

عنوان مقاله:

Application of Charge Transfer Complexation Reaction for the Spectroscopy Determination of Anticonvulsant Drug
Primidone

محل انتشار:

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خلاصه مقاله:

The interaction of the perimidone drug in solution state with the σ -acceptor iodine, the aliphatic π -acceptor tetracyanoethylene (TCNE) and the aromatic π -acceptor ۲,۳-dichloro-۵,۶-dicyano-۱,۴-benzoquinone (DDQ) have been studied through the initial formation of ionic intermediate to charge transfer (CT) complex in methanol at room temperature. The spectral studies of the complexes were determined by UV-Visible, Fourier transform infrared (FT-IR). The stoichiometries of the complexes were found to be ۱:۲ and ۱:۱ ratio by the photometric molar ratio between primidone with π -acceptors and σ -acceptor, respectively. The equilibrium constants (KCT), molar extinction coefficient (ϵ_{CT}) and spectroscopic-physical parameters (standard free energy (ΔG_0), and ionization potential (Ip)) of the complexes were determined upon the modified Benesi–Hildebrand equation. The most stable mono-protonated form of perimidone is characterized by the formation of +N H (pyrimidine ring) intramolecular hydrogen bonded. In the high-wavenumber spectral region $\sim 3400\text{ cm}^{-1}$, the bands of the +N H stretching vibrations could be potentially useful to discriminate the investigated forms of perimidone.

کلمات کلیدی:

Spectroscopic, Charge transfer complexes, Primidone, Iodine, TCNE, DDQ

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