

Analysis of Brain Poisoning with Amlodipine in Forensic Chemistry

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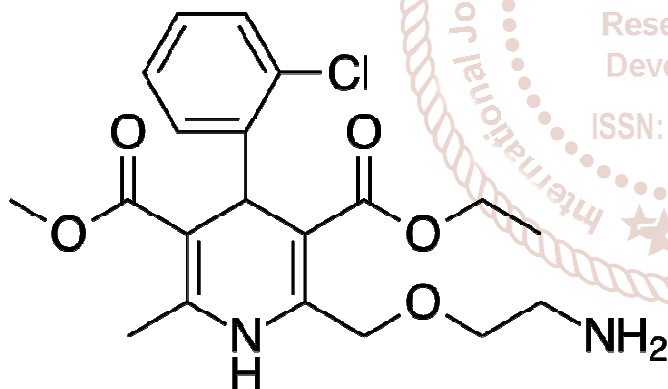
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ABSTRACT

In the practice of forensic chemical examination, an analysis of the brain poisoned with amlodipine was developed. Amlodipine is a 2nd generation calcium channel blocker with antianginal and hypotensive effects. The drug is a mixture of stereoisomers. In the practice of forensic chemical examination, such a method for isolating amlodipine from biological organs as thin layer chromatography (TLC) has been studied. The developed method is recommended for the analysis of amlodipine in a biological object.

KEYWORDS: Amlodipine, brain, toxicology, biological object

Amlodipine is widely used in medical practice for arterial hypertension, angina, vasospastic angina, painless myocardial ischemia, angina pectoris (chest pain) and coronary heart disease (narrowing of blood vessels supplying the heart with blood). some types of decompensated chronic heart failure (as an additional therapy). Molecular weight 408.879 g/mol.



Molecular formula $C_{20}H_{25}ClN_2O_5$

Melting point 178-180°S.

Other names for this substance

Melting point 178-180°S.

Other names for this substance

- 3,5-pyridinedicarboxylic acid, 2-[(2-aminoethoxy)methyl]-4-(2-chlorophenyl)-1,4-dihydro-6-methyl-,3-ethyl 5-methyl ester
- Amlodipine
- Racemic amlodipine
- Pelmek
- 2-[(2-Aminethoxy)methyl]-4-(2-chlorophenyl)-3-(ethoxycarbonyl)-5-(methoxycarbonyl)-6-methyl-1,4-dihydropyridine.

Relevance of the case: Swelling of the hands, feet, ankles or legs, headache, indigestion, nausea, abdominal pain when using amlodipine in large quantities and for a long time. In medical practice, there are cases of poisoning as a result of dizziness. or dizziness, drowsiness, extreme fatigue, redness, and various allergic conditions.

Taking into account the fact that the methods for isolating amlodipine from the composition of a biological object are little studied in the practice of forensic chemical examination, the goal was to study the methods for isolating it from the composition of a biological object and create a sensitive analysis. method.

Experimental part: The internal organs of a 50-year-old unknown man poisoned with amlodipine (50 IU) were delivered to the forensic chemistry practice. In the experimental method, 100 g of the brain was crushed, placed in a flask, and 200 ml of distilled water was added to it. The biological organ medium was adjusted to pH 2-2.5 with 10% oxalic acid. The biological organ in the flask was left for 2 hours with occasional stirring. The liquid part was separated through a two-layer gauze, and the biological organ remaining in the flask was again left for 1 hour according to the above method 2 times with occasional stirring. The liquid layers were then separated and the separated liquids were combined. This acidic liquid was adjusted to pH 9-10 with 10% ammonia solution and extracted twice with 20 ml of chloroform. The extracts were combined, filtered through sodium sulfate and evaporated at room temperature. No colored or crystalline precipitate was observed in the residue. 1) The residue was dissolved in 1 ml of chloroform and tested as follows: 0.3 ml of chloroform solution was transferred to the first track of a thin layer chromatographic plate using a capillary. After the first drop dried, a second drop was dripped, and so on. As a witness, the chloroform solution of the Amlodipine tablets was transferred to the second track of the thin layer chromatography plate using a capillary. After drying, the plate was placed in a mixture of ethanol:25% ammonia solutions (100:1.5) and chromatographed. The moisture rise height of the plate was 10 cm. Then the plate was dried at room temperature. When spraying a solution of potassium iodobismuthate onto a plate, the same pale yellow spot was formed on the strip of the test solution and on the strip of the chloroform solution of the Amlodipine tablet.

Conclusions

A convenient and efficient method for isolating amlodipine from a biological object was studied and a qualitative analysis was carried out by thin layer chromatography (TLC). Using such convenient and inexpensive methods, it is of great importance to quickly determine the amount of the drug in the biological fluid and take measures in case of poisoning.

The developed method is recommended for the analysis of amlodipine in a biological object.

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