

## Determination of trophodynamic structure in the mangrove area of Tanjung Kupang, Malaysia: in sight of stable isotope analysis

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The Malaysian coastal water area comprises of various ecosystems including the mangrove ecosystem. Nowadays, many areas have been reclaimed and developed due to high demand from community and industries. Deteriorating environmental health in a particular area will indirectly affect the stability of the existing food web. Current study aimed to investigate the existing trophodynamic structure in the mangrove area of Tanjung Kupang using stable isotope analysis. A total of 40 samples was collected from the area. All the samples had undergone stable isotope preparation method and was analyzed by the used of CF-IRMS to obtain dual isotope signatures ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ). Animal species had  $\delta^{13}\text{C}$  values ranging from  $-27.02$  to  $-14.83 \pm 0.54\text{‰}$  meanwhile for plants part range from  $-30.17$  to  $-19.89 \pm 1.04\text{‰}$  meanwhile,  $\delta^{15}\text{N}$  value reflects  $-4.09$  to  $15.89 \pm 0.56\text{‰}$  and  $3.00$  to  $5.42 \pm 0.22\text{‰}$  for animal and plants, respectively. Calculation of trophic level estimation (TLE) and Discriminant Analysis (DA) could be used to strengthen the trophic positioning of a species. In coming years, further in depth investigations should be conducted to create a comprehensive trophodynamic structure of food web in the area. This preliminary study is important in planning strategies for better management and conservation of mangrove ecosystem important bioresources who rely on the area.

**Keywords:** Trophodynamic structure, stable isotope analysis, food web, mangrove ecosystem, trophic level