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## Morphological study of various varieties of aseel chicken breed inhabiting district Hyderabad

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### Abstract

Morphological study of various varieties of Aseel chicken breed was conducted from 14<sup>th</sup> April 2017 to 23 September 2017. This study was designed to explore the morphological variation of various varieties of Aseel breed with morphological characters and their different body parameters. A total number of 67 samples of 8 varieties of Aseel breed (Sindhi=18, Black=11, Mottled=9, Lakha=7, Jawa=7, Bihangam=6, Beard Kulang=5, Wilaete clation Aseel=4) were collected from different localities of district Hyderabad. It was observed that the prevalence of Sindhi Aseel (26.86%) was highest in district Hyderabad followed by Black Aseel (16.41%), Mottled Aseel (13.43%), Lakha Aseel (10.44%), Jawa Aseel (10.44%), Bihangam Aseel (8.95%), Beard Kulang Aseel (7.46%) respectively. The minimum prevalence was found for Wilaete clation Aseel (5.97%). In this study, great morphological diversity were observed with respect to beak color, absence or presence of wattles, eye color, plumage color, shank color and comb type, only earlobe color were similar in all varieties. Great variation was also observed with respect to body parameters in both males and female of studied varieties and this study will provide a baseline information for future research in the area.

**Keywords:** body parameters, prevalence, beak, baseline, morphological diversity

### Introduction

The Aseel breed is probably the oldest known breed of game fowl, having been bred in India for its fighting qualities for over 2000 years [6]. Aseel breed is most famous breed of chicken and also main source of income and food for rural peoples. The Aseel chicken is famous as a game bird and especially bred by bird lover communities in different areas of Pakistan [2]. The word Asil or Aseel is an Arabic in origin and means "pure breed". The Aseel breed originates from south Punjab areas of Pakistan and India. Aseel have muscular and compact body, upright stance, back straight, breast short and broad. They have strong and curved beak, broad skull, yellow or pearl-white eyes with ting blood vessels also seen, skin color yellow or white, minimal wattles, instead of wattles, dewlap also seen in some varieties, pea or triple comb except in bihangam variety, earlobes are small and bright red color, shanks are strong and straight with sharp spurs and mostly yellow or white in color. The tail is carried low and fans are horizontally rather than vertically [4]. There are more than 500 varieties of Aseel breed found all over the world and also thousands of strains were found. There are five common varieties of native Aseel in Pakistan and are categorized depending upon their geographical prevalence and their physical characteristics i.e. Lakha, Sindhi, Mushki, Peshawari, Mianwali Aseel, in addition to these varieties Jawa and Lassani variety of Aseel also found in Pakistan [10]. Aseel breed is predominantly reared in district Hyderabad and is kept by peoples mainly for cockfighting, as hobby and for meat and egg purpose. So, keeping this in view, the present research work was aimed to study following objectives: (i) to identify the various varieties of Aseel available in district Hyderabad. (ii) To Study the morphological characteristics of various varieties found in district Hyderabad. (iii) To explore the morphological variation of various varieties with their morphological characters as well as body parameters.

### 2. Materials and Methods

In the present study, Adult male and female chickens of Aseel breed were collected from different localities of district Hyderabad. A total number of 67 samples of 8 varieties Aseel (Sindhi=18, Black=11, Mottled=9, Lakha=7, Jawa=7, Bihangam=6, Beard Kulang=5, Wilaete clation=4) were recorded and identify through the description available in literature and through morphological characters such as beak color and shape, eye color, plumage color and

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feather pattern, wattle size earlobe color, comb type and shank color. The varieties also measured with different body parameters such as beak length, comb length, forelimb length, hindlimb length, tail length, and body length and body weight. Body weight were measured by using weight machine and other parameters were measured by using foot scale, needle campas and measuring tape. All morphological data of the studied varieties were collected and grouped separately for the statistical analyses.

### 3. Results and Discussion

The collected information on various varieties of Aseel breed was analyzed and is presented in different Figures and Table accordingly.

