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Feather Color Affects the Aggressive Behavior of Chickens with the same Genotype on the Dominant White

**Introduction**

This research has focused on testing the relationship between the pecking behaviors of chickens and the color of the feathers of different chicken breeds. This is due to the fact that poultry farming is facing an extensive economic and animal welfare issue due to the aggression that has been seen in chickens. To understand the relationship between the pecking behaviors of chicken and the color of their feathers, two breeds of chickens are taken with different feather colors and are compared with each other. The relationship between the aggressive behaviors the two species and their feather color is then tested through comparison. The dictionary defines behavior as the way people act and control themselves. It was a basic understanding that humans are the only ones whose behavior and thought patterns are based on their needs and want and only they have this ability. But due to extensive research done on animals and their behavior, it has been shown not only humans but also animals have little to a high level of intelligence than they were previously believed to be. This research also focuses on the behavior of chickens regarding the aggressiveness they show in their pecking. Furthermore, it studies the link behind their behavior with the color of their feathers (Nie, et al, 2019).

**Research Methodology**

Any kind of organism that is present in this world is made up of certain genes and genetical strands of DNA. These genes decide what the features, characteristics, and behaviors of organisms would be, so their understanding is important in any research study regarding characteristics of an organism is important. The focus of this paper was on the genetical side. The genetics or genes were in focus of this study of the White Leghorn (WL), which is a white feathered breed and the Rhode Island Red (RIR) being a breed with red feathers. This research is designed to focus on the genes associated with the colors of their feathers and the level of aggressiveness shown by these two breeds of chicken.

The main or the specific gene that is being researched in this research is the premelansome protein 17 (PMEL17). This gene is the candidate gene for this research and is the basis for deciding the effects that color of the feathers have on the aggressiveness of chickens in poultry farms. The importance of premelansome protein 17 is that it is involved in the biogenesis or maturation of melanosomes. Melanosomes help in the storage and containment of melanin, which is the pigment that gives the color and photoprotection to the cells and tissues in animals. So, in turn, premelansome protein 17 plays an important role in the color generation of different breeds of animal's even chickens

The methods used in this research were in coordination with the Guidelines for the Care and Use of Experimental Animals put forward by the Ministry of Agriculture of China. The Animals selected were the offspring generated from the mating of the male of RIR and the female of WL. The eggs were hatched from this mating at the same time and the female chickens with the red and white feathers were then kept in the chicken house with artificially controlled atmosphere. At adulthood, the chickens were broken into six groups in a way that group 1 and 2 contained only hens with red feathers, group 3 and 4 each contained 25 red and 25 white hens and finally, the group 5 and 6 only contained hens with white feathers. Finally, in order to determine the role played by genotypes either directly or indirectly on behavior, locus 3 was selected for analysis (Nie, et al, 2019).

**Results**

In the end, it was seen that the white hens have a more aggressive behavior compared to their counterparts with the red colored feathers. The white colored hens show more aggressiveness in traits such as pecking, chasing, attacking and threatening traits of behavior. For testing the hypothesis of this research three types of genes of feather color were focused at such as PMEL17, SLC45A2 and SOX 10. No relationship was seen between the three loci and color of feathers and the according to the research mixing of red and white color feathers can be a way to reduce the behavior of aggressiveness in chickens (Nie, et al, 2019).

References

Nie, C., Ban, L., Ning, Z., & Qu, L. (2019). Feather color affects the aggressive behavior of chickens with the same genotype on the dominant white (I) locus. *PloS one*, *14*(5), e0215921.