Journal of Molecular Structure
Volume ٨٧٨, Issue ١-٣, ٣٠ April ٢٠٠٨, Pages ٧٨-٨٣

Study of interaction of spironolactone with hydroxypropyl-β-cyclodextrin in aqueous solution and in solid state

Rajabi, O.[a] , Tayyari, F.[b], Salari, R.[a], Tayyari, S.F.[c]
[a] Department of Medicinal Chemistry, School of Pharmacy, **Mashhad University** of **Medical Sciences** (MUMS), **Mashhad**, ٩١٧٧٥-١٣٦٥, Iran
[b] James Hogg iCAPTURE Centre for Cardiovascular and Pulmonary Research, **University** of British Columbia, Vancouver, BC V٦Z ١Y٦, Canada
[c] Department of Chemistry, **University** of Ferdowsi, **Mashhad**, ٩١٧٧٥-١٤٣٦, Iran

View references (٢٤)

Abstract
The interaction between spironolactone (Sp) and hydroxypropyl-β-cyclodextrin (HPβCD) has been investigated in aqueous solution and in the solid state. Phase solubility studies indicate that the complex is formed with possible stoichiometry of ١:١ and association constant of ٩٨٠٦ M^{-1}. Differential scanning calorimetry (DSC) gave evidence for the formation of the complex. The details of Sp/HPβCD molecular interaction were analyzed by Fourier transform infrared (FTIR) and Raman spectroscopy. The characterization studies confirmed that the C{double bond, long}O groups of the six-member ring and acetylthio group of Sp interacts with the hydroxyl groups inside and outside the cavity of HPβCD through formation of hydrogen bonds.

Reaxys Database Information
|

Author keywords
Complex formation; FT Raman spectroscopy; FTIR spectroscopy; Hydroxypropyl-β-cyclodextrin; Spironolactone

Indexed Keywords
Engineering controlled terms: Differential scanning calorimetry; Fourier transform infrared spectroscopy; Hydrogen bonds; Molecular interactions; Raman spectroscopy; Solid state reactions

Engineering uncontrolled terms: Acetylthio groups; Complex formation; Hydroxypropyl-&-cyclodextrin; Spironolactones

Engineering main heading: Ketones

ISSN: ٠٠٢٢٢٨٦٠ **CODEN:** JMOSB **Source Type:** Journal **Original language:** English
DOI: ١٠,١٠١٦/j.molstruc.٢٠٠٧,٠٧,٠٤٣ **Document Type:** Article