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## NEW ANALYTIC METHOD OF DNA EXTRACTION FROM TEETH

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**Background:** The ISO/IEC standards establishes that every new method used in an accredited ISO17025 forensic laboratory must be submitted to internal validation before processing the samples. This paper aims to verify the efficacy of a new analytic method of DNA extraction from teeth, based on a semi-automatic procedure that permits processing in a single cycle from 2 to 12 samples.

**Methods and materials:** A sample of 30 teeth were analyzed of which 22 had been extracted over a 5 years and 8 teeth extracted over a period of one-two months. During the extraction a blood sample of the donors was taken as a control; all the samples (teeth and blood samples) were kept at room temperature in separate sterilized containers. The teeth were previously decontaminated and endodontic access to the pulp chamber was performed according to a technique described by Pinchi et al (2011). After the DNA extraction, all samples were quantified by using Quantifiler® Duo DNA Quantification Kit. The genetic profiles obtained from the teeth samples were compared to the STR profiles of all blood samples.

**Results:** DNA extraction was possible in 29/30 of the samples and in all cases there was a match between the tooth DNA profile and the controls. Regarding the DNA quantification, we note a wide margin of variability (between 0.2 and 350 ng in 60 µl of TE buffer with no inhibitors presence in any sample). These results seem independent of the presence of large damaged/lesion teeth (i.e. dental caries) or atresia of the pulp chambers as well as from the extraction dating.

**Conclusion:** The successful extraction of dental DNA from teeth removed several years before and maintained without any specific cautions supports the conclusion that pulp is a donor-tissue of first choice in forensic practice. The results confirm a robustness and reproducibility of the extraction method with QIAcube technology.

**KEYWORDS:** Forensic Odontology, Identification, DNA Extraction.

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