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## STUDY ON MORPHOLOGICAL CHARACTERISTICS OF VARIOUS BREEDS OF ASEEL CHICKEN INHABITING TALUKA CHAMBAR OF DISTRICT TANDO ALLAHYAR, SINDH

<sup>a,b</sup>Rameez Raja Kaleri, <sup>a</sup>Hubdar Ali Kaleri, <sup>c</sup>Muhammad Usama, <sup>d</sup>Habibullah Janyaro, <sup>e</sup>Zahid Ali Mangrio, <sup>f</sup>Deepesh Kumar Bhuptani, <sup>g</sup>Ahmed Ali Moaryani, <sup>b</sup>Abdul Wahid Solangi, <sup>h</sup>Sana Noor Pahanwar, <sup>g</sup>Faroque Ahmed Khusk, <sup>i</sup>Zainab Lanjar, <sup>j</sup>Zafar Ali Khoso, <sup>k</sup>Imran Ahmed, <sup>d</sup>Sajjad Ali Laghari

<sup>a</sup>Department of Animal Breeding and Genetics, Sindh Agriculture University, Tandojam, Pakistan.

<sup>b</sup>Livestock and Fisheries Department Government of Sindh, Pakistan.

<sup>c</sup>University of Agriculture Faisalabad, Punjab, Pakistan.

<sup>d</sup>Department of Veterinary Surgery, SBBUVAS, Sakrand, Pakistan.

<sup>e</sup>Pakistan Agriculture Research Council- Arid Zone Research Center (AZRI-PARC), Pakistan.

<sup>f</sup>Department of Meat Technology, SBBUVAS, Sakrand, Pakistan.

<sup>g</sup>Department of Poultry Husbandry, Sindh Agriculture University, Tandojam, Pakistan.

<sup>h</sup>Department of Veterinary Parasitology, SBBUVAS, Sakrand, Pakistan.

<sup>i</sup>Department of Veterinary Microbiology, SBBUVAS, Sakrand, Pakistan.

<sup>j</sup>Department of Poultry Production, SBBUVAS, Sakrand, Pakistan.

<sup>k</sup>Department of Poultry Husbandry, Sindh Agriculture University, Tandojam, Pakistan.

### ABSTRACT

This study was conducted to examine the phenotypic characteristics of backyard Aseel poultry birds in rural areas of Taluka Chambar, district Tando Allahyar during the year 2022. The aim was to determine the importance of backyard Aseel chicken and their phenotypic characteristics in various varieties of Aseel chickens. For this study, a total of 74 Aseel chickens were collected for phenotypic observation of their physical appearance from various villages of Taluka Chambar. A total of 8 Aseel chicken varieties, including Aseel Mottled, Aseel Wilaete Clation, Aseel Lakha, Aseel Behangam, Aseel Java, Aseel Black, Aseel Sindhi, and Aseel Beard Kulang, were included in the study. The findings of the present study showed that the highest percentage was observed in Sindhi Aseel (24.21%), followed by Black Aseel (17.51%), Aseel Mottled (15.33%), Aseel Lakha (10.63%), Aseel Java (9.11%), Aseel Behangam (7.13%). However, the lowest percentage was recorded in Aseel Beard Kulang (4.1%) and Aseel Wilaete Clation (6.01%). It is concluded that a wide range of Aseel chicken breeds were found in Taluka Chambar, district Tando Allahyar. This study provides basic information about various Aseel chicken breeds and their appearance, which will be an effective tool for planning breeding strategies and breed improvement programs for meat, egg, and cockfighting in the future.

