



## Growth, Pectoralis Muscle Performance, and Testis of Pelung Cockerels (*Gallus gallus gallus* [Linnaeus, 1758]) Supplemented with Blood Clam Shell Powder (*Anadara granosa* [Linnaeus, 1758])

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### ABSTRACT

Quality of the Pelung chicken's voice and sturdy body are highly influenced by Testosterone. On the other hand, it is known that blood cockle shells (*Anadara granosa* Linnaeus, 1758) contain natural aromatase inhibitors (NAIs) that can block the aromatase enzyme from converting testosterone into estradiol. This results in consistently high levels of testosterone. The aim of this study was to determine the effect of blood cockle shell powder (BCSP) supplementation on the growth, testosterone levels, and performance of the pectoralis muscle.

The research design used was a Completely Randomized Design, with 16 Pelung chickens aged 40-56 weeks divided into four treatment groups: T0 (control); T1 (BCSP [*A. granosa*] 0.9 mg/kg BW); T2 [*ZnSO*<sub>4</sub>] 0.9 mg/kg BW); and T3 (3 mg/day of testosterone). Procedures such as blood withdrawn were performed on days 0, 14, 28, 42, and 56. At the end of the treatment period, the Pelung chickens were sacrificed, and then the pectoralis muscle was identified using immunohistochemical staining. The growth performance on day 56 showed significantly higher carcass characteristics (CC) in T1 compared to T2 and T0, in T1 and T3 compared to T0, and in T3 and T2 compared to T0. The results of the pectoralis muscle, namely fiber area (FA), nuclearity (NM), myofibrillar area (MA),

and proliferating cell nuclear antigen (PCNA)-positive cells, showed that male chickens in the T3 treatment had significantly higher results compared to other treatments. In conclusion, oral administration of BCSP as a natural aromatase inhibitor at a dosage of 0.9 mg/kg BW for 56 days improved growth performance, testosterone levels, and IHC of the pectoralis muscle, particularly in terms of CC, FA, NM, MA, and PCNA-positive cells parameters. Administration of 3 mg/day of testosterone for 56 days contributed to a decrease in TW and DST, as well as atrophy of the seminiferous tubules.

### BIOGRAPHY

Pudji Astuti is a senior lecturer at the Department of Physiology, Faculty of Veterinary Medicine, Gadjah Mada University, Yogyakarta, Indonesia. Since obtaining her doctoral degree from Bogor Agricultural University, Indonesia, she has consistently pursued research in the field of animal endocrinology, particularly focusing on Natural Aromatase Blockers. Several publications have been published in reputable international journals.



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