



Spectrophotometric determination of 4-aminobenzoic acid using charge transfer complexation

**Ukoha O.Pius¹, Nwanisobi C.Gloria^{2*}, Sevak N Khadatkar³,
A.G.Sinhe⁴, V.M.Vaidya⁴**

¹ Department of Pure and Industrial Chemistry, University of Nigeria, Nsukka, Nigeria

^{2*} Department of Chemical Engineering, Madonna University Nigeria, Akpugo campus, Nigeria

³Geetadevi Khandelwal Institute of Pharmacy, Akola, MH-India

⁴S.G.S.P.S Institute of pharmacy Kaulkhed, Akola-444004, India

Email address: glochinwa4real@yahoo.com,

Abstract : A simple and sensitive spectrophotometric method is described for the quantitative determination of 4-aminobenzoic acid (PABA). The method is based on charge transfer complexation reaction of PABA as n-electron donor with 2, 3 dichloro-5,6-dicyano -1,4-benzoquinone (DDQ) as π -acceptor to give highly coloured complex with 1:1 stoichiometric ratio. The coloured products were quantified at 474nm under the optimized experimental conditions. Beer's law is obeyed over the concentration ranges of 5-90 μ g/ml. The apparent molar absorptivity and corresponding Sandell sensitivity were calculated and are reported. The limit of detection and quantification were 0.55 and 1.67 respectively. The proposed methods were applied successfully to the determination of PABA in pure and commercial forms with good average recovery of 102.4 %. Statistical comparison of the result was performed with regards to accuracy and precision using student's t-test and f-test at 95% confidence level.

Keywords: Spectrophotometry, Assay, PABA, Charge transfer complex, DDQ.

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