



CODEN [USA]: IAJPBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

<https://doi.org/10.5281/zenodo.5196590>Online at: <http://www.iajps.com>

Research Article

**DEVELOPMENT OF INVISIBLE FINGERPRINT
IMPRESSIONS USING MEDICINE POWDER****Chanchal Kamle¹, Riya Singh², Hizana Farhath³, Vijay Panchal⁴, Rakesh Mia^{5*},
Ashutosh Tripathi⁶**¹Joint Secretary, Applied Forensic Research Sciences, Indore MP, India
(afrsciences@gmail.com)²Volunteer, Applied Forensic Research Sciences, Indore MP, India (afrsciences@gmail.com)³Volunteer, Applied Forensic Research Sciences, Indore MP, India (afrsciences@gmail.com)⁴Vice President, Applied Forensic Research Sciences, Indore MP, India
(afrsciences@gmail.com)^{5*}President, Applied Forensic Research Sciences, Indore MP, India (rmia8207@gmail.com)⁶HOD, Department of Forensic Science, Institute of Sciences, SAGE University, Indore MP,
India, (hodscience@sageuniversity.in)**Article Received: July 2021****Accepted: July 2021****Published: August 2021****Abstract:**

Fingerprints are a vital and unique identity of a person. These are impressions left by the friction ridges of a human finger on contact with any surface. The primary advantage of a fingerprint is that it does not change over time. Fingerprint identification is a method of identification using the impression formed by the minute ridges seen on the fingertips. Fingerprint has certain individual characteristics that are unique. Latent fingerprints are most generally seen prints from the crime scene. Such prints are obtained when natural oils and perspiration existing between the fingertip ridges are transferred to a surface by any contact. Latent prints are invisible and are much harder to detect and preserve. These prints are obtained by physical and chemical methods. In this paper, our research focuses on detecting latent fingerprints or invisible fingerprints using various medicine powders on different surfaces. Here we use different medicines and turn them into powder and using for obtaining latent fingerprints.

Keywords: Latent, fingerprint, Medicine, powder, crime, scene.

Corresponding author:**Rakesh Mia,**President, Applied Forensic Research Sciences,
Indore MP, India.Email: rmia8207@gmail.com,

Phone No: 9926692487.

QR code



Please cite this article in press Rakesh Mia et al., Development Of Invisible Fingerprint Impressions Using Medicine Powder., Indo Am. J. P. Sci, 2021; 08(08).

INTRODUCTION:

Fingerprints are made from an association of ridges, known as friction ridges. Each ridge consists of pores that are connected to the sweat gland below the skin. All of the ridges of fingerprints shape styles referred to as loops, whorls, or arches, loops start on one aspect of the finger, curve round or upward, and go out the opposite aspect. Fingerprints are one of the maximum treasured styles of proof because of their uniqueness. They are discovered on items, evidence criminal offence scene and are used to pick out the suspect or criminal, and link them to the crime scene. "Latent fingerprint" is a fingerprint that is not apparent to the eye but can be made sufficiently visible, as by dusting or fuming, for use in identification [1-5]. Latent fingerprints typically do not fluorescence on their own. Latent prints are shaped whilst the body's herbal oils and sweat at the pores and skin are deposited onto some other surface. Latent prints may be discovered on a lot of surfaces; however, they're now no longer quite simply seen and detection frequently calls for using fingerprint powders, chemical reagents or exchange mild sources. The powder approach for detecting latent fingerprints entails the utility of a finely divided formula to the finger-mark impression, normally with a glass - fibre or a makeup brush. The powder receives robotically adhered to the sweat residue defining the ridge pattern [6-8].

Fingerprints can be printed anywhere on the human body. Based on practical fingerprints impressions classifying into 3 classes consistent with the kind of floor on which they may be determined and whether or not they're seen or not, fingerprints on smooth surfaces (which includes soap, wax, moist paint, sparkling caulk, etc.) are probable to be 3- dimensional plastic prints; the ones on tough surfaces are both patent (seen) or latent (invisible) prints. Visible prints are fashioned whilst blood, dirt, ink, paint, etc., Is transferred from a finger or thumb to a floor. Patent prints may be discovered on huge sorts of surfaces; clean or rough, porous (along with paper, material or wood) or non-porous (including metal, glass or plastic). This research paper is mainly concerned with latent prints or we can say invisible method for the development of latent fingerprint development [9-15].

