Poster

[P26-3] P26-3: Central nervous system drugs (2)

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[P26-3-9] Determination of fluvoxamine in biological fluids

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Background

Fluvoxamine is a medication which functions as a selective serotonin reuptake inhibitor and σ1 receptor agonist. Increasing numbers of cases of poisonings by fluvoxamine, either attempted suicide or accidental, combined with the absence of reliable methods for the detection of fluvoxamine and quantitation in biological matrices is the basis for the need for the development of new analytical techniques for forensic analysis. The aim of the present investigation is to use thin-layer chromatography (TLC), UV spectrophotometric and thermodesorption surface - ionization spectroscopy methods for the estimation of fluvoxamine in biological fluids.

Methods

Took 2 ml of blood (urine of 5 ml) and have finished p H to 8,0-9,0 0,1 N solution NaOH and extracted with 5 ml a chloroform. Chemico-toxicological investigations of fluvoxamine have been carried out by TLC, GC-MS, UV-spectrophotometry, thermodesorption surface - ionization spectroscopy (TDSIS).

Results

Method TLC –was recommended. System is ethanol –chloroform - benzene(2:1:2), for detecting: Dragendorf' s reactive and etc. Rf 0,64-0,66 (sensitivity 0,5 mkg). Method GC-MS - the dry residue was dissolved in 2 ml of ethyl alcohol and analyzed by chromato-mass spectrophotometry method by means of the device GC-MS/HP 6890 with mass-selective detector using capillary column: length - 15 m; inner diameter - 0.25 mm. Chromatographic conditions: the temperature of injector - 270˚C, the temperature of detector - 280˚C, the initial column thermostat temperature –100˚C, final temperature - 290˚C, rate of temperature increasing –25 ˚C/min. Analysis of the obtained chromatogram and mass-spectrum showed the presence of the main peