Ecological Control Over Morphology of Planktic Foraminiferal Species N. Pachyderma and G. Glutinata Using Q-mode Cluster Analyses in Surface Sediments Along North-south Transect in South Western Indian Ocean

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A total of 25 surface sediment samples, collected from 9.69° N to 55.01° S north-south stretch along the Indian Ocean have been examined for their planktic foraminiferal faunas. Census data obtained for different parameters (average size, mean proloculus size, coiling direction and number of chamber) on two planktic foraminiferal species, *N. pachyderma* and *G. glutinata* were analyzed separately using a Q-mode cluster analysis. The cluster analysis of *N. pachyderma* showed four clusters. Cluster A comprises of 14 samples from tropical to sub-tropical zone, characterized by higher range of foraminiferal parameters with higher range of ecological parameters; Cluster B comprises of 6 samples from sub-polar zone, characterized by lower range of foraminiferal parameters with lower range of ecological parameters (except nitrate and DO); Cluster C comprises of 4 samples from tropical zone, characterized by higher range of dextrality, but lower range of other parameters, while SST and SSS show higher range and other ecological parameters show lower ranges; Cluster D comprises only one samples (northernmost sample from our study area) from tropical zone, characterized by higher range of foraminiferal parameters as well as ecological parameters. On the other hand, the cluster analysis of *G. glutinata* exhibited three clusters. Cluster A comprises of only 2 samples from tropical zone, characterized by highest range of mean proloculous size and lowest range of dextrality with highest range of SST and SSS, and lowest range of phosphate, DO and silicate concentration; Cluster B comprises of 3 samples from sub-tropical to sub-polar zone, characterized by highest range of average test size and number of chamber as well as lowest range of mean proloculus size with lowest range of SST, SSS and nitrate along with highest range of phosphate, DO and silicate; Cluster C comprises of 17 samples from tropical zone, characterized by lowest range of average test size and number of chamber, but highest range of dextrality, while only nitrate concentration shows highest range and other ecological parameters show medium ranges. The study suggests that SST, SSS and nutrients are the main ecological factors controlling the morphological characteristics of planktic foraminiferal species *N. pachyderma*, while in case of *G. glutinata*, SSS plays a significant role on first chamber formation.