

Development of Latent Lip Prints on Different Types of Surfaces

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Abstract

Lip prints are another one of the most crucial evidence found on the crime scene which can help to put the criminal behind the bars and exonerate the innocent. Till now not much studies had been put forward on lip print but the time is changing and now this evidence is also being considered as an important part of investigation. In this paper, we choose two different surfaces which are porous (paper, sponge and fabric) and non-porous (wood and glass) on these surfaces to decipher the prints most generally used physical method i.e. black and white powder and chemical method which is iodine fuming. The sample size is around 100 lip prints collected on the surfaces. These samples contain both the male and female mixed lip prints. After the examination of the lip prints through these different methods the result was on paper the prints were partially developed, on sponge the prints were not developed and on the fabric the prints were again partially developed whereas on non-porous surface the prints were completely developed and on the varnished wood the prints were not developed. For decipherment of the prints on porous surface black powder is used and on non-porous surface on glass white powder is used and on varnished wood iodine fuming is used. The best result is observed with white powder i.e. with 75% on glass as surface.

Keywords: Lip prints; Development of lip prints; Black powder method; Iodine fuming.

Introduction

Lip prints are characterized as the typical lines and gaps as wrinkles and depressions present in the zone of progress of human lip, between the internal labial mucosa and external skin, the investigation of lip prints is called cheiloscopy. Like unique mark these are likewise one of a kind and have both individual and class attributes. This proof can likewise be utilized in sex assurance and to some broaden can recognize the inexact age of the individual.¹ The broadly classification of lip prints was given by Santos in 1967. He

divided lip prints into four different categories i.e. straight line, curved line, angled line and sine-shaped line.² Lip prints go about as proof in cases like mass fiasco where the distinguishing proof of the individual is the real assignment to be finished. Lip prints could be left at the wrong doing scenes on different items for example drinking glasses, cigarette butts, and conduit tape. Both direct examination and photography permit increasingly exact and point by point perceptions required for lip prints examinations. Appropriate examination of the individualizing characters of lip prints is fundamental to distinguish suspects

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and further affirm their quality in wrongdoing scene.³ Porous surface represents the surfaces that contains pores and permits the going through of water, fluid or vapor. Articles containing permeable surfaces have void spaces or pores that permit outside issue like water, air and particles to infiltrate the item. The case of permeable surfaces is paper, wipe, cardboard, texture etc. The permeable surfaces are of two kinds: microporous and macroporous surfaces. The pore size of microporous surfaces is practically identical to the size of atoms. The pore size of macroporous surfaces have smooth development of water and air.⁴ Non-permeable surfaces are fundamentally smooth surfaces. Instances of some non-permeable surfaces incorporates plastic, glass, treated wood, metals and so on.⁵ The most often utilized highly contrasting powder deals with the standard by precisely sticking to the oil and dampness segments of the idle print and this is called cleaning technique. Both these powders are best with to the foundation.⁶ The normal fixings in dark powder incorporates graphite, charcoal, lampblack, printer toners and anthracene. Powders may likewise consolidate a few mixes. The regular fixings in white powder incorporates haddonite white which is a cleaning compound produced using titanium dioxide, kaolin and French chalk or from titanium dioxide, decontaminated powder and Kadin lenis.⁷ The substance strategy utilized for the improvement of inert lip prints is iodine seething. The iodine responds with the oils and fats. The outcomes will blur soon after handling henceforth photography ought to be done following the prints are obvious.⁸

Materials and Methods

- Sample size: hundred (100).
- Surfaces used: porous and non-porous.
- Techniques used: black powder, white powder and iodine fuming.
- For porous surfaces, black powder dusting method is used and for non-porous surfaces on glass white powder dusting method is used and for wood iodine fuming method is used.

Objective to be achieved for the present research:

- To decipher the latent lip prints.
- To find out the best technique for decipherment of the lip prints.

