SPECTROPHOTOMETRIC ASSAY OF RISPERIDONE IN PHARMACEUTICAL FORMULATION

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Risperidone (RPN) is chemically known as 3-[2-[4-[6-fluoro-1,2-benzisoxazol-3-yl]piperidin-1-yl]ethyl]-6,7,8,9-tetrahydro-4H-pyrido[1,2,a]pyrimidin-4-one. It is an atypical antipsychotic [1,2]. In present study, simple spectrophotometric method was developed to assay of RPN in pharmaceutical formulations in Britton-Robinson (BR) buffer medium. To obtain the wavelength at which RPN has a maximum absorbance, firstly baseline correction of blank BR buffer was studied, and then wavelength scanning from 800 nm to 200 nm was performed by using standard RPN solutions at pH 10.3. This scanning was repeated for five different standard solution of RPN. These investigations show that two absorption bands of RPN occur at 277 nm and 238 nm (Fig.1). After investigation of wavelengths, calibration studies were performed. To determine the linearity range and to plot the calibration curve nine different standard solution were used. Absorbance of RPN is linearly changed with RPN concentration at range from 2.6×10⁻⁷ mol.L⁻¹ to 1.2×10⁻⁵ mol.L⁻¹ at 277 nm and from 2.7×10⁻⁶ mol.L⁻¹ to 4.0×10⁻⁵ mol.L⁻¹ at 238 nm. Limits of detection (LOD) were found as 6.1×10⁻⁸ mol.L⁻¹ at 277 nm and 3.4×10⁻⁸ mol.L⁻¹ at 238 nm. Proposed method was applied to determine the RPN content of commercial pharmaceutical preparations. Recovery values range between 99-103%. The method was found to be highly accurate and precise, having a relative standard deviation (RSD) of less then 4.0%.

Fig.1. Results of concentration studies of RPN by means of UV-Vis spectrophotometry at pH 10.3 in BR buffer

References