#### 3.1 Morphological characters

According to morphological characteristics recorded from 67 birds of Aseel breed, eight varieties of Aseel could be identified. The first variety Sindhi Aseel which could be easily distinguishable from other varieties by its half white plumage color with brown striking on the neck, large curved beak like eagle, pearl-whites eyes, small pea comb, red earlobes, no wattle and yellow shank. The second variety Black Aseel, characterized by solid black plumage color with intense beetle green sheen, ivory colored beak with black pigmentation, yellow eyes, red earlobes, minimum wattles, pea comb and silver colored shank. The third variety Mottled Aseel has mottled plumage (black feathers with white tip) with green sheen in mottled plumage, pea comb, yellow beak with brown pigmentation, yellow eyes, red earlobes, no wattles and white colored shank. The fourth variety, Lakha Aseel has red and black plumage color, yellow color eyes, yellow beak, red earlobes, small wattles and ivory colored shank. The fifth variety Jawa Aseel characterized by black and yellow plumage color, yellow beak, pea comb, yellow eyes, red earlobes, no wattles and yellow colored shank. The sixth variety Bihangam Aseel characterized by white plumage color, large single comb and wattles, pearl-white eyes, ivory colored beak, red earlobes and white colored shank. Another recorded variety Beard Kulang Aseel has black and yellow plumage, pea comb, bloodshot eyes, small wattles, beard like appearance under their beak, ivory color beak, red earlobes and ivory color shank. Most unique and expensive variety of Aseel, Wilaete clation were recorded from district Hyderabad and first time exploring the morphological characters of Wilaete clation Aseel. This Aseel has half white plumage color with single lace feather pattern on the breast was seen, large pea comb, ivory color beak, pearl-white eyes, red earlobes, no wattles and ivory color shank. In the present finding seven varieties of Aseel has pea comb which is in exact accordance with British poultry Standards (Robert, 2008) [6] except only one variety bihangam Aseel has single comb, however Sarker *et al.* (2012) [8] reported some cases with strawberry comb and cushion comb, so present findings are different from findings of Sarker *et al.* (2012) [8]. Aseel did not possess any wattles Robert (2008) [6] reported in British poultry Standard, however Sarker *et al.* (2012) [8] reported that absence of wattles in the females white 77.19% males had wattles in Aseel. In present findings four varieties (Sindhi, Mottled, Jawa and Wilaete clation) has no wattles both in male and females, however other four (Black, Lakha, Beard Kulang and Bihangam) varieties has wattles both in male and female. So our findings are also different from the finding of Robert (2008) [6] and Sarker *et al.* (2012) [8]. Robert (2008) reported that Aseel chickens had ivory color beak, with yellow burnish also acceptable, however Sarker *et al.* (2012)

[8] reported that all Aseel had yellow beak. So present finding is in exact accordance with Roberts (2008) [6] and Sarker *et al.* (2012) [8]. In our findings, three varieties of Aseel has pear-white eyes (Sindhi, Bihangam and Wilaete clation), four varieties has yellow eyes (Black, Mottled, Jawa and Lakha) and one variety (Beard Kulang Aseel) has bloodshot eyes. Robert (2008) [6] reported that Aseels had pearl-white eyes, yellow tinge or slightly bloodshot appearance acceptable, however Sarker *et al.* (2012) [8] reported that Aseel had yellowish eyes, so present finding is in exact accordance with Robert (2008) [6]. Sarker *et al.* (2012) [8] reported that Aseel of Bangladesh had Featherless yellowish shank, however Robert (2008) [6] reported that Aseel has ivory color shank or ivory with slight yellow burnish is preferred. In our Study, yellowish, ivory, white or silver color shank was recorded and with these findings greater variation in shank color was observed. It was observed that the prevalence of Sindhi Aseel (26.86%) was highest in district Hyderabad followed by Black Aseel (16.41%), Mottled Aseel (13.43%), Lakha Aseel (10.44%), Jawa Aseel (10.44%), Bihangam Aseel (8.95%), Beard Kulang Aseel (7.46%) respectively. The minimum prevalence was found for Wilaete clation Aseel (5.97%) (Shown in table 1).

