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## Biometrical characteristics of *Cina hanh* ducks of Assam

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**Abstract**

Biometrical characteristics of *Cina hanh* ducks of Assam were investigated. The data were collected from 110 male and 250 female at 30 weeks of age from the breeding tract of *Cina hanh* found in certain districts of Assam. The mean measurements of different body parts of *Cina hanh* revealed significantly ( $P < 0.01$ ) higher values in males than the female. The plumage colour at various body parts like head, neck, breast, wing, back and tail and colour of bill and feet was recorded. The general plumage colour of both male and female *Cina hanh* could be described as basically blackish green in back, tail and wing, whereas the neck and breast were white in colour. The bill was blackish with a band of reddish stripe extending upto the tip and feet were dull black in colour. The reddish fleshy caruncles of the male were well developed and extended to the base of the bill and surrounding the eyelids, whereas these caruncles were less developed or absent in females. The *Cina hanh* ducks lay creamy white shelled egg.

**Keywords:** Biometric characteristics, *Cina hanh* duck, Assam

**Introduction**

The domestic Muscovy duck (*Cairina moschata domestica*) was a domesticated form of the wild Muscovy duck that originated in South America. Later, these ducks were spread to North America and many other parts of the world and known by different local names. In Assam, Muscovies (*Cairina moschata*) are popularly known as *Cina hanh* from time immemorial and found in small groups in certain districts of Assam. In Orissa, the local Muscovy varieties were known as *Moti* or *Kadna* (Sahoo *et al.*, 2005) [8]. The rural farmers of Assam rear these *Cina hanh* for meat purpose under scavenging system of rearing (Mahanta and Sapkota, 2010) [7]. *Cina hanh* meat is very popular amongst the rural people of Assam. The presence of red fleshy caruncles around the face and bill makes *Cina hanh* distinct from other ducks. Due to heavy body weight, they cannot fly and move long distance. Systematic study of these ducks has not been carried out so far. To explore the possibility of genetic improvement of *Cina hanh* and to develop viable breeding strategies for their improvement, characterization of these ducks in terms of their biometric characteristics and physical appearance is an urgent necessity.

**Materials and Methods**

At 30 weeks of age, individual measurement and plumage colour of different body parts were recorded for 110 male and 250 female *Cina hanh* ducks. The data were collected from the breeding tract of *Cina hanh* found in the districts of Nagaon, Hojai, Darrang and Cachar. Colour and pigmentation of bill and feet were also recorded. The colour of egg shell was recorded during 40 weeks of age. The data were analysed as per method described by Snedecor and Cochran (1980) [10].

**Results and Discussion**

The means for different body parts of *Cina hanh* (Table 1) showed significantly ( $P < 0.01$ ) higher values in males than the female. This indicated clear evidence of sexual dimorphism in *Cina hanh*. Similar finding was reported by Yakubu *et al.* (2011) [12] in Muscovy ducks of Nigeria. Chavez and Lasmini (1978) [1] also found sexual dimorphism in three native duck

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breeds of Indonesia. In indigenous ducks of Kerala (Chara and Chemballi) and Assam (Pati and Nageswari), sex associated differences was also reported by Mahanta *et al.* (1999) [6], Goswami *et al.* (2000) [3] and Sharma *et al.* (2002) [9] respectively.

The plumage colour at various body parts like head, neck, breast, wing, back and tail and colour of bill and feet are presented in Table 2.

The typical *Cina hanh* drakes and duck (Fig. 1) were usually squat in posture and gait like that of Alabio drakes of Indonesia. (Chavez and Lasmini, 1978) [2] Chara and Chemballi ducks of Kerala (Mahanta, 1997) and Nageswari ducks of Assam (Sharma *et al.*, 2002) [9]. The plumage colour of *Cina hanh* drakes and ducks were almost similar in appearance with varying shades in different body parts. However, the general plumage colour of *Cina hanh* could be described as basically blackish green in back, tail and wing, whereas the neck and breast were white in colour. The wings in both sexes were white tipped. The head was primarily white with blackish plumage on top. They had a wide flat tail. The bill was blackish with a band of reddish stripe extending upto the tip and feet were dull black in colour. Anonymous (1998) described the Muscovy duck as brownish black in

colouration with iridescent green and purple dorsal plumage and white wing patches.

