

ABSTRAK

Ecomorphometrics is a branch of science that studies the relationship between the morphology (shape and structure) of an organism and the environmental factors of its habitat. This study aims to analyze the morphometric variations of the gastropod *T. palustris* and its relationship with environmental parameters in the mangrove ecosystem of Aceh Singkil Regency. A purposive sampling method was used to determine the location of the observation station and the observation station was determined as many as 6 locations. Data analysis was carried out using the Principal Component Analysis (PCA) method using SPSS V24 software. The results showed that the morphometrics of *T. palustris* varied at each station. The highest values for SL, SP, SW, AW, AL and BT were measured at Station 6 (71.62 ± 09.59 mm, 40.52 ± 07.30 mm, 02.73 ± 0.39 mm, 02.91 ± 0.82 mm and 87.30 ± 11.47 gr, respectively). The high size of SL, SP, SW, AW, AL and BT at Station 6 indicates that the gastropod *T. palustris* is more mature when compared to *T. palustris* at other stations. and the highest BWL value was at Station 5 (35.72 ± 11.66 mm). Environmental parameters showed a salinity range of 22–24‰, water temperature 29–34°C, soil temperature 29–34°C, water pH 7.25–7.91, soil pH 6.17–6.67, and BOT 23.86–41.28%. Based on the PCA results, the most influential factors on the morphometrics of *T. palustris* were water temperature, total organic matter, and water pH.

Keywords: Ecomorphometrics, mangrove ecosystem, PCA analysis, environmental parameters, *Terebralia palustris*