Ecological and Biological Response of Benthic Foraminifera Under Oxygen-Depleted Conditions: Evidence from Laboratory Approaches

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Résumé en anglais	Laboratory experiments are a valuable way to elucidate physiological and ecological processes of benthic foraminifera under oxygen-depleted conditions. Experimentally tested survival rates and other experiments show high tolerance of many species under low oxic to anoxic conditions. Laboratory observations raised different assumptions to explain the physiological adaptations to this tolerance. Denitrification processes seem to be one important mechanism. Nevertheless, foraminifera try to colonize sediment horizons with optimal species-specific oxygen concentrations. Experimental settings demonstrated the importance of oxygen gradients for the orientation in sediments. At the same time, foraminifera change the oxygen concentration in their microenvironment by respiration. Despite high bioturbation, they do not appear to influence the flux of oxygen into the sediment. Experimental working in oxygen-depleted environments needs a reliable determination of living foraminifera during the experiment, e.g., different biochemical techniques. Additionally, electrochemical or optical oxygen sensors that measure the oxygen concentration are necessary.
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