The main difference in *Cina hanh* between the drake and duck was the reddish caruncles found on the top of the head. The caruncles of the male were well developed and extended to the base of the bill and surrounding the eyelids, whereas there caruncles were less developed or absent in females. Similar findings were reported by Wetmore (1965) [11] in Muscovy ducks of Panama.

The egg shell colour of *Cina hanh* was found to be creamy white which was similar with the observation of Hilty and Brown (1986) [4] in Muscovy ducks of Colombia.

**Table 1:** Mean ( $\pm$  S.E.) measurements (cm) of different body parts of *Cina hanh*

External body parts	Male (N= 110)	Female (N= 250)
Length of body	65.54 <sup>a</sup> $\pm$ 0.42	52.06 <sup>b</sup> $\pm$ 0.37
Length of breast	26.58 <sup>a</sup> $\pm$ 0.24	21.08 <sup>b</sup> $\pm$ 0.16
Shank length	7.27 <sup>a</sup> $\pm$ 0.05	6.45 <sup>b</sup> $\pm$ 0.01
Body circumference	53.76 <sup>a</sup> $\pm$ 0.43	43.23 <sup>b</sup> $\pm$ 0.23
Upright height	22.87 <sup>a</sup> $\pm$ 0.26	19.90 <sup>b</sup> $\pm$ 0.12

Figures with different superscripts within a row differ significantly ( $P < 0.01$ )

**Table 2:** Sex-wise per cent distribution of plumage colour patterns of different body parts at 30 weeks of age

Body parts	Male (N= 110)	Per cent distribution	Female (N= 250)	Per cent distribution
Head	White with blackish plumage on top	50.00	White with blackish plumage on top	41.33
	Black	17.86	Blackish with white spot	21.33
	Whitish with black spot	14.29	Whitish with black spot	16.00
	White	10.71	White	12.00
	Greyish black	7.14	Black	9.34
Neck	White	50.00	White	41.33
	Whitish with black spot	28.57	Whitish with black spot	22.67
	Blackish white	14.29	White with shade of black plumage tapering on top of neck	21.33
	White with shade of black plumage tapering on top of neck	7.14	Blackish green with white patches	14.67
Breast	White	60.71	White	41.34
	Black	14.39	Blackish green	30.67
	Blackish green	10.71	Blackish green with white spot	13.33
	Blackish with white spot	7.14	Whitish with black spot	9.33
	Whitish with black spot	7.14	Blackish with white spot	5.33
Wing	Blackish green with white tipped feathers	39.29	Blackish green with white tipped feathers	58.66
	Blackish green	21.42	Blackish green	20.00
	Blackish with white spot	17.86	Blackish with white spot	8.00
	White	14.29	Whitish with black tipped feathers	6.67
	Greyish white	7.14	White	6.67
Back	Blackish green	32.13	Blackish green	44.00
	Whitish with black spot	21.43	Blackish green with white patches	22.67
	Blackish with white spot	17.86	Whitish with black	13.33
	White	14.29	Black	13.33
	Greyish white	14.29	White	6.67
Tail	Blackish green	60.71	Blackish green	46.67
	Black	21.44	White	33.33
	White	10.71	Black	10.67
	Greyish black	7.14	Blackish with white spot	9.33
Bill	Black with a band of reddish stripe	57.14	Black with a band of reddish stripe	61.14
	Yellowish with black stripe	21.43	Yellowish with black stripe	18.33
	Greyish black with reddish stripe	10.71	Greyish black with reddish stripe	12.21
	Greyish black with yellow stripe	10.71	Greyish black with yellow stripe	8.32
Feet	Black	46.43	Black	53.47
	Greyish black	35.71	Greyish black	33.32
	Yellow with black pigment	17.86	Yellow with black pigment	13.21



**Fig 1:** A pair of *Cina hanh*

### Conclusion

The means for different body parts of *Cina hanh*, a local variety of Muscovy ducks of Assam showed significantly ( $P < 0.01$ ) higher values in male indicating clear evidence of sexual dimorphism. From the records of plumage colour at various body parts, it was concluded that the *Cina hanh* were basically blackish green in back, tail and wing, whereas the neck and breast were white in colour. The presence of red fleshy caruncles around the face and bill makes *Cina hanh* distinct from other ducks.

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