A SET OF SPECIALIZED LOW-ADHESIVE TAPES FOR COLLECTING BIOLOGICAL TRACES FROM A CRIME SCENE AND FOR LABORATORY USE

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Forensic evidence called contact traces constitutes one of the most often collected groups of biological traces during the investigation of the scene of crime and at the same time it is the most common material examined in forensic laboratories. Contact traces are transferred as a result of the physical contact of human skin with the surface of other objects. The source of human DNA left in this way is not fully understood. Several explanations of the source of this type of DNA traces are available in the literature. One of such explanations suggests that the DNA exhibited on the items may be the result of the keratinization process and may come from keratinocytes (epidermal cells). It was also shown that contact traces can be transferred through the touch of a hand that previously had contact with other parts of the body. Additionally it can come from the so-called free DNA, found, among others, in the human sweat. This type of traces contain much less DNA compared to DNA extracted from blood and other tissues. Therefore, obtaining a trace evidence that qualifies for analysis poses many problems. Researchers around the world are working to develop a solution to this problem. In case of collecting contact traces, the technique used to collect material from the scene of crime is very important and that is why the project's tasks focus on the development of a new, ready-made forensic tool in the form of a specialized set of low-adhesion tapes to collect the biological material called "touch DNA". The achieved results will be tested to confirm the efficacy of the tool as well as to show the possibilities and limitations of the method and will allow developing an optimal solution to improve the new methods of collection in comparison to those traditionally used.

The other aim of the project is to optimize the DNA extraction method for contact traces which were secured using adhesive tapes in order to improve the level of quantity and quality of DNA from these evidence.

The main goal of the project is to increase the evidence value of previously unavailable DNA from touch traces, which can be achieved by developing a specialized set of tapes for collecting DNA traces by the CSI officers at the crime scene, which are later examined by forensic experts in the laboratory. The implementation of the results of the project will undoubtedly contribute to increasing the investigation capabilities of the security agencies by supporting the detection process and combating crime.