**Keywords:** Aseel chicken; Breed; Chambar; Physical appearance; Tando Allahyar

Corresponding Author: Rameez Raja Kaleri

Email: [rameezkaleri@gmail.com](mailto:rameezkaleri@gmail.com)

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### INTRODUCTION

The Aseel chicken is considered one of the highly important indigenous chicken breeds Pakistan, India and Bangladesh famous for agility, high, stamina, majestic gait with dogged fighting qualities (Panda Mohapat). Aseel female are less egg producer but have high potential broodiness traits and quite formidable in protection of young chick in free range

system. There are eight varieties of Aseel chicken breed have been observed with most common Aseel white and Black in most of the countries (Sarker et al., 2012). Aseel can be characterized by hardness and ability to live under worse climatic environment. The productive potential of this breed is low but these birds are famous for their meat quality desirable taste with delicious flavor (Rajkumar et al., 2016)

.Chicken is known as the major and widely spread avian species among poultry birds in this world. It provides a huge source of animal protein in the form of meat and egg for Human diet (Henning et al., 2007; Niranjan et al., 2008).

Among poultry birds Aseel chicken breed is considered the oldest poultry breed among the game birds kept in Asian countries such as India, Pakistan, Bangladesh, China, and Nepal for cockfighting for over 2000 years ago (Sarker et al., 2012). Aseel word has been taken from the Arabic language word Asil which means pure breed. Pakistani people widely keep this breed as game birds and lover birds for various purposes (Qureshi et al., 2018). The Aseel chicken not only kept for cockfighting but has recently been famous for food and source of income for rural population. The Aseel breed has a prominent muscular body with a straight back, broad and short breast (Al-Rawi and Al-Athari, 2002). Some of the Aseel varieties have small earlobes without wattles with yellow and white color shank. It has been reported that more than 500 varieties of this breed have been recognized with thousands of strains in the world by various scientists (Qureshi et al., 2018).

In Pakistan, total 5 categorized native breeds of Aseel chicken has been found on the bases of their physical characteristics and geographical distribution, such as Java, Peshawari, Mianwali, Sindhi, Mushki Aseel varieties in Pakistan (Mahmood et al., 2017). Due to the present of different types of Aseel birds and their varieties by villagers in Taluka chmabar because of egg, meat and particularly cockfight purpose, the present study was aimed to evaluate the phenotypic characteristics and body parameters of different varieties of Aseel chicken found in different villages of Taluka Chambar, district Tando Allahyar.

## **MATERIALS AND METHODS**

### **Study material**

The present study evaluated the different breeds of Aseel chicken kept in Taluka chambar district Tando Allahyar. For this purpose, total of 74 Aseel chickens were collected for phenotypic observation of the physical appearance from various villages of Taluka Chambar. In this study, a total of 8 Aseel chicken varieties, including (Aseel Mottled, Aseel Wilaete clation, Aseel. Lakha, Aseel Behangam, Aseel Java, Aseel Black, Aseel Sindhi and Aseel Beard Kulang) were brought under the study.

### **Identification of chicken breed**

The breed identification was performed using the method of Qureshi et al. (2018) and information from local villagers obtained through questioning about the body weight, length, color of comb, plumage, beak and color of eyes, shank color,

type of comb, color of earlobe, size of wattle and pattern of feather. In order to observe the variation among breeds, various body parameters were also recorded, including length of comb, length of beak, hind limb, length of tail, length of body and weight of body, which were measured using a digital weighing machine and measuring tape.

### **Data analysis**

The collected data was typed into a computer and utilized for statistical analysis.

## **RESULTS AND DISCUSSION**

### **Physical appearance**

In this study, 8 varieties with a total of 74 Aseel male and female chickens were assessed for phenotypic characteristics. The Sindhi Aseel variety was recognized as the most famous and easily distinguishable from other varieties due to its white plumage half color and brown color marking on their neck. It was also noted that this variety has a curved beak similar to that of an Eagle, small eyes, a pea-shaped comb and yellow colored shanks without any wattles. In our study the 2nd most famous breed was the Aseel Java chicken. This variety was recognized by its solid black plumage; and an ivory-colored beak with blackish pigments.

