ABSTRACT

Glycated albumin GA is a useful marker for screening diabetes mellitus and helps to determine the effectiveness of treatment and management of diabetes. Keeping the importance of glycated albumin in view, a simple non-separation and rapid fluorometric assay was developed using fluorescein boronic acid derivative (fluorophore solution) prepared with fluorescein isothiocyanate and 3-aminophenyleboronic acid monohydrate which was used as tracer in fluorescence quenching for glycated serum protein in-house assay. The fluorescence intensity of the fluorecsein- boronic acid solution was found to be quenched in proportion to the serum concentration added. CHAPS 0.01% was found to be the best detergent for preparing assay buffer. The reaction time was 15 min at room temperature in dark for quenching of fluorescein- boronic acid by serum sample. The Intra and inter assay precision was calculated as <3% and <2% respectively for in-house GSP assay. The correlation r = 0.88 of in-house GSP assay with commercial ELISA kit (Diazyme USA) was found satisfactory along the concentration range studied. These results confirmed that developed GSP in-house assay clearly discriminate between glycated serum protein levels of healthy individuals and diabetic patients with significance level of $p<0.001$. Specificity of the in-house GSP fluorescence assay was determined to be 83.1% when cut off value 262 µmol/L was taken for protein concentration while sensitivity was 81% at this cut off. This simple in-house GSP assay will be a useful addition for screening and management of diabetes especially Gestational diabetes.