical parameters estimated at the end of experimental feeding were within the normal range. No significant differences were observed in blood metabolites such as total protein, albumin, globulin, RBC, WBC and HB.

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