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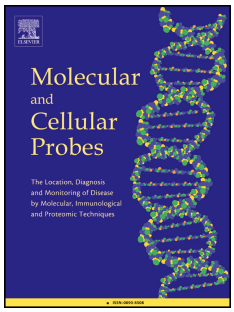

Identification of four squid species by quantitative real-time polymerase chain reaction

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Identification of four squid species by quantitative real-time polymerase chain reaction

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Abstract: Squids are distributed worldwide, including many species of commercial importance, and they are often made into varieties of flavor foods. The rapid identification methods for squid species especially their processed products, however, have not been well developed. In this study, quantitative real-time PCR (qPCR) systems based on specific primers and TaqMan probes have been established for rapid and accurate identification of four common squid species (*Ommastrephes bartramii, Dosidicus gigas, Illex argentinus, Todarodes pacificus*) in Chinese domestic market. After analyzing mitochondrial genes reported in GenBank, the mitochondrial *cytochrome b* (*Cytb*) gene was selected for *O. bartramii* detection, *cytochrome c oxidase subunit I* (*COI*) gene for *D. gigas* and *T. Pacificus* detection, *ATPase subunit 6* (*ATPase 6*) gene for *I. Argentinus* detection, and 12S ribosomal RNA (12S rDNA) gene for designing Ommastrephidae-specific primers and probe. As a result, all the TaqMan systems are of good performance, and efficiency of each reaction was calculated by making standard curves. This method could detect target species either in single or mixed squid specimen, and it was applied to identify 12 squid processed products successfully. Thus, it would play an important role in fulfilling labeling regulations and squid fishery control.

Key Words： Species identification; Quantitative real-time PCR; Squid; Mitochondrial DNA

1. Introduction: