

**FOURIER TRANSFORM INFRARED (FTIR) AND
ULTRAVIOLET-VISIBLE (UV-VIS) SPECTROSCOPY
FOR THE FORENSIC DISCRIMINATION OF
BALLPOINT AND MARKER PEN INKS**

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ABSTRACT

FOURIER TRANSFORM INFRARED (FTIR) AND ULTRAVIOLET-VISIBLE (UV-VIS) SPECTROSCOPY FOR THE FORENSIC DISCRIMINATION OF BALLPOINT AND MARKER PEN INKS

Ink analysis is one of the areas in forensic questioned document aims in comparing and discriminating ink obtained from writing instrument used to write on a document. Ink becomes important forensic evidence when it is written on a document suspected to be associated with criminal activities such as threatening letters, insurance frauds and will frauds. The aims of this study is to discriminate two brands of ballpoint pen inks (Faster and Papermate) come with three different colours (black, blue, red) and also three brands of marker pen inks (Pilot, Monami and Orkey) with four different colours (red, black, blue and green). The discrimination was carried out by Fourier Transform Infrared (FTIR) and ultraviolet-visible (UV-Vis) spectroscopy using direct visual examination. The spectra patterns, peaks intensity and shapes were observed and compared. The results of this study demonstrate that conventional and low cost UV-Vis and FTIR spectroscopy could be used for discrimination of inks for forensic question document analysis.