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Identification of canned tuna *Thunnus albacares* and *Thunnus alalunga* by real-time PCR method

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Food authenticity testing is one of the major challenges facing the food safety authorities. Pursuant to Council Regulation (EEC) No. 1536/1992, tunas are classified into true tunas (*Thunnus thynnus, T. albacares, T. alalunga, T. obesus etc., Euthynnus* sp. (*Katsuwonus pelamis*) or pseudo-tunas, i.e. bonito (Sarda sp., Euthynnus sp. (except *Euthynnus pelamis*) and Auxis sp.). Tuna fish are often sold as a heat-processed canned products at the market. Different quality and price of tuna species can lead the producer to the adulteration/fraud. The main difficulties in developing of method for these fish species identification is high similarity of DNA sequences among close relative fish species. All complete mitochondrial DNA sequences of yellowfin tuna (*Thunnus albacares*) and albacore tuna (*Thunnus alalunga*) were compared to all other mitochondrial DNA sequences of tuna fish saved in GeneBank. The variable sequences inside species were detected and deleted from another comparison. The most variable regions within species were determined and primers and probes were designed in this region for the species specific DNA amplification of yellowfin tuna and albacore tuna. Moreover to check the content of amplifiable DNA of fish (namely tuna) in the sample, the primers and probe of mitochondrial 12S rRNA gene in the region of conservative sequence for fish were designed. Real time PCR methods were verified investigating of 25 samples of canned tuna with the declared content of yellowfin tuna or albacore tuna from the market. All samples contained tuna species in spite of the declaration.

Biography

Eliska Servusova is student of PhD program at the Faculty of Veterinary Hygiene and Ecology at Veterinary and Pharmaceutical University in Brno. Currently she works at the Veterinary Research Institute in Brno as a Researcher. She deals with the adulteration of food (especially of animal origin).

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