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Spectrophotometric Determination of Doxycycline Hyclate in Pharmaceutical Preparations Using Oxidative coupling reaction

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ABSTRACT

A simple, rapid and sensitive spectrophotometric method for determination of microgram amounts of Doxycycline Hyclate in aqueous solution is described. The method is based on the Oxidative coupling reaction between Doxycycline Hyclate and 4-(Methyl amino) phenol sulfate (metol) in the presence of sodium persulphate and sodium hydroxide to form an intense green colored product with maximum absorption at 626 nm. Beer's law is obeyed over the concentration range of(2 – 44) μg.cm^{-1} with molar absorptivity of 1.6669 x10^{4} l.mol^{-1}.cm^{-1} and Sandell`s sensitivity of 0.030 μg.cm^{-2}.The detection limit was 0.581 μg.cm^{-1}. The optimum conditions for all colour development are described and the proposed method has been successfully applied for the determination of Doxycycline Hyclate in bulk drug and pharmaceutical Preparations (Doxydar and doxycycline). The common excipients and additives did not interfere in this method.

Keywords: Doxycycline Hyclate, Oxidative coupling Spectrophotometric determination.