



The application of the mobile phone as the detector for flow-based titrimetric analysis

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This research has developed a flow-based titrimetric analytical setup using a mobile phone as the detector with economic devices and easy to use. The RGB color system reading was done via the costless downloadable application to calculate the RGB-based value and plot titration curve for equivalence point. This method was applied to analyze samples of acid-base on a daily basis compared with photometric titrations. The method was very reproducible with the relative standard deviation (n=11) for replicate of 1.14 % (n=11) for 0.5% w/v of acetic acid standard solution and the frequency shooting of 100 h⁻¹. The proposed method was applied to the determination of acetic acid in vinegar samples. The concentration of acetic acid was found to be in the range 0.517 - 0.535 %w/v was also a concentration of citric acid in the juice samples was found to be in the range 0.266-0.495 %w/v. Thereafter, an analytical application involving the determination of the total alkalinity in mineral waters that is found in the range of 11.5-18.50 mgL⁻¹ of CaCO₃ which were in good agreement with the results obtained from standard method at the 95 % confidence level.

Keywords: Mobile phone; Titrimetric analysis; RGB color system