Results and Discussion

Figure 1 Depicts the samples of paper with black powder method and we can observe that the samples are partially developed. These samples are taken by petroleum jelly and were left untouched for some time so that the samples are in dry state same as available at the scene of crime, Depicts the samples of sponge with black powder method and we can observe that the samples are not developed. These samples are mixed with petroleum and glossy lip balm because sponge is a surface which compresses easily hence this surface of one of the difficult to handle, Depicts the samples of fabric with black powder method and we can see that the samples are partially developed. These samples are taken with petroleum jelly, the thing we should keep in mind while decipherment of these samples is the technique used should always be with respect to the colour of the surface, Depicts the samples of glass with white powder method and we can observe that the samples are completely developed. These surfaces are easy to decipher because adsorption and absorption phenomenon is absent in these kinds of surfaces hence the

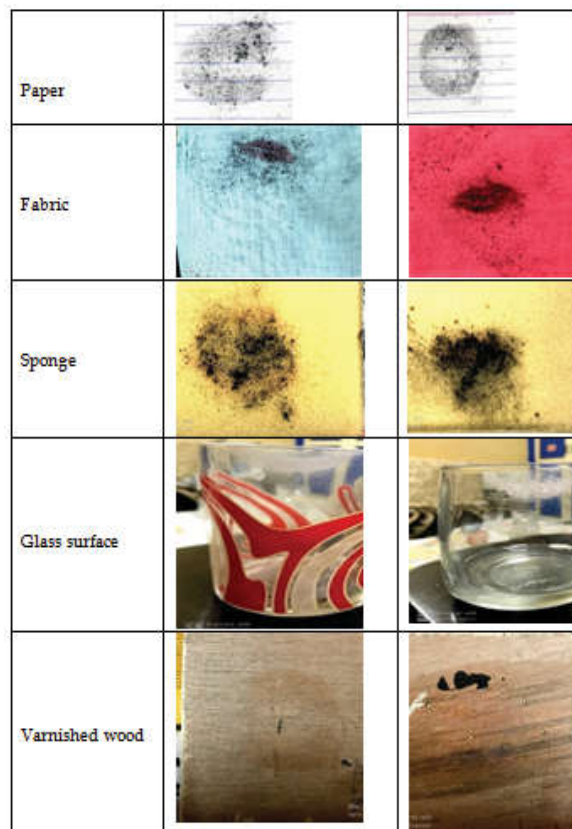


Fig. 1: Samples on porous surface and non-porous surface

samples can be easily deciphered, Depicts the samples of varnished wood with iodine fuming method and we can observe that the samples are partially developed. These samples were not easy to decipher because the decipherment completely depends on the nature of the print and on surfaces like wood the adsorption phenomena is more as compare to the other surface also the technique used for the decipherment is difficult to handle because it is hazardous to the skin. Table 1 shows the result obtained in porous surfaces like paper, fabric, sponge and from the result obtained we concluded for the best decipherment technique on these surfaces. Table 2 shows the result obtained in non-porous surfaces like glass and varnished wood and from the result we concluded for the best decipherment technique on these surfaces.

Table 1: Observation on Porous surface

Porous Surface		
Types	Sample No	Observation of Prints
Paper	1	Complete
	2	Complete
	3	Partial
	4	Partial
	5	Complete
	6	Complete
	7	Complete
	8	Complete
	9	Partial
	10	Partial
Fabric	1	Complete
	2	Partial
	3	Not developed
	4	Partial
	5	Complete
	6	Complete
	7	Not developed
	8	Complete
	9	Partial
	10	Partial
Sponge	1	Partial
	2	Complete
	3	Not developed
	4	Not developed
	5	Partial
	6	Complete
	7	Partial
	8	Partial
	9	Complete
	10	Partial

Table 2: Observation on Non-Porous surface

Non-Porous Surface		
Types	Sample No	Observation of Lip Prints
Glass	1	Complete
	2	Complete
	3	Partial
	4	Complete
	5	Partial
	6	Complete
	7	Partial
	8	Partial
	9	Partial
	10	Complete
Varnished Wood	1	Not developed
	2	Partial
	3	Not developed
	4	Not developed
	5	Partial
	6	Complete
	7	Partial
	8	Not developed
	9	Not developed
	10	Partial

Conclusion

From the above-mentioned details of the sample we can conclude that the porous surfaces such as paper shows the effective development of lip prints with a success rate of 80%, fabric shows the effective development of lip prints with a success rate of 60% and sponge shows the effective development of lip prints with a success rate of 55% whereas on non-porous surfaces such as glass shows the effective development of lip prints with the success rate of 75% and varnished wood shows the effective development of lip prints with a success rate of 75%. From the above-mentioned details, we can conclude that on porous surfaces black powder dusting method gives good and clear results whereas on the non-porous surface instead of iodine fuming white powder dusting method is preferred. We came to this conclusion also that the quality of the prints also plays very important role in the development of the prints. A partial print is very difficult to decipher from any surface. Encountering any partial lip print evidence on the crime scene seems to be of no use until and unless proper skill and proper techniques should be used for the decipherment of the evidence and the skills will differ from one person to another hence it completely depends on the expertise of the forensic expert.

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