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Selectivity of amino acid reactive reagents and a magic way of development of latent finger marks

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We report on the selectivity of several amino acids sensitive molecules towards different amino acids present in finger marks. Amino acid reactive reagents studies include lawsone, 5-hydroxy-1, 4-naphthoquinone (juglone), genipin and ninhydrin. Florescence or color formation of these active molecules when applied onto the amino acid spots on filter paper was compared as a function of amino acid concentration, temperature and time. Fluorescence spectra were collected at excitation wavelengths of 505-590 nm. The fluorescent character for the conditions of 10 mM amino acid concentration and 150°C heat treatment was decreased in the following order: Genipin>juglone>lawsone>ninhydrin. Development of real fingerprints on paper surfaces using different active reagents will also be compared. Interestingly, in this study we have observed that the amino acid spots and latent fingermarks on paper surfaces were fluorescently developed when heated at 150° C without the use of any active reagents. The quality of the finger marks developed by heating at 150° C was comparable to the quality of the ones developed by DFO. Possible mechanisms of this magic way of fingermark development on paper surfaces will also be discussed.

Biography

Melek Erol has completed her PhD in Chemistry from Stevens Institute of Technology, NJ. She is currently a Chief Senior Researcher at Chemical Technology Institute, TUBITAK Marmara Research Center in Turkey. She has published 10 papers in reputed journals and has been working on the development of nanotechnology based products for defense and forensic science applications.

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