



B165 Using a Smart Phone Special Gadget to Find and Collect Latent Fingerprints: Simplifying the Process

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Learning Overview: After attending this presentation, attendees will have learned about an innovative use of a smart phone, equipped with a special and simple gadget, to acquire latent fingerprints in crime scenes with a low-cost, non-destructive method.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by demonstrating the possibility of using a smart phone, with a low-cost gadget and without any chemical substances, to highlight and acquire latent fingerprints in crime scenes, improving the productivity and cost of forensic examination, especially in developing countries.

Latent digital prints are important vestiges in crime sites, due to their high incidence and possibility of author identification. However, their acquisition usually depends on the personal experience of the forensic examiner regarding knowledge of classical methodologies and the correct use of reagents.

Although there are new technological tools commercially available for use in the search and acquisition of fragments, such resources are still restrictive to Brazilian professionals because of their high cost. As a consequence, the registration of papillary fragments ends up depending on classical methods, which involves the use of chemical reagents, causing modifications that destroy the vestige as originally conceived. Most of these chemical reagents also have high toxicity, which can impair the health of the examiners.

This research proposes the development of a simple and low-cost device, designed to adapt to a smart phone, allowing the enhancement of latent papillary fragments and their capture through the smart phone camera using optical methods. The built prototype is simple, lightweight, and enables the proposal of a non-destructive and low-cost methodology, without any chemical interaction with the evidence, preserving the vestige as originally conceived, and allowing its use in other methodologies, such as spectrophotometry and touch DNA.

The prototype was tested with a medium technology smart phone in laboratory and under external conditions. Latent fingerprints were acquired from non-porous surfaces, frequent in crime scenes, such as glass, metal, and plastic. Tests were also performed focusing on other possible applications of the method, such as using mass and oil to analyze the results of modeled and stamped fingerprints.

The results were confronted with known fragments, and the comparisons demonstrated sufficient quality for at least 12 matching points (Brazilian standards). Both the device and the developed methodology showed an excellent performance for the acquisition of latent papillary fragments on different surfaces and conditions. The results obtained with the gadget allows a new step for the research, which would be tests in crime scenes.

Fingerprint, Dactyloscopy, Non-Destructive