

## Spectrofluorimetric determination of nucleotide guanosine 5'-monophosphate by fluorescence quenching of perylene

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A new simple, selective and sensitive fluorescence quenching method was developed for estimation of Guanosine 5'-monophosphate (GMP) using perylene probe. The intensity of all fluorescence bands of perylene was quenched in presence of GMP without formation of exciplex by photoinduced electron transfer (PET) process. The quenching by diffusion controlled rate coincides well with the static and dynamic Stern-Volmer (S-V) correlation. It was observed that GMP acts as effective electron donor and simultaneously quenches the fluorescence of electron-accepting perylene. The ratio of intensity of perylene fluorescence in the absence and presence of GMP was found to be proportional to the concentration of GMP in Tris-HCl buffer solution at pH 7.2. Under optimal conditions, the calibration graph was linear over the range from  $1.0 \times 10^{-4}$  to  $5.0 \times 10^{-4}$  mol dm<sup>-3</sup> with the detection limit  $5.4 \times 10^{-5}$  mol dm<sup>-3</sup>. The bimolecular quenching rate constant ( $k_q$ ), binding constant (K) and number of binding sites (n) were determined from the fluorescence quenching data. The free energy change ( $\Delta G^\circ$ ) for ET process was estimated by Rehm-Weller equation and used to propose a suitable mechanism for PET occurring between GMP and perylene. The quenching method was successfully applied for determination of GMP from synthetic formulations. The method was found to be relatively free from foreign interferences.

### Biography

Netaji K. Desai has completed M.Sc. Degree in Physical Chemistry from Shivaji University, Kolhapur. He is recipient of UGC-BSR meritorious fellowship and currently he is working in the Ph.D. programme under the guidance of Prof. S. R. Patil. He has published two research papers in research journals of international repute.

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## Simultaneous determination of metformin and hydrochlorothiazide by RP- HPLC

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Metformin drug interactions with other medications (such as certain diuretics, decongestants, and calcium channel blockers) can potentially lead to problems. Some of these drug interactions can make metformin less effective, increasing your chance of high blood sugar, or can increase the level of metformin in your blood, increasing your risk of side effects.

Hydrochlorothiazide is a first-line diuretic drug of the thiazide class that acts by inhibiting the kidneys' ability to retain water. This reduces the volume of the blood, decreasing blood return to the heart and thus cardiac output and, by other mechanisms, is believed to lower peripheral vascular resistance. A reverse phase-liquid chromatographic method with UV detection at 240 nm is described for simultaneous determination of Metformin, Hydrochlorothiazide (diuretics) and glimipride as a internal standard, Chromatographic separation of the two drugs was achieved on a C-8 column using a mobile phase consisting of a ternary mixture of phosphate buffer, adjusted to pH 3 with orthophosphoric acid and acetonitrile in a ratio of 40:60 (v/v) with the flow rate 1.00ml/min. The liquid chromatographic method developed offers symmetric peak shape, good resolution, and reasonable retention time for both drugs. Linearity, accuracy, precision recovery and stability were found to be acceptable over the concentration ranges 10-50 ppm for metformin and hydrochlorothiazide. The liquid chromatographic method was successfully applied to the quality control of formulated products and drug interaction study of title compounds.

### Biography

N.S.Disha, student of M.Pharm Pharmaceutical Analysis, JSS College of Pharmacy, Mysore. She is doing her dissertation work under the guidance of Dr. B.M.Gurupadayya, Professor, Dept. of Pharmaceutical Analysis, JSS College of Pharmacy, Mysore. Her current area of research is on simultaneous determination some antibiotics and study of drug interaction.

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