

## HAEMOGRAM OF KHASI LOCAL (MEGHALAYA LOCAL) PIG AT DIFFERENT AGE

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**ABSTRACT :** The blood of Meghalaya Local pigs of different ages i.e. 0 day, 15 days, 1 month, 2 months, 4 months and 6 months) were collected and studied various cytological parameters like Hb. (g.percent), TEC (million/cmm), PVC (percent), ESR (mm/hr.), TLC (thousand/cmm), Neutrophil (percent), Eosinophil (percent) and Lymphocyte (percent). Newborn piglets showed an average Hb% of  $6.9 \pm 0.17$ , RBC counts of  $3.81 \pm 0.39$  million/cmm of blood and which increased with the advancement of age. PVC% was found to be lowest in newborn piglets  $18.3 \pm 0.69$  and highest in 6 months age  $45.5 \pm 0.51$ . Neutrophil count was significantly higher in newborn piglets  $52.67 \pm 1.35$  and basophil was also observed to be present in the age group of 1 month, 2 months, and 6 months.

### INTRODUCTION:

Swine is the most popular livestock in the Northeastern region and almost every household rears one or two pigs in their backyard. Pork is the most preferred food of animal origin of the people. Due to high consumption rate of pork, demand of also extremely high. Meghalaya local pig is indigenous and very popular due to disease resistance properties. But physiological studies in various aspect of this breed are very much in need. Analysis of blood profile may reveal hematological changes which are essential to investigate different disease conditions. The haemogram changes with the physiological condition of the animal. Hematological studies in swine under Indian condition are few and scanty (Doornenbal and martin, 1965; Pradhan et al., 2004). Hence, the study

on hematological profile of Khasi local pigs at different age was undertaken to evaluate some of them.

### MATERIAL AND METHODS:

Indigenous local pigs of Meghalaya are called as Khasi Local pigs. Experiment was designed in such a time that maximum number of farrowing can be obtained to get sufficient number of piglet from homogenous group. The study was conducted at pig research farm at ICAR Research Complex for NEH Region, Barapani, Meghalaya. Animal were maintained in standard management condition. Twenty new born piglets were selected from similar parent line for the said study. The blood specimen was collected from anterior venacava of the selected piglets at first day, 15 days, 1 month, 2 months, 4 months and 6 months.

All the hematological parameters were assessed as per the method of Jain (1986) and Schalm et al., (1986). The data were analyzed as per the suitable statistical methods described by Snedecor and Cochran (1967).

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**RESULT AND DISCUSSION:**

The present finding presented in table 1, revealed that the haemoglobin concentration was found to be lowest in first day i.e.  $6.9 \pm 0.17$  g percent and gradually enhanced significantly till 6 months of age ( $12.5 \pm 0.27$  g percent). The TEC for Khasi Local pigs in different ages followed the similar trend like the Hb. In 6 months old pigs, it was recorded  $7.34 \pm 0.81$  million/cmm. Vaiman et al., (1968) reported that TEC in newborn at 1 month, 5 months and 7 months aged pigs were 4.9, 5.43 and 6.7 million/cmm of blood respectively. Schalm et al., (1986) reported that Hb and TEC of pig were 10-16 g/dl and 5.0-8.0 million/cmm of blood respectively. Melvin (1982) also reported that the TEC was 6-8 million/cmm in pig. Increase in Hb concentration and TEC with the enhancement of age without much variation is in agreement with the earlier findings of Pradhan et al., 2004.

The mean packed cell volume in the present study ranges between  $18.3 \pm 0.69$  to  $45.5 \pm 0.51$  percent and showed a gradual increase from 0 day to 6 months of age. Jain (1986) and Ayoade et al., (1996) reported that the PCV in adult pig was 32-50 percent and 42.62 percent respectively. ESR was found to be higher on day 0 piglets ( $6.02 \pm 0.29$ ) and gradually decreased and reached at 1.0 at 6 months of age. Low level of hb./TEC in piglets could be attributed due to low availability of iron in sow milk. However, as the piglets gradually grow up, and started taking grower rations, they meet up required iron and consequently Hb. Level goes high with the advancement of age. Other parameters as associated with Hb. And TEC changes accordingly. And there might be differences of breed and their inherent quality towards hemopoiesis, and feeding, management or climatic factor may have some role to play.

The TLC was gradually increased but not significant till weaning (2 months of age). There was significant increase of TLC between 2 months and 4 months of age and thereafter slight enhancement was observed. In six months of age

the TLC value was  $22.45 \pm 1.52$  thousand/cmm. However, Vaiman et al., (1968) reported that TLC in newborn, 35 days and 5-6 months aged pigs was 10000, 17600 and 18000/cmm respectively. Melvin (1982) also reported that from 1st day to 2nd week, TLC ranges between 10000-12000/cmm and Schalm et al., (1986) reported that in adult pig the TLC ranges from 11000 - 22000/cmm. And the present observation corroborated the above findings.

