

Visualization of Latent Sweat Fingerprints Deposit on Paper by Infrared Radiation and Blue Light

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Abstract : A simple device termed infrared radiation (IR) was developed for rapid visualization of sweat fingerprints deposit on paper with blue light (450 nm, 11 W). In this approach, IR serves as the pretreatment device before the sweat fingerprints was illuminated by blue light. An annular blue light source was adopted for visualizing latent sweat fingerprints. Sample fingerprints were examined under various conditions after deposition, and experimental results indicate that the recovery rate of the latent sweat fingerprints is in the range of 50%-100% without chemical treatments. A mechanism for the observed visibility is proposed based on transportation and re-impregnation of fluorescer in paper at the region of water. And further exploratory experimental results gave the full support to the visible mechanism. Therefore, such a method as IR-pretreated in detecting latent fingerprints may be better for examination in the case where biological information of samples is needed for consequent testing.

Keywords : forensic science, visualization, infrared radiation, blue light, latent sweat fingerprints, detection

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