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THE USAGE OF AN ALTERNATIVE LIGHT SOURCE (ALS) IN DISTINGUISHING BLOODSTAINS FROM A GROUP OF SIMULATED BLOODSTAINS

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Rationale. The detection of biological traces at the crime scene is one of the most important tasks during the criminal investigation. One of the simplest methods used to reveal the bloodstains is the alternative light source (ALS), which is a non-invasive and non-destructive method based on the absorptive and photoluminescent qualities of the examined trace evidence.

Objective: The aim of the study was to demonstrate that ALS is a quick and easy method used to differentiate the blood traces from a group of simulated bloodstains.

Material and methods. The material used in the research included blood, red borscht, raspberry juice, cherry liqueur, cranberry juice, tomato bruschetta, tomato paste, raspberry jam, rust, red spray, red wine and tomato ketchup. Stains were illuminated with ALS emitted by the Mini-CrimeScope 400 (SPEX Forensics) with yellow, dark yellow, orange and red filters. The results of the analysis were presented as a description and also documented in photographs.

Results and discussion. The usage of light sources without color cut-off filters does not allow to unequivocally differentiate real bloodstains from trace evidence imitating or resembling bloodstains. The usage of yellow and orange cut-off filters and also light of appropriate wavelength, allows to exclude simulated bloodstains made of food and alcohol. The best of used cut-off filters was red filter, which undoubtedly provide a possibility to identify a bloodstain from a group of simulated bloodstains.

Conclusions. Due to the various optical properties of blood and substances containing vegetable ingredients (which show fluorescence), the forensic experts by the use of ALS can differentiate human blood from simulated bloodstains in a non-destructive and quick way already at the crime scene. ALS may offer a replaceable method to more commonly used chemical-based screening tests. It can also help to lower the costs associated with the investigation and reduce the time spent on analysis of collected trace evidence.