BODY WEIGHT PREDICTION OF BLACK AND WHITE SKINNED ARCHACHATINA MARGINATA SNAILS FROM QUANTITATIVE TRAITS MEASUREMENTS

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ABSTRACT

A study was conducted to investigate the relationship between body weight and quantitative traits measurements and to predict body weight from quantitative traits in black and white skinned *Archachatina marginata*. A total of five variables which included shell length (SHL), shell width (SHL), shell mouth length (SML), shell mouth width (SMW) and body weight (BDW) were measured from 100 *A. marginata* snails, 50 each of black skinned and white skinned *Archachatina marginata* with weight ranging from 4.24g to 7.93g and from 0.11g to 1.77g for black skinned and white skinned A.marginata respectively selected based on active appearance and no injury on the foot or shell. The data generated from this study were used to evaluate phenotypic correlations, simple and multiple regressions; and means of body weight and quantitative traits were compared using SPSS, 2007.The results obtained from the study showed significant differences ($p<0.001$) in values of quantitative traits measured (SHL, SHW, SML, SMW and BDW) between black skinned and white skinned *A.marginata*. The results of phenotypic correlation among quantitative traits of black skinned and white skinned A.marginata showed positive, strong and very high relationship between body weight and all quantitative traits measured. The highest significant ($p<0.001$) correlation was recorded between body weight and SHL ($r=0.867$) for white skinned *A.marginata*. The prediction equations obtained for body weights of black skinned and white skinned *A.marginata* indicated that each one of the quantitative trait (SHL, SHW, SML, SMW), or combination of two or more traits can predict body weight of black and white skinned A.marginata with very high accuracy. It was concluded that, body weight can be predicted with high accuracy from body measurements to support breeding, selection and other husbandry practices.

Keywords: *Archachatina marginata*, Quantitative traits, Correlations, Predictions.