

## Rapid Method for the Determination of Acid Dyes by Capillary Electrophoresis

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**Abstract :** Textile fibers are important trace evidence and frequently encountered in criminal investigations. A significant aspect of fiber evidence examination is the determination of fiber dyes. Although several instrumental methods have been developed for dyes detection, the analysis speed is not fast enough yet. A rapid dye analysis method is still needed to further improve the efficiency of case handling. Capillary electrophoresis has the advantages of high separation speed and high separation efficiency and is an ideal method for the rapid analysis of fiber dyes. In this paper, acid dyes used for protein fiber dyeing were determined by a developed short-end injection capillary electrophoresis technique. Five acid red dyes with similar structures were successfully baseline separated within 5 min. The separation reproducibility is fairly good for the relative standard deviation of retention time is 0.51%. The established method is rapid and accurate which has great potential to be applied in forensic setting.

**Keywords :** acid dyes, capillary electrophoresis, fiber evidence, rapid determination

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