MATERIALS AND METHODOLOGY:

Latent or invisible prints can be found in various crime scenes and it is considered as a piece of valuable evidence. There are different methods for developing latent prints. The powder method is one of the common methods used for this process. In this research, a new method of latent fingerprint development is done, that is developing prints by the usage of powdered form of medicine. This comes under the powder method of latent fingerprint development. Latent fingerprints were collected from different surfaces like plastic, the screen of mobile phone, utensils, etc. using the powder method [16]. Here we use the powdered form of medicine to extract latent prints. Different medicines were converted into a fine powder and were used for the visualization of these invisible prints. Medicines that we used for this research purpose are:

1. Paracetamol Cipmol
2. Aspirin

For this research purpose, we used Paracetamol which appears white in both solid and powder form, and also Aspirin which appears orange in solid form and white in powdered form. These medicines are commonly available and are cheap. These medicines were crushed and transformed into a fine powder and this powder was used for fingerprint development on different surfaces [17-20]. The crushed medicine powder was dusted on the surface where the latent print is to be extracted using a fingerprint dusting brush. Excess powder is removed from the surface with the help of a brush. Using the brush lightly apply the powders on the fingerprint and obtain a clear print. On applying the dusting method, the powder gets attached to the surface due to the perspiration, oil, and other constituents from our finger which is shifted to the fingerprint. After the fingerprint was visible with all the ridges, we photographed the latent print, and then with the help of cello tape, the print is lifted carefully and is well preserved. From the obtained print, its type and pattern are identified and noted.

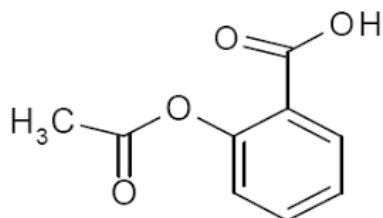


Figure1. Paracetamol

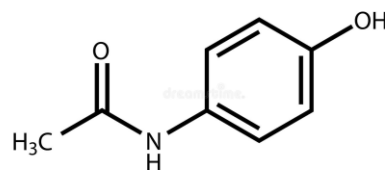


Figure2. Aspirin

RESULT AND DISCUSSION:

The result of the research on the latent invisible fingerprint exhibits the development of latent fingerprints from different surfaces like plastic, the screen of mobile, utensils etc as shown in Figures 1 to 7 using medicines like paracetamol ciplmol and aspirin.



Figure 1: Development of Latent Fingerprint with the help of medicine powder on Plastic Container Surface.



Figure 2: Development of Latent Fingerprint with the help of medicine powder on Coffee Mug Surface



Figure 3: Development of Latent Fingerprint with the help of medicine powder on Induction Cooker Surface.



Figure 4: Development of Latent Fingerprint with the help of medicine powder on Plastic Container Surface

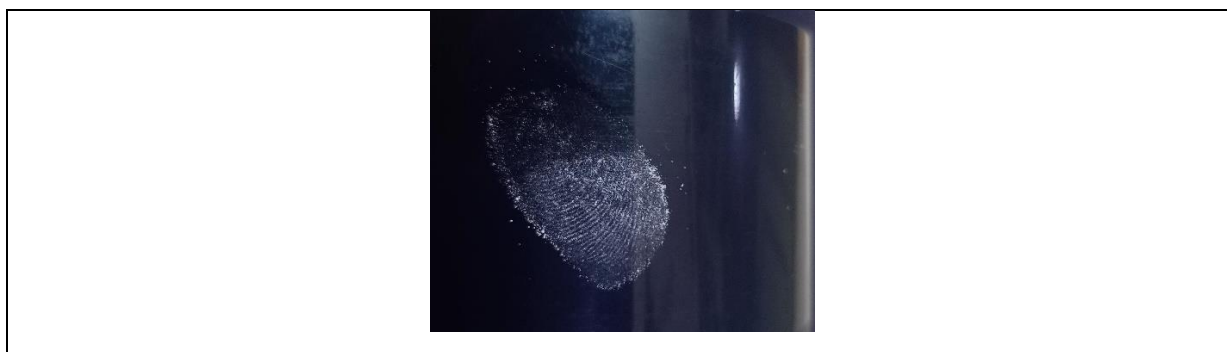


Figure 5: Development of Latent Fingerprint with the help of medicine powder on Metallic Utensil.



Figure 6: Development of Latent Fingerprint with the help of medicine powder on Plywood surface.



Figure 7: Development of Latent Fingerprint with the help of medicine powder on surface of mobile phone

Powders are an excellent medium to develop the latent or invisible prints on surfaces and the powders of all shades and varieties have been used that's why medicine powders are used based on the different surfaces such as for white surfaces we can be used dark colour powders and black surfaces we can be used light colour powders, then the result shows excellent in nature. Thus, the results of the research revealed that the latent fingerprints present on the majority of the surface examined can be successfully developed using the medicines paracetamol ciplol and Aspirin by converting them into fine powder for performing the Powder method for the visualization of these invisible prints. The comparative evaluation of different surfaces with this powder manifested that it provides a final result on Contrast surfaces than on the other surfaces examined.

