

Molecular studies revealed cryptic speciation in cosmopolitan cossurid species *Cossura pygodactylata* Jones, 1956

Presenter: Anna Zhadan, Tatiana Neretina

Authors: Anna Zhadan, Tatiana Neretina, Nicolas Lavesque

Contact: Anna Zhadan, M.V.Lomonosov Moscow State University, Biological faculty, White Sea biological station
azhadan@wsbs-msu.ru

Abstract:

Cossura pygodactylata Jones, 1956 (Annelida, Cossuridae) is the single cossurid species known to bear intercirral anal processes. It has a wide geographical distribution. It is reported from Arctic to boreal and tropics zones and from Atlantic to East and West Pacific (depth range from 1 to 2700 meters). These facts allow to suggest presence of cryptic species. We studied specimens of *C. pygodactylata* from Arcachon bay (France) and from the Kara and White Seas (Russia) using traditional taxonomic methods and molecular methods (18S rRNA sequences). Specimens were uniform morphologically but 18S rRNA sequences revealed significant differences. The distance between Kara Sea and White Sea specimens were 0.4%, 1% between Arcachon and White Sea specimens, 3% between *C. pygodactylata* and *C. candida* and 4.6% between Cossuridae and Paraonidae used as outgroups. These distances could mean species-level differences between Arcachon and White Sea specimens as 18S rRNA is a quite conservative gene. The species status of Kara sea specimens remains questionable. Future studies are needed to reveal all cryptic species in *Cossura pygodactylata* complex: investigations of other nuclear and mitochondrial genes (16S, COI), comparison of our molecular and morphological data with specimens from the type locality (California) and other regions.

This study was supported by grant 15-29-02447 from the Russian Foundation of Basic Research.

