

MORPHOMETRICS OF *CATENIPORA* (TABULATA; UPPER ORDOVICIAN; SOUTHERN MANITOBA, CANADA)

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Multivariate analyses have been carried out to discriminate closely related species of *Catenipora* from the Selkirk Member, Red River Formation, Manitoba. Ten morphological characters measured in transverse sections of 37 colonies were tested to perform cluster analyses.

Results of frequencies, bivariate plots, simple correlation analysis, and principal component analysis indicate that five morphological characters contribute the most to species differentiation: tabularium area, length of corallite, width of corallite, tabularium length, and tabularium width.

A cluster analysis was performed on the raw data matrix coordinated with 37 colonies by the five selected variables. The variables were standardized to mean 0 and variance 1 and squared euclidean distances among the colonies were calculated. Unweighted pair-group method using arithmetic average was also employed for clustering among colonies. Four morphotypes were consequently extracted from the dendrogram, which was based on the variation of the five morphological characters.

Morphotypes A, B and D have distinctive ranges in variation of all selected morphological characters except length of corallite. Morphotype C appears to be an intermediate type, in which the ranges of variation of all five variables partially overlap those of morphotype A and/or B. Another cluster analysis, including type specimens previously reported from Manitoba, has also been performed on the data matrix coordinated with 41 colonies by the five variables. This analysis suggests that morphotypes A, B and C are comparable with *C. rubra* Sinclair and Bolton in Sinclair, 1955, *C. foerstei* Nelson, 1963 and *C. robusta* (Wilson, 1926) of Nelson, 1963, respectively. Morphotype D does not correspond with previously reported species.

The result of cluster analysis based on the selected five variables demonstrates efficiency in distinguishing closely related species of *Catenipora* from southern Manitoba. The same procedure could also be applied to other cateniform corals.