Optimization of Nitrazepam Solubility and Thermoanalytical Investigation of their some Complexes

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Nitrazepam it is one of the most frequently used minor tranquillizers is psychotherapy. However, its solubility characteristics are very unfavourable. To improve these, different cyclodextrin derivative (CD) and non-ionic macromolecular materials: Polyethylene glycol 4000 (PEG) and Polyvinylpyrrolidone 25000 (PVP) was used. Products were processed in different combinations and by several methods (mixing, kneading, co-precipitation and spray drying).

Authors studied the solubility and the dissolution rate.

They conducted thermo analytical studies to demonstrate the fact of formation of complexes.

The increases in the dissolution characteristics depend on the nature of the CD derivative, on the nitrazepam concentration in the products and on the processing method. The various CD derivatives increased the solubility of nitrazepam to different extents, RAMEB proving the most effective; N: RAMEB 2:1 kneaded products. It`s also applicable the PEG 4000 and the PVP 25 in 3:7 molar ratio.

On the basis of kinetic parameters and termo dynamics parameters, the solubility results are in correlation with the stability order of binary systems.

The thermo analytical investigation demonstrate that the thermic stability of nitrazepam is increased by the formed complex inclusions and the other complexes.

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