PHYLOGENETIC MORPHOMETRIC ANALYSIS IN AMMONOIDS

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In this work, I studied the phylogenetic relationships of 17 ammonoid taxa from the López de Bertodano Formation (Antarctic Peninsula) using phylogenetic morphometrics, a method that allows the integration of geometric morphometric data into standard cladistic analyses. In this case, the ammonoid whorl profile (the contour of the whorl in a transversal cross-section of the conch) was translated to a semilandmark configuration and coded as an additional continuous character for each specimen. This dataset was then joined to a matrix containing both discrete and continuous characters, and analyzed using the software TNT V1.6 (varying the search parameters). Results allow predicting the whorl profile of the hypothetical ancestors, and it is useful to analyze the phylogenetic relationship of the studied taxa. I also review if there are evolutionary trends related to the shell size among the studied species, mapping the diameter and the centroid size in the obtained topologies. Further, an additional sensitivity analysis was performed using implied weighting to check the effect of reducing the relevance of the geometric morphometric data in the analysis. These results indicate that the geometric morphometric data sustain phylogenetic information useful for assessing the relationships of the studied species.