eDNA FOR EARLY DETECTION OF MARINE INVASIVE BENTHIC SPECIES

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Bioinvasion is a worldwide threat and requires global cooperation to be successfully overcome. Along with climate change, bioinvasion is considered the largest cause of the loss of biological diversity. It causes changes in the structure and function of ecosystems, increasing the homogenization of biota and causes economic losses. In Brazil, there is a growing number of bioinvasion events. At the same time, there is an absence of a national public policy to prevent bioinvasions affected by the disarticulation between the different initiatives and public agents. On the other hand, monitoring programs for marine invasive species are well developed in other countries such as Denmark, including the use of DNA data and molecular techniques. Along their life cycles organisms leave DNA signatures in the environment. Their current or recent presence can often be inferred from signatures by analyzing environmental DNA (eDNA). Identifying this environmental imprinting may ensure early detection of exotic and potentially invasive species on a non-native area. For this, there is a need of the development of eDNA protocols for on early detection on marine environments, including the comparison of marine substrate and water samples, selection of primers and bioinformatic pipeline analysis. A recent collaboration between research groups from IEAPM Marine Biotechnology Group, the Natural History Museum of Denmark, and National Museum of Brazil was established. Our objective is to develop a protocol for early detection of marine exotic species that can be applied to Brazilian coastal regions and improve the management and conservation of native species.

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