These facts lead to animal abuse, especially illegal hunting. Educational programs showing the environmental importance and the hole of birds of prey should be reinforced. The laws applied to these subjects must be considered and other mitigating measures in place to protect these animals should be maintained and reinforced to optimize the health of raptor populations.

References


DETECTION OF FRAUD IN CANNED TUNA

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Introduction: Canned tuna is defined as a product made with tuna, packaged in hermetic way, followed by sterilization to avoid contamination and multiplication by microorganisms, beyond to propitiate integrity until the end of shelf life of the product. For this product processing, Ministério da Agricultura, Pecuária e Abastecimento (MAPA) published the Normative Instruction 46 of December 15th of 2011, which regulates the production of canned tuna in Brazil (BRASIL, 2011). Thus, fraud occurs for substitution of fish species not allowed by legislation. This study aimed to standardize the detection of fraud in tuna canned by polymerase chain reaction (PCR) and real time PCR (qPCR).

Methods: The samples were constituted of canned tuna from seven different factories, in the following presentation: solid, piece, grated, in oil, in natural, light, and in tomato sauce, comprising 27 samples. The previous treatment of the samples for PCR and qPCR were performed as described by Chapella et al. (2007). DNA extraction was made using Wizard® SV Genomic DNA Purification System (Promega®) kit, according to manufacturer’s instructions. As internal control, we used primer for beta-actin gene designed in laboratory.

Results: Of 27 samples analyzed, only one did not amplify by PCR, showing the tuna absence (Figure 1). For qPCR 4 samples were considered as containing only tuna, 6 with low concentration of tuna, and 17 with high concentration of other kind of fish.

Discussion: In the obtained Results, only 15% of the samples were considered as containing only tuna, which elucidates fraud in the others products. Considering that the product must have credibility and guarantee the rights and food safety for consumers (BARBOSA, 2016), the method applied could be an instrument for fraud detection in canned tuna.
Hybrids may compete for resources with parental species, favored by “hybrid vigor” or, if they are fertile, have an impact on the genetic integrity of wild populations due to the potential risk of backcrossing with consequent introgression. Hybridization can pose a threat to small populations, even when the gene sets do not mix. There are records of hybrids involving species of the same suborder, with the genus Trachemys (JACKSON, 2010). In order to provide subsidies for the improvement of sustainable biological management and conservation programs as well as for future projects to be developed with chelonians, this work aimed the characterization of the karyotypes by means of conventional staining, chromosome banding and mapping of some repetitive DNAs in two Chelonoidis kept in captivity.

Methods and Materials: This work analyzed 28 specimens of the genus Chelonoidis kept in captivity at the Wildlife Medicine and Research Center from Botucatu/SP and at the Municipal Ecological Park from Americana/SP, Brazil. The morphological characterization between the two species was carried out according to Siqueira, Silva and Moral (2004). The material collection was performed in order to provide the lowest possible risk to the physical integrity of the animal. For the cytogenetic analyzes, samples of 3 mL of peripheral blood were obtained by puncturing the caudal vein. To obtain metaphase chromosomes, it was applied the technique described by Moorhead et al. (1960). The banding techniques employed included C-banding by Sumner (1972), the sequential staining CMA3/DA/DAPI by Schweizer et al. (1983) and Ag-NOR-banding by Rufas et al. (1987). In addition, slides were submitted to the fluorescence in situ hybridization (FISH) procedure employing the 18S rDNA and telomeric motif (TTAGGG)n as probes. The 18S rDNA probe was obtained from the genomic DNA of C. carbonaria using the protocol by Sambrook and Russell (2001). The Polimerase Chain Reaction (PCR) was performed by using the primers Sca18SF and Sca18SR (CABRAL-DE-MELLO; MOURA; MARTINS, 2010). Telomeric probe was obtained by PCR using the complementary primers (TTAGGG)5 and (CCCTAA)5 according to (IJDO et al., 1991). The procedures and animal handling were authorized by the Ethical Committee for Animal Research of the São Paulo State University (Unesp), Brazil (protocol 217/10-CEEA).

Results: By means of morphological analyzes, 20 specimens were defined as C. denticulata and eight as C. carbonaria.