This variety has red earlobes small wattles, yellow eyes, silver shanks. The 3<sup>rd</sup> most famous and easily observable variety was the Aseel Mottled with a mottled comb and black fin on the top with a pea comb. It also has red earlobes without wattles, a brown colored beak, yellow eyes and white shanks. In our study, the 4<sup>th</sup> famous and easily recognized variety was Lakha Aseel with clear black and red colored plumage, a yellow beak, eyes, very small wattles, red earlobes and white shanks. In our study, the 5<sup>th</sup> most famous breed was Aseel Wilaete clation chicken. This variety was recognized by its solid black color on the plumage and an ivory colored beak with black pigments. It has red earlobes small wattles, yellow eyes, silver shank.

The 6<sup>th</sup> most famous and easily observable variety was d black with a mottled comb and a black fin on the top with pea comb. It also has red earlobes without wattles, a brown colored beak, yellow eyes and white shanks. In our study, the 7<sup>th</sup> and 8<sup>th</sup> varieties were Aseel Beard Kulang and Aseel Wilaete clation. These varieties have large comb with small wattles, and a prominent beard was observed with very few numbers in the Taluka Chambar.

These varieties were only found villagers participating in cockfight competitions in different surrounding cities and in other districts of Sindh such as Sanghar, Umarkot, Hyderabad, Matyari and Tando Muahmmad Khan. All these

characteristics found in our study were in accordance with the results of Roberts (2009). There were a few changes found in the appearance of Beard Kulang and its comb type. The statement given by Harun et al. (2001) was controversial as the results was in this study contradicted their findings. They had reported that no single type of wattles was observed in females compared to males, and variation among the color was also recorded. The results of Henning et al. (2007); Ullah et al. (2019) and Niranjan et al. (2008) were similar to those discussed in our study. They recorded similar types of physical parameters in Java, Mottled, Black and Sindhi Aseel varieties. However there was variation among the color of eyes, feathers, shank, and between females and males (Delany et al., 2007). It might be assumed that the variation among feather color, wattle presence and ivory type of shank color is due to variation among areas and environment (Islam and Nishibori, 2009).

Extreme weather might affect the yellow color of the shank of birds compared with the cold environment and the diet of birds with different types of herbal plants used by farmers to prepare cockfighting. Details are given in Table 1 and 2. The results of our study are in agreement with the results depicted by Al-Rawi and Al-Athari (2002). They were related to the results recorded in our study, where small wattles, pear shaped white eyes, small white earlobes, and ivory and yellow color shanks were mostly observed among different varieties. The study conducted by Sarker et al. (2012) in Bangladesh reported that some of the varieties have no feather yellow and white colored shank in Aseel chicken male and female. In this study, the maximum percentage of Sindhi Aseel variety (24.21%), followed by Aseel black (17.51%) and Aseel chicken Mottled (15.33%) breeds were kept by owners due to their interest in cockfighting (Table 1).

Table 1. Number of Aseel birds and their varieties percentage recorded in Taluka chambar Tando Allahyar.

S. No	Name of variety	Male Chicken	Female chicken	Total no of birds	Percentage (%)
1	Aseel Mottled	4	7	11	(15.33)
2	Aseel Wilaete clation	4	--	5	(6.01)
3	Aseel Lakha	2	5	7	(10.63)
4	Aseel Behangam	4	--	10	(7.13)
5	Aseel Java	2	6	8	(9.11)
6	Aseel Balck	4	10	14	(17.51)
7	Aseel Sindhi	4	16	16	(24.21)
8	Aseel Beard Kulang	2	3	3	(4.1)

**Body measurement**

The findings of our study showed that the maximum body length was recorded in Beard Kulang (509±0.79) with a maximum body weight of 4.8 kilograms in this breed as compared with other varieties. The findings of our study are in accordance with the results reported by Kaleri et al. (2023a); Kaleri et al. (2023b); Roberts (2009). In our study, the 2<sup>nd</sup> highest maximum values were found in Wilaete clation body length (507±0.67) and body weight (4.7±0.84) kilogram, whereas the 3<sup>rd</sup> maximum body length and body weight were recorded in Java Aseel chicken breed (505±0.21) and (4.7±0.54) kilograms, respectively.

The maximum values for comb and beak were observed among Wilaete clation (42±0.23) and 36±0.91 Beard Kulang (38±0.42) and in Behangam breed (34±0.71), respectively.

