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## Abstract

Fingermarks are one of the most useful forms of physical evidence in identification and generalized proof of identity. The ridge patterns are characteristic to each person and immutable as they are formed deep in the skin, universal, and leave marks on objects handled with bare hands. Latent fingerprint development may be achieved with a wide array of optical, physical, and chemical processes. Several fingerprint powders have been used to detect latent fingerprints on various surfaces. Here a simple and cheap synthesis of ZnO-SiO<sub>2</sub> nanocomposites was carried out using conventional heating method to develop latent fingerprints on various surfaces to achieve excellent results. The nanopowder was characterized by using FTIR, SEM-EDX, TEM and XRD techniques. It was used as a dusting agent for the development of latent fingermarks on various dry non-porous and semi porous surfaces such as Cardboard, Glass, Laptop, Metallic Can, Calculator, Board Marker, glazed shiny Wrapper, simple and shiny Plastic. ZnO-SiO<sub>2</sub> nanocomposites were also used as small particle reagent (SPR) on wet non-porous surface such as glass. The developed Fingermarks were of excellent quality with very clear third level ridge detail. Comparison of ZnO-SiO<sub>2</sub> nanopowder with commercially available white powder showed that ZnO-SiO<sub>2</sub> nanopowder is better than commercial white powder for development of latent fingermarks.