The DLC observed in the present study was almost similar with the findings of Melvin (1982) at the age of six weeks and older. Neutrophil count was significantly higher ( $52.67 \pm 1.35$ ) at 0 day and gradually decreased with the advancement of age and lowest ( $32.01 \pm 0.38$ ) at the time of weaning (2 months). In the present study basophil was observed at the age group of 1, 2 and 6 months, which was not in agreement with the findings of previous worker.

**Reference :**

1. **Ayoade GO, Anita RE and Michale J** (1996). Haematological changes associated with lung worm ( *Metastrongylus* sp.). International Journal of Animal Sciences. 25:229-230.
2. **Doornenbal H and Martin A H**(1965). The evaluation of blood volume and total red cell mass as predictors of gromm body composition in the pigs. Can. J. Anim. Sci. 45:203-210.
3. **Jain NC** (1986). In "Schalm's Veterinary Hematology". Lea and Febiger. Philadelphia. Pp.1-20.
- 4 **Melvin JS** (1982). Physiology properties and cellular and chemical constituents of blood. In"Dukes Physiology of Domestic Animals" (9th Edn). Cornell University Press ltd.
5. **Pradhan CR,Rajgopalan TG,Thomas CK and Thomas K** (2004). Haematological studies on growing -finishing pigs at different ages: influence of dietary chitin. Indian J. Anim. Prod. Mgnt. 18: 118-121.

6. Schalm OW, Jain NC and Carrol EJ : publishing Co. Calcutta. Bombay. Delhi.  
 (1986). In "Schalm's Veterinary Hematology". Lea :  
 and Febiger. Philadelphia. Pp.1-20. 8. Vaiman M, Dubiez R, Colson X and  
 Nizza P (1968). Haematological data on pig for use  
 7. Snedecor GW and Cochran W G (1967). : in radiology. Blood Cytology. Revue. Med. Vet. 119:  
 In "statistical Methods" (6th edn). Oxford and IBH : 129-138.

**Table -1: Mean ± S.E. values of hematological constituents of Khasi local pigs.**

Hematological constituent	Age of Pigs					
	0 day	15 days	1 month	2 months	4 months	6 months
Hb. (g percent)	6.9 <sup>a</sup> ± 0.17	8.5 <sup>ab</sup> ± 0.21	8.6 <sup>ab</sup> ± 0.11	10.10 <sup>b</sup> ± 0.32	10.50 <sup>b</sup> ± 0.12	12.50 <sup>bc</sup> ± 0.27
TEC (million/cmm)	3.81 <sup>a</sup> ± 0.39	4.31 <sup>ab</sup> ± 0.83	4.85 <sup>ab</sup> ± 0.57	5.57 <sup>b</sup> ± 0.27	6.21 <sup>b</sup> ± 0.91	7.34 <sup>bc</sup> ± 0.81
PVC (percent)	18.3 <sup>a</sup> ± 0.69	22.50 <sup>ab</sup> ± 0.30	30.60 <sup>b</sup> ± 0.87	43.60 <sup>c</sup> ± 0.41	44.10 <sup>c</sup> ± 0.64	45.50 <sup>c</sup> ± 0.51
ESR (mm/hr.)	6.02 <sup>a</sup> ± 0.29	4.0 <sup>ab</sup> ± 0.12	2.1 <sup>abc</sup> ± 0.31	2.0 <sup>abc</sup> ± 0.3	1.1 <sup>c</sup> ± 0.18	1.0 <sup>c</sup> ± 0.09
TLC (thousand/cmm)	7.95 <sup>a</sup> ± 1.28	8.45 <sup>a</sup> ± 1.07	8.90 <sup>a</sup> ± 0.91	11.95 <sup>a</sup> ± 0.84	21.35 <sup>b</sup> ± 1.31	22.25 <sup>b</sup> ± 1.52
Neutrophil (percent)	52.67 <sup>a</sup> ± 1.35	40.21 <sup>b</sup> ± 1.68	39.28 <sup>b</sup> ± 0.58	32.01 <sup>c</sup> ± 0.38	42.0 <sup>b</sup> ± 0.57	36.0 <sup>bc</sup> ± 1.62
Eosinophil (percent)	2.09 ± 0.18	1.07 ± 0.49	2.09 ± 0.18	1.07 ± 0.49	1.07 ± 0.49	1.07 ± 0.49
Lymphocyte (percent)	42.50 ± 1.20	59.14 ± 0.21	60.00 ± 0.17	63.69 ± 1.44	55.9 ± 1.8	60.4 ± 0.45
Monocyte (percent)	2.09 ± 0.18	0	1.07 ± 0.49	2.73 ± 0.58	2.46 ± 0.18	1.07 ± 0.49
Basophil (percent)	0	0	0.2 ± 0.07	0.2 ± 0.07	0	0.4 ± 0.05

\* Different superscript indicated the significant (P<0.05) difference.