These findings support the results reported by Mehmood et al., (2017), who suggested different values for comb and beak size. The variation in values might be due to the size and age of the chicken. Additionally, some color variation might be attributed to different ingredients in the diet of the

chicken used by the owner (Table 2, 3). The results for hind limb, forelimb and tail length were recorded maximum in Java and Wilaete clation Aseel varieties (Henning et al., 2007; Kaleri et al., 2023c; Niranjan et al., 2008). Similar results shown by Akber et al. (2020), who reported that the maximum percentage of hind limb fore limb, and tail length was recorded in the above-mentioned breeds particularly in male chicken as compared with female chickens (Harun et al., 2001; Islam and Nishibori, 2009).

It might be assumed that the variation in feather color and wattle presence, along with the ivory type of shank color, is due to variation among areas and the environment. Extreme weather might affect the yellow color of the shank of birds compared with a cold environment and the diet of birds with different types of herbal plants used by farmers for preparing them for cockfighting. Furthermore, studies should be conducted to explore the potential of Aseel chicken due to its resistance ability and immunity from various bacterial and viral diseases compared with other breeds of poultry (Al-Rawi and Al-Athari, 2002; Roberts, 2009).

Table 2. Phenotypic characteristics of various Aseel male chicken recorded in Taluka chambar Tando Allahyar.

Observations	Mottled	Wilaete clation	Lakha	Behangam	Java	Black	Sindhi	Beard Kulang
Length of body	481±0.53	507±0.67	488±0.33	478±0.39	505±0.21	493±0.12	457±0.79	509±0.79
Weight of body	3.3±0.5	4.7±0.84	3.25±0.91	3.5±0.32	4.7±0.54	3.1±0.31	2.91±0.31	4.9±0.54
Length of comb	28±0.31	42±0.23	32±0.56	31±0.15	31±0.11	29±0.56	26.1±0.61	38±0.42
Length of beak	22.4±0.9	36±0.91	26±0.36	34±0.71	21±0.76	19±0.91	30.4±0.21	24±0.29
Length of hind limb	165±0.85	215±0.13	179±0.74	19±10.16	341±0.29	188±0.54	160±0.13	285±0.71
Length of forelimb	271±1.15	331±0.53	323±0.12	321±0.43	211±0.54	285±0.22	296±0.25	211±0.28
Length of tail	321±0.71	357±0.57	3.91±0.47	266±0.22	341±0.12	493±0.76	249±0.33	361±0.31

Table 3. Phenotypic characteristics of various Aseel female chicken recorded in Taluka chambar Tando Allahyar.

Observations	Mottled	Lakha	Behangam	Java	Black	Sindhi
Length of body	421±0.69	449±0.32	471±0.29	441±0.13	452±0.53	429±0.11
Weight of body	1.85±0.92	2±0.76	2.7±0.59	2.2±0.01	2.20±0.11	1.95±0.32
Length of comb	21±0.70	10±0.54	26±0.23	20±0.61	21±0.19	22.9±0.52
Length of beak	16±0.35	21±0.91	45±0.72	24±0.17	18±0.45	22.11±0.21
Length of hind limb	281±0.47	143±0.37	143±0.53	274±0.97	281±0.13	293±0.91
Length of forelimb	141±0.73	297±0.71	151±0.32	156±0.86	141±0.42	155±0.27
Length of tail	143±0.21	151±0.15	242±0.21	161±0.32	129±0.32	141±0.75

**CONCLUSION**

It is concluded that a wide range of diversity with multicolored plumage, normal feather distribution, compact upright bodies, solid feather pattern, pea comb red color, stronger shanks, majestic gait and pugnacity in Aseel chicken breeds is seen in Taluka Chambar district Tando Allahyar. Efforts are being made to improve the productivity of Aseel chickens while maintaining a balance between production and breed characteristics, especially behavioral character with fighting quality.

**CONFLICT OF INTEREST**

The authors declared no conflict of interest.

**AUTHOR’S CONTRIBUTION**

All authors contributed and supported towards 238

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