The occurrence of latent fingerprints presents on the surface like plastic, the screen of mobile phones, utensils, etc could be successfully done and their ridges features could be seen clearly. The present-day is just a preliminary investigation and can be explored further.

CONCLUSION:

The following research paper demonstrated that different medicines are used which are easily available at any household and can be used by the investigating officer on the crime scene if they do not have fingerprint development powder. So, we can conclude that medicines and paracetamol ciplol and Aspirin can be successfully used on various surfaces for the development of latent fingerprints.

ACKNOWLEDGEMENT: None

REFERENCE:

1. Mia R, Panchal V and Gokhale C (2021) Using Salt & Sugar Powder to Development Hidden

- Fingerprint Impressions at the Crime Scene. *International Journal of Forensic Sciences* 6(2).
2. Rohatgi, R., & Kapoor, A. K. (2014). New Visualizing Agents for Developing of the Latent Fingerprints on the Various Porous and Non-Porous Surfaces by Using Different Household Food Items. *Asian Journal of Science and Applied Technology*,3(2), 33-38.
 3. Badiye, A., & Kapoor, N. (2015). Efficacy of Robin® powder blue for the latent fingerprints development on the surfaces. *Egyptian Journal of Forensic Science*, 5(4), 166-173.
 4. Thakur, P., & Garg, R. K. (2016). New developing reagent for the latent fingermark visualization: Fuller earth. *Egyptian Journal of Forensic science*,6(4), 449-458.
 5. Dhunna, A., Anand, S., Aggarwal, A., Agarwal, A., Verma, P., & Singh, U. (2018). New visualization agents to reveal the hidden secrets of the latent fingerprint. *Egyptian Journal of Forensic Science*, 8(1), 1-6.
 6. Azman, A. R., Mahat, N. A., Wahab, R. A., Ahmad, W. A., Huri, M. A. M., & Hamzah, H. H. (2019). Relevant visualization technologies for the latent fingerprints on the wet objects and its challenges: a review. *Egyptian Journal of Forensic science* 9(1), 1-13.
 7. Vadivel, R., Nirmala, M., & Anbukumaran, K. (2021). Commonly Available, The Everyday Materials as Non-conventional Powders for the decipherment of Latent Fingerprints. *Forensic Chemistry*, 100339.
 8. Lee, H. C., & Gaensslen, R. E. (2001). Methods of latent fingerprint development. *Advances in fingerprint technology*, 2(105-176), 10.
 9. Sodhi, G. S., & Kaur, J. (2001). Powder method for the detecting the latent fingerprints: review. *Forensic science international*, 120(3), 172-176.
 10. Deep Singh, G., Sodhi, G. S., & Jasuja, O. P. (2006). Detection for the latent fingerprint on fruit

- and vegetable surface Journal of Forensic Identification, 56(3), 374-381.
11. Trapecar, M., & Vinkovic, M. K. (2008). Techniques of fingerprint recovery on vegetable and fruit surface use in Slovenia—A preliminary study. *Science & Justice*, 48 (4), 192-195.
 12. Garg, R. K., Kumari, H., & Kaur, R. (2011). A new technique to visualization of latent fingerprints on various surfaces using powder from turmeric: a rhizomatous herbaceous plant (*Curcuma longa*). *Egyptian Journal of Forensic Science*, 1(1), 53-57.
 13. Kumari, H., Kaur, R., & Garg, R. K. (2011). New visualizing agents for the latent fingerprints: synthetic food and festival color. *Egyptian Journal of Forensic Science*, 1(3-4), 133-139.
 14. Singh, K., Sharma, S., & Garg, R. K. (2013). Visualization of latent fingerprints using the silica Gel: new technique. *Egyptian Journal of Forensic Science* 3(1), 20-25.
 15. Ferguson, S., Nicholson, L., Farrugia, K., Bremner, D., & Gentles, D. (2013). A preliminary investigation onto a acquisition of fingerprints on foods. *Science & Justice* 53(1), 67-72.
 16. Herschel WJ (1880) Skin furrows of the hand. *Nature* 23:76.
 17. Jones NE, Davies LM, Charlotte Russell AL, Brennan JS, Bramble Sk (2001) A Systematic approach to latent fingerprint of sample preparation for comparative chemical studies. *Journal of Forensic Identification* 51(5): 504-551.
 18. Castello A, Frances F, Verdu F (2013) Solving underwater crimes: Development of latent prints made on submerged objects. *Science and Justice* 53(3): 328-331.
 19. Champod C, Lennard C, Margot P, Stoilovic M (2004) *Fingerprints and Other Ridge Skin Impressions* 1st (Edn.), CRC Press LLC.
 20. Maslanka DS (2016) Latent fingerprints on a nonporous surface exposed to everyday liquids. *Journal of Forensic Identification* 66(2): 137-154.