#### 3.2 Body parameters measurements

The different body parameters measurements of both males and females of Aseel varieties are presented in Table 2 and Table 3. It could be seen from Table 2 that the highest beak length was found in males of Wilaete clation Aseel  $38 \pm 0.70$  and the lowest beak length was found in males of Black and Mottled Aseel  $21.6 \pm 0.47$ ,  $21.6 \pm 0.47$  respectively. The highest comb length was observed in the males of Bihangam Aseel  $54.2 \pm 0.83$  and the lowest comb length was observed in the males of Mottled Aseel  $29.3 \pm 0.94$ . In the previous study no work has reported as concerned to beak and comb length. The maximum Forelimb and Hindlimb length was found in males of Wilaete clation  $320 \pm 1.47$ ,  $221.5 \pm 1.11$  with the lowest forelimb length was recorded in males of Mottled Aseel  $292.6 \pm 1.88$  and the lowest hindlimb length was recorded in the males of Sindhi Aseel  $178.6 \pm 1.2$ . Mehmood *et al.* (2017) [9] reported that highest forelimb length were reported in the males of Mushka Aseel  $170.9 \pm 2.5$  and the lowest forelimb length were reported in the males of Lakha Aseel  $168.0 \pm 2.3$ , so present findings are different from Mehmood *et al.* (2017) [9] as concerned with forelimb length. The Wilaete clation males showed highest tail length  $361.5 \pm 1.658$  and the mottled males showed lowest tail length  $249.3 \pm 0.943$ . In the previous study no work has recorded as concerned with tail length, hindlimb length and body length. The highest body length and body weight was recorded in Wilaete clation males  $513.5 \pm 1.11$ ,  $5.0 \pm 0.08$  with the lowest body length and body weight was recorded in Sindhi Aseel males  $468 \pm 0.89$ ,  $2.99 \pm 0.008$  respectively. Mehmood *et al.* (2017) [9] reported that highest body weight was recorded in the males of Sindhi and Kulang Aseel  $4.5 \pm 0.7$ ,  $4.5 \pm 0.6$  and the lowest body weight were reported with the males of Mianwali Aseel  $2.8 \pm 0.1$ , so present findings are also different from Mehmood *et al.* (2017) [9] as concerned to body weight.

It could be seen from Table 3 that the highest beak length was found in females of Bihangam Aseel  $24.5 \pm 0.5$  and the lowest beak length was found in females of Black Aseel  $18.25 \pm 0.82$  respectively.

The highest comb length was observed in the females of Bihangam Aseel  $49.5 \pm 0.5$  and the lowest comb length was observed in the females of Mottled Aseel  $18.8 \pm 1.344$ . The maximum Forelimb and Hindlimb length was found in

females Lakha and Jawa Aseel  $298\pm 2.12$ ,  $176.3\pm 0.94$  with the lowest forelimb length was recorded in females of Beard Kulang Aseel  $286\pm 1$  and the lowest hindlimb length was recorded in the females of Sindhi Aseel  $157.8\pm 1.61$ . Mehmood *et.al* (2017) <sup>[9]</sup> reported that highest forelimb length was recorded in the females of Sindhi Aseel  $168.7\pm 1.7$  with the lowest forelimb length were reported in the females of Jawa Aseel  $167.0\pm 0.7$ , so present finding different from the Mehmood *et.al* (2017) <sup>[9]</sup>. The Bihangam females showed highest tail length  $252\pm 2$  and the Sindhi Aseel females showed lowest tail length  $143.6\pm 1.14$ . The highest body length was recorded in Beard Kulang females  $499\pm 1$ , with the lowest body length was recorded in Sindhi Aseel females  $429\pm 1.44$ . The Beard Kulang Aseel females showed maximum body weight  $3.8\pm 0.1$  and Sindhi Aseel females showed lowest body weight  $1.96\pm 0.012$  respectively. Mehmood *et.al* (2017) <sup>[9]</sup> reported that highest body weight was recorded in the females

of Sindhi Aseel  $3.9\pm 0.8$  and the lowest body weight were reported with the females of Mianwali Aseel  $2.0\pm 0.1$ , so present findings are also different from Mehmood *et.al* (2017) <sup>[9]</sup> are also different as concerned to females body weight.

**Table 1:** showing the total number of collected varieties of Aseel breed and their percentage.

Name of variety	Male	Female	Total	Percentage
Sindhi Aseel	5	13	18	26.86%
Black Aseel	3	8	11	16.41%
Mottled Aseel	3	6	9	13.43%
Lakha Aseel	3	4	7	10.44%
Jawa Aseel	4	3	7	10.44%
Bihangam Aseel	2	4	6	8.95%
Beard Kulang Aseel	3	2	5	7.46%
Wilaete clation Aseel	4	-	4	5.97%

**Table 2:** Showing the body parameters measurements of various varieties of Aseel males

parameter	Sindhi (n=5)	Black (n=3)	Mottled (n=3)	Lakha (n=3)	Jawa (n=4)	Bihangam (n=4)	Beard Kulang (n=3)	Wilaete clation (n=4)
Beak length	$28.2\pm 0.74$	$21.6\pm 0.47$	$21.6\pm 0.47$	$25\pm 0.81$	$23.25\pm 0.82$	$28\pm 0.70$	$26.6\pm 0.58$	$38\pm 0.70$
Comb length	$31.2\pm 0.74$	$33.6\pm 0.47$	$29.3\pm 0.94$	$34\pm 0.81$	$33\pm 1.22$	$54.2\pm 0.83$	$44.6\pm 0.58$	$49.5\pm 1.11$
Forelimb length	$304.2\pm 0.70$	$295.3\pm 0.94$	$292.6\pm 1.88$	$313.6\pm 1.24$	$298.2\pm 1.78$	$314.2\pm 0.83$	$297.3\pm 0.94$	$320.2\pm 1.47$
Hindlimb length	$178.6\pm 1.2$	$182\pm 0.81$	$179.6\pm 0.47$	$188.6\pm 1.24$	$213\pm 2.12$	$189.2\pm 0.83$	$189\pm 1.41$	$221.5\pm 1.11$
Tail length	$259.2\pm 0.78$	$283.6\pm 0.47$	$249.3\pm 0.94$	$333.6\pm 1.24$	$348.7\pm 1.29$	$288.7\pm 1.3$	$339.3\pm 0.94$	$361.5\pm 1.65$
Body length	$468\pm 0.89$	$489\pm 0.81$	$483.6\pm 1.24$	$496\pm 0.81$	$503\pm 2.12$	$493.5\pm 1.65$	$512\pm 1.41$	$513.5\pm 1.11$
Body weight	$2.99\pm 0.008$	$3.3\pm 0.14$	$3.2\pm 0.04$	$3.88\pm 0.02$	$4.9\pm 0.08$	$3.8\pm 0.08$	$4.4\pm 0.14$	$5.0\pm 0.08$

**Table 3:** Showing the body parameters measurements of various varieties of Aseel females

Parameter	Sindhi (n=13)	Black (n=8)	Mottled (n=6)	Lakha (n=4)	Jawa (n=3)	Bihangam (n=2)	Beard Kulang (n=2)
Beak length	$22.6\pm 1.14$	$18.25\pm 0.82$	$18.3\pm 0.74$	$20.25\pm 0.82$	$19.6\pm 0.47$	$24.5\pm 0.5$	$23\pm 1$
Comb length	$23\pm 1.51$	$22.25\pm 0.82$	$18.8\pm 1.34$	$21.25\pm 0.82$	$26.6\pm 0.47$	$49.5\pm 0.5$	$38\pm 1$
Forelimb length	$297.9\pm 1.54$	$291.25\pm 0.82$	$288.8\pm 1.34$	$298\pm 2.12$	$284.6\pm 0.47$	$313\pm 1$	$286\pm 1$
Hindlimb length	$157.8\pm 1.61$	$161.25\pm 0.82$	$158.1\pm 1.06$	$163\pm 2.12$	$176.3\pm 0.94$	$186\pm 1$	$186\pm 1$
Tail Length	$143.6\pm 1.14$	$149.25\pm 0.82$	$147.6\pm 1.49$	$150.75\pm 1.29$	$159.3\pm 0.94$	$252\pm 2$	$196\pm 1$
Body length	$429\pm 1.44$	$446.25\pm 0.70$	$429.3\pm 1.79$	$447.25\pm 1.78$	$458.6\pm 1.88$	$489\pm 1$	$499\pm 1$
Body weight	$1.96\pm 0.01$	$2.22\pm 0.08$	$1.99\pm 0.008$	$2.51\pm 0.05$	$2.0\pm 0.69$	$2.9\pm 0.1$	$3.8\pm 0.1$

#### 4. Conclusion

From the above discussion of the study, it could be concluded that great varieties of Aseel breed was found in district Hyderabad. In this study, great morphological diversity were observed with respect to beak color, absence or presence of wattles, eye color, plumage color, shank color and comb type, only earlobe color were similar in all varieties. Great variation was also observed with respect to body parameters in both males and female of studied varieties and this study will provide a baseline information for future research in the area.

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