

## **CLUSTER ANALYSIS IN THE SOLUTION OF BELEMNITE TAXONOMICAL CLASSIFICATION PROBLEMS**

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Belemnite rostra have a few discrete, peculiar-to-species features and are identified on frequent occasions by measured characters. In taxonomical classification of belemnite, cluster analysis may be of a good help to the specialists. The comparison of the variability ranges of species features of belemnites, in examining the big collection of Upper Jurassic and Lower Cretaceous belemnites (family Cylindroteuthidae) of the West and northern East Siberia, demonstrated very often the absence of any discreteness. This fact as well as the account of the same stratigraphic ranges and similar geographic areals led us to the conclusion that synonymity for some species is possible. Along with conventional ontogenetic and statistic methods, in making classification a cluster analysis was used. Several tens of dendrograms have been analysed on samples of morphologically similar species of the genus *Pachyteuthis*, where the type of dendrogram was established to depend on used options. The dendrograms constructed on the basis of relative parameters with an application of Bray-Curtis distance measure using group average or simple average clustering have appeared to be most optimum for Cylindroteuthidae classification. Most appropriate set of relative parameters are as follows: ratio of the lateral diameter divided by the dorsoventral diameter at the alveolar apex and in apical region of the rostrum; ratio of the length from apex to tip of alveolus divided by the dorsoventral diameter at the alveolar apex. Besides, the investigations suggested that the rostra should tentatively be divided into age groups. So, combined employment of the statistic methods along with morphological investigations allowed us to propose more optimum variant of classification, to provide synonyms for some species, which before were considered independent.