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Spectrophotometric Determination Stability Constant by Classical and Modified Varagas Equations for Procaine Penicillin G using Diazotization Reaction Depending On Stoichiometric Curves

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Abstract:A new sensitive spectrophotometric method has been suggested and developed for the estimation of procaine penicillin G in pure and vial injection. The method is based on the diazotization reaction of benzocain with procaine penicillin G to form a yellow azo dye, that has a molar absorpitivity of $1.732\times10^{+3}$ $L.mol^{-1}.cm^{-1}$, Sandell sensitivity of 0.339 $mg.cm^{-2}$ and limit of detection (LOD) 0.432 $mg.ml^{-1}$ with a maximum absorption at 420 nm and Beer's law obeyed over the concentration range (10-90) $mg.ml^{-1}$. The present work also describes classical equation and a modification of Varagas equation for the calculation of stability constant of Azo dye depending on the theoretical explanation of the stoichiometry, job's and Yoe-Jones'(mole ratio) methods. The results show there is no significant difference in stability constant values between the modified Varagas equation and classical equ.

Keyword: Spectrophotometric, Procaine penicillin G, Stability constant, Modification of Varagas equation, job's and Yoe and Jones' methods.

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