Relevance of sampling and DNA extraction techniques for the analysis of salivary evidence from bite marks: a case report

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ABSTRACT. Bite mark evidence has been repeatedly found in criminal cases. Physical comparison of a bite mark to the teeth of available suspects may not always be possible. Experimental studies have shown that the analysis of DNA present in the saliva recovered from bite marks might help in the identification of individuals. However, the application of this approach to an actual criminal case has been reported only once before in forensic literature. Therefore, there is very limited scientific and technical information available on this subject. The current study focuses on a woman found dead in her home; the autopsy ruled the death to be a result of manual strangulation. A bite mark was found on each breast. The single swab technique was used to collect evidence from these bite marks, and an organic extraction method was employed for DNA isolation. Short tandem repeat (STR) sequence typing was performed using a commercially available kit, and
the result was compared to the STR profile of a suspect. A full single-source STR profile was obtained from both bite marks, which matched the STR profile of the suspect. To the best of our knowledge, this is the second report on the analysis of DNA isolated from bite marks on the victim used to identify the crime perpetrator. Our results indicated that, contrary to most theoretical indications, a single swab technique for evidence collection and an organic method for DNA isolation could be very useful in solving this class of criminal cases.

**Key words:** Bite mark; DNA typing; Saliva