

Feasibility of Applying Regression Modeling to Estimate the Weight of Soft Tissue of Bivalves Using Shell Dimensions

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Abstract

This study examined the feasibility of using shell dimensions (length and width) to estimate the wet and dry weight of bivalve's soft tissue. For this study, three species of bivalve's (*Solen brevis*, *Saccostrea cucullata* and *Callista umbonella*) were collected from the coast of Bandar Abbas near the Terminal and Tourist Park of Soro in 2012. The length, width, wet weight and dry weight of soft tissue were measured. Two-variable regression model and validation of calibration was taken with SPSS (version 17). Survey results showed that the models were produced at an acceptable level. The relative error was 11.93-36.69 in dry soft tissue and 35.57-7.99 in wet soft tissue. Changes in the relative of standard division were 14.107-44.19 and 1072-38.14 in dry and wet soft tissue, respectively. The results of this study showed that in the model for estimating wet soft tissue *S. brevis* at the Terminal and Tourist Park of Soro stations, RE and RRMSE values were found to be 10.66 and 8.83, 3.96 and 3.46 percent for calibration phase, and 10.27 and 7.99, 13.81 and 10.17 percent for the validation phase, respectively. It can be attributed to lowest error rate and highest accuracy. For dry soft tissue *C. umbonella*, RE and RRMSE values were found 44.19 and 43.69 percent for calibration phase, and 40.02 and 36.69 for the validation phase, respectively, which showed highest error rate and lowest accuracy in both stations. Level of significance for both species was 99%. The results revealed that regression modeling method using of length and wide of shell can be used to calculate the wet and dry weight of soft tissue in addition to being simple, high speed, non destructive and high precision.

Keywords: *Solen brevis*, *Saccostrea cucullata*, *Callista umbonella*, Regression model, Shell dimensions, Soft tissue
