



A colorimetric paper-based glucose analysis test kit with detection by camera cell phone

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A test kit of paper-based glucose analysis based on colorimetric technique was developed. The test kit consisted of two reaction zones a paper device. The first zone was for enzymatic reaction, glucose was oxidized to D-glucono-1,5-lactone and hydrogen peroxide as product based on catalytic activity of glucose oxidase. Next was detecting zone, production of blue-violet color was detected from iodine-starch complex. Iodine was generated from redox reaction of the produced hydrogen peroxide and potassium iodide. A camera cell phone was used as a detector for monitoring of blue-violet color intensity. The experimental parameters that affect to color intensity were studied. Unknown glucose concentration was calculated from linear calibration plot between the standard glucose concentrations *vs* color intensities. The simple developed test kit could be alternative routine method for glucose analysis; it was low chemical consumption and small waste production.

Keywords: Colorimetry; Camera cell phone detection; Paper-based technique; Glucose; Glucose oxidase