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Synthesis and Spectrophotometric Study of Omeprazole Charge Transfer Complexes with Bromothymol Blue, Methyl Orange, and Picric Acid

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Abstract : Charge transfer complexes of omeprazole with bromothymol blue, methyl orange, and picric acid in the Beer's law ranges 7-56, 6-48, and 10-80 µg mL-1, exhibiting stoichiometric ratio 1:1, and maximum wavelength 400, 420 and 373 nm respectively have been studied in aqueous medium. ICH guidelines were followed for validation study. Spectroscopic parameters including oscillator's strength, dipole moment, ionization potential, energy of complexes, resonance energy, association constant and Gibb's free energy changes have also been investigated and Benesi-Hildebrand plot in each case has been obtained. In addition, the methods were fruitfully employed for omeprazole determination in pharmaceutical formulations with no excipients obstruction during analysis. Solid omeprazole complexes with all the acceptors were synthesized and then structure was elucidated by IR and 1H NMR spectroscopy.

Keywords : omeprazole, bromothymol blue, methyl orange and picric acid, charge transfer complexes
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