

The Advantages of Using DNA-Barcoding for Determining the Fraud in Seafood

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Abstract : Although seafood is an important part of human diet and categorized highly traded food industry internationally, it is remain overlooked generally in the global food security aspect. Food product authentication is the main interest in the aim of both avoids commercial fraud and to consider the risks that might be harmful to human health safety. In recent years, with increasing consumer demand for regarding food content and it's transparency, there are some instrumental analyses emerging for determining food fraud depend on some analytical methodologies such as proteomic and metabolomics. While, fish and seafood consumed as fresh previously, within advanced technology, processed or packaged seafood consumption have increased. After processing or packaging seafood, morphological identification is impossible when some of the external features have been removed. The main fish and seafood quality-related issues are the authentications of seafood contents such as mislabelling products which may be contaminated and replacement partly or completely, by lower quality or cheaper ones. For all mentioned reasons, truthful consistent and easily applicable analytical methods are needed for assurance the correct labelling and verifying of seafood products. DNA-barcoding methods become popular robust that used in taxonomic research for endangered or cryptic species in recent years; they are used for determining food traceability also. In this review, when comparing the other proteomic and metabolic analysis, DNA-based methods are allowing a chance to identification all type of food even as raw, spiced and processed products. This privilege caused by DNA is a comparatively stable molecule than protein and other molecules. Furthermore showing variations in sequence based on different species and founding in all organisms, make DNA-based analysis more preferable. This review was performed to clarify the main advantages of using DNA-barcoding for determining seafood fraud among other techniques.

Keywords : DNA-barcoding, genetic analysis, food fraud, mislabelling, packaged seafood

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