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Authors: Stephanie Oliver, Thomas Smale, Isaac Arthur

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The use of *ortho*-Phenylenediamine and Zar-Pro™ Strips for the Development of Bloodmarks on a Dark-Coloured, Non-Porous Surface.

Ms. Stephanie Oliver*[a], Mr. Thomas Smale[b], Dr. Isaac Arthur[c]

a Canberra Institute of Technology, CIT, 31 Vowels crescent, Bruce, ACT, 2617, steph.mcoliver@gmail.com
b Canberra Institute of Technology, CIT, 31 Vowels crescent, Bruce, ACT, 2617, tom.d.smale@gmail.com
c Canberra Institute of Technology, CIT, 31 Vowels crescent, Bruce, ACT, 2617, Isaac.arthur@cit.edu.au

*Corresponding author at: PO Box 401, Canberra, ACT, Australia, 2601[1], 03 9607 7785, email: steph.mcoliver@gmail.com

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Highlights

- OPD is suitable for developing bloodmarks on dark, non-porous surfaces.
- OPD is capable of developing bloodmarks aged up to 90 days, including latent marks.
- OPD did not perform as effectively as Acid Yellow 7.
- Zar-Pro™ strips were unable to yield high-quality prints from treated bloodmarks.
- Zar-Pro™ strips were unable to yield high-quality prints from untreated bloodmarks.

ABSTRACT: The development of fingerprints in blood on a dark-coloured surface can be difficult. Contrast between the bloodmark and the surface can be difficult to achieve using photography and chemical reagents. The use of haem-reagent *ortho*-Phenylenediamine (OPD) and Zar-Pro™ Strips in the enhancement of bloody impressions were investigated. Depletions of bloodmarks were deposited on black ceramic tiles and aged up to 90 days. OPD, Acid Yellow 7, and Hungarian Red were applied to these tiles and the developed fingermarks were compared using a numerical score system. Zar-Pro™ strips were applied to chemically treated and untreated bloodmarks alike. OPD proved to be effective at developing bloodmarks aged up to 90 days, including latent marks. Despite this capability, OPD did not perform as well as Acid Yellow 7 and so the continued use of Acid Yellow 7 is recommended. Zar-Pro™ strips were able to lift bloodmarks aged up to 90 days as well as those chemically treated with either: OPD, Hungarian Red, Acid Yellow 7, or Amido Black although ridge detail was poor. Additional investigation into the capabilities of Zar-Pro™ strips for this purpose is recommended.

Keywords: forensic science, fingerprints, bloodmarks, ortho-Phenylenediamine, Zar-Pro.

Introduction

The development of fingerprints in blood — particularly on a dark surface — is an area of difficulty for fingerprint examiners. Currently, contrast between the fingerprint and the substrate on which it is deposited is created optically using the blood's light absorption properties. Using an Alternate Light Source (ALS), blood, which absorbs light, appears dark [1] however this technique is only feasible when the background substrate is light coloured. Alternatively, chemical development techniques may also be employed. For light coloured