

ABSTRACT

IDENTIFYING MARINE BIODIVERSITY BY DNA BARCODING AND DNA CHIPS

Kochzius Marc

Marine Biology, Vrije Universiteit Brussel (VUB), Pleinlaan 2, 1050 Brussel, Belgium

E-mail: marc.kochzius@vub.ac.be

Species identification is a key problem throughout the life cycle of marine invertebrates and fishes: from eggs and larvae to adults in ecological research, but also more applied in fisheries research and control, as well as processed seafood products in consumer protection. The application of molecular genetic tools is a powerful method to assign specimens that cannot be identified by morphological character to certain species and also has the potential to be automated, allowing identifying species with highest precision and in large sample sizes. In DNA barcoding a fragment of the mitochondrial cytochrome oxidase subunit I (COI) gene is sequenced and compared with a reference database in order to identify the species. DNA microarrays use a different approach: the DNA of the specimen to be identified is not sequenced, but applied to a DNA chip and hybridises to species-specific probes, which is detected. This has the potential for a high-throughput technology that can analyse even mixed samples, such as plankton hauls or environmental DNA.