

Quantitative Determination of 4-Ethoxy-2-[2-hydroxy-3-(4-phenyl-1-piperazinyl)]propyl-2,3-dihydro-6-methyl-1,3-dioxo-1H-pyrrolo-[3,4-c]pyridine Applying High-Performance Liquid Chromatography with UV Detection. Studies on Degradation Mechanism

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Reversed-phase high performance liquid chromatography has been applied to the determination of 4-ethoxy-2-[2-hydroxy-3-(4-phenyl-1-piperazinyl)]propyl-2,3-dihydro-6-methyl-1,3-dioxo-1H-pyrrolo[3,4-c]pyridine(III), a new 3,4-pyridinedicarboximide derivative of analgesic activity. In the determination oxazepam was used as an internal standard. Sample solution was chromatographed on octadecyl-packed column (LiChrosorb[®] 100 RP-18 column 250 × 4.0 mm I.D., dp = 5 μm) using a mixture of acetonitrile and phosphate buffer (pH 2, 0.01 mol L⁻¹) as an eluent (45:55, v/v – phase A, or 30:70, v/v – phase B). UV detection was performed at the wavelength of 239 nm. The method was validated in terms of selectivity, linearity, precision, and stability of the analyte. It was successively applied to the kinetic investigations of compound III. Separation of compound III and its five decomposition products was also studied applying TLC. For this purpose silica gel – coated plates (60 F₂₅₄) and butanol – acetic acid (1.05 kg L⁻¹) – water (80:12:30, v/v/v) mobile phase were used. HPLC–MS analysis of compound III and its degradation products in acidic and basic media were performed in order to establish mechanism of degradation.