

DERIVATIZATION TECHNIQUES BASED ON CHARGE TRANSFER REACTIONS FOR SPECTROPHOTOMETRIC DETERMINATION OF JOSAMYCIN IN VARIOUS DOSAGE FORMS

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Abstract. New spectrophotometric methods have been developed for the determination of josamycin in pure and dosage forms based on charge transfer reactions. Method-A was based on the complexation reaction of 1,2-naphthoquinone-4-sulphonate with josamycin. Complex absorbance was measured at 454 nm. Method-B was developed by the charge transfer reaction of the amino group of josamycin with menadione. The formed orange products showed maximum absorbance at 458 nm. Lambert Beer's law was obeyed in the range of 1.0–28.8 µg/mL. The regression plots showed good linearity with determination coefficients of 0.9997. Molar absorptivity and Sandell's sensitivity were calculated, with a detection limit (LOD) down to 0.28 µg/mL and quantification limits (LOQ) of 0.85–0.89 µg/mL. The validity of procedures was tested for accuracy, precision, recovery and interference and the results were in accordance with ICH guidelines, with relative standard deviation (RSD %) values less than 5.0%. Determination results of josamycin in marketed formulations were in good agreement with the labelled quantities and without any interference from excipients, indicating that they can be used for quality control purposes.

Keywords: spectrophotometric analysis, josamycin, 1,2-naphthoquinone-4-sulphonate, menadione.

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