TITLE:

Species detections in environmental DNA using metabarcoding: a useful tool in estuaries monitoring.

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Estuaries are amongst the most productive habitats in Earth, producing more organic materia than forests, meadows or agricultural lands. In addition, estuaries exhibit high, and precious, biodiversity levels. In this study an environmental DNA analysis of the two most important estuaries in Asturias (Cantabrian Coast, north Iberia) in terms of food production (Ría del Eo and Ría de Villaviciosa) was carried out. The objective was to monitor aquatic biodiversity and also to detect alien species that can be associated with anthropogenic activities (e.g.: aquaculture). To achieve these objectives, a metabarcoding methodology based in NGS (next generation sequencing) and the mitochondrial COI gene as a DNA Barcode was used. Results showed that this methodology was useful to detect the presence of three different non-native genera (*Crepidula, Lymnaea, Macrobrachium*) that are probably parasitating species cultured in these estuaries. It is true that Metabarcoding has still unsolved problems such as the lack of 100% universal primers and paucity of referenced sequences for some taxonomic groups in the databases. However, it represents already a powerful tool to manage the resources of these important ecosystems and to guarantee their long-term sustainailibity.