STUDY ON PHYSICAL AND CHEMICAL BEHAVIOR OF CARBAMAZEPINE-β – CYCLODEXTRIN INCLUSION COMPLEX

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Carbamazepine, (CBZ) is a sodium channel blocker recommended for the treatment of epilepsy and trigeminal neuralgia for over 40 years[1-3]. Cyclodextrins are the most suitable candidate for the inclusion of CBZ due to the dimension of the internal cavity in which the active drug can fit properly. The aim of the current study is to evaluate the ability of β - cyclodextrin to include CBZ. The kneading method of complexation in solid state (1:1 molar ratio) was used to obtain the inclusion complex. For comparison a simple physical mixture was prepared. Physical and chemical characterization of raw materials, physical mixture and the inclusion complex were made using Fourier transform – infrared spectroscopy, X-ray diffraction, scanning electron microscopy and simultaneous thermal analysis. The results obtained using all these analytical techniques, proved that carbamazepine forms stable complexes with β-cyclodextrin in 1:1 molar ratio, and the complexation was almost complete.

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