

LIQUID CHROMATOGRAPHY METHOD OF BROMAZEPAM DETERMINATION FOR FORENSIC ANALYSIS TASKS

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Introduction. Bromazepam ($C_{14}H_{10}BrN_3O$), chemically known as 7-bromo-1,3-dihydro-5(2-pyridyl)-2H-1,4-benzodiazepin-2-one, is a member of the 1,4-benzodiazepine drug class and one of the most frequently identified substances in drug offenses because of its sedative effect and ability to induce amnesia. A typical proactive drug offense involves covert intoxication by slipping the drug into drinks or food to make an uninformed victim an easy target for the offender. The analysis of evidence at the crime scene is very important because it can help clarify cases of sexual assault, robbery, or other violations of the law. Identification of bromazepam and confirmation of its presence in materials seized at the crime scene are important for the timely provision of uncomplicated assistance and forensic laboratory testing; this requires various reliable and specific methods.

Aim. To select the optimal method for the determination of bromazepam in seized materials of judicial investigations.

Materials and methods. The determination of bromazepam was accomplished by HPLC-method on a C18 column (250 mm × 4.6 mm i.d., 5 μm particle size), and utilizing methanol-water (70: 30, v/v) as the mobile phase, at a flow rate of 1.0 ml/min. HPLC detection of the elute was obtained by a photodiode array detector, which was set at 230 nm.

Results and discussion. ICH guidelines were adhered to for the validation of the proposed method in regard to specificity, sensitivity, precision, linearity, accuracy, system suitability, and robustness. The calibration curve of bromazepam was created in the range of 1–16 μg/mL by plotting the relative area of the peak against the corresponding concentration. The regression equations were calculated as follows: $Y = 0.1299X + 0.0497$; $r = 0.9999$. The mean recovery percentage was 100.02 ± 1.245 , and the detection limit – 0.20 μg/ml. The developed isocratic HPLC method for analysis of bromazepam showed to be sensitive, accurate, and highly selective. A mobile phase composed of methanol:water (70:30 v/v) was used, with retention times of 4.397 min.

Conclusions. The short analysis time required may have the additional advantage of providing a faster method for the analysis of bromazepam in case files with a high level of accuracy and selectivity compared to previously presented methods. Experimental results confirmed the feasibility of implementing the method for detection of bromazepam in case files as well as in the pharmaceutical analysis of finished medicines.

ANALYSIS OF THE RANGE AND COMPOSITION OF LIQUID ANTIFUNGAL MEDICATIONS FOR TOPICAL USE

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Introduction. Treatment of fungal infections is one of the important problems of modern medicine. A promising dosage form for the treatment of foot mycoses is the spray form, which is