

**NOTE****Spectrophotometric Estimation of Rifampicin in Capsules**

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A simple and reproducible spectrophotometric method have been developed for the estimation of rifampicin in pure and its capsules by using 0.1 M copper nitrate in presence of 1 M potassium nitrate. Beer's law was obeyed in the concentration of 5-100  $\mu\text{g/mL}$  at 410 nm and 568 nm. The colour is stable for more than 24 h.

**Key Words:** Spectrophotometric estimation, Rifampicin, Capsules.

Rifampicin<sup>1</sup> is chemically (12Z,14E,24E)-(2S,16S,17S,18R,19R,20R,21S,22R,23S)-1,2,2-dihydro-5,6,9,17,19-pentahydroxy - 23-methoxy - 2,4,12,16,18,20,22-heptamethyl - 8-(4-methylpiperazin-1-yliminomethyl) - 1,11,13-trienoimino)-naphtho-[2,1-b]furan-21-yl acetate. It is an anti-tuberculostatic agent. Because of its importance as a highly active anti-TB drug, a potent bactericidal antibiotic behaviour and its activity against most groups of mycobacteria, gram +ve organisms and the gonococcus, much work has been done for its detection and determination<sup>2-4</sup>. A spectrophotometric<sup>5</sup> method using sodium vanadate and phosphate mixture in presence of acidic medium was also reported. In the present study the authors have developed a simple, sensitive and reproducible method for the estimation of rifampicin in capsules.

An accurately weighed amount of rifampicin (pure and capsule powder) equivalent to 100 mg was dissolved in 100 mL of methanol and further dilutions were made with doubly distilled water. A series of standard solutions containing 5-100  $\mu\text{g/mL}$  were prepared and their absorbances were measured at 410 nm and 568 nm respectively against reagent blank. All the spectral measurements were made on Elico SL 159 UV-Vis spectrophotometer.

Beer's law was obeyed in the concentration of 5-100  $\mu\text{g/mL}$ . The optical characteristics are summarised in Table-1. The values obtained in the determination of rifampicin in different pharmaceutical formations (capsules) by the proposed method are given in Table-2. To evaluate the validity and reproducibility of the method known amounts of pure drug were added to the previously analysed pharmaceutical preparations and the mixtures were analysed by proposed method and the percentage recoveries are given in Table-2.

TABLE-1  
OPTICAL CHARACTERISTICS AND PRECISION

Parameters	at 410 nm	at 568 nm
Beer's law limits ( $\mu\text{g/mL}$ )	5-100	5-100
Molar extinction coefficient ( $\text{L mole}^{-1} \text{cm}^{-1}$ )	$0.584288 \times 10^4$	$0.567829 \times 10^4$
Sandell's sensitivity ( $\mu\text{g/cm}^2/0.001$ absorbance unit)	0.140850	0.144930
Regression coefficient (Y)*		
Slope (b)	0.006865	0.007483
Intercept (a)	0.012610	0.001340
Correlation coefficient (r)	0.999819	0.999178

Y\* = a + bc; where 'c' is concentration in  $\mu\text{g/mL}$  and Y is absorbance unit.

TABLE-2  
ESTIMATION OF RIFAMPICIN IN PHARMACEUTICAL FORMULATIONS

Sample	Labelled amount (mg)	Amount obtained by the proposed method		% Recovery by the proposed method	
		at 410 nm	at 568 nm	at 410 nm	at 568 nm
1.	450	448	445	99.50	98.89
2.	450	442	438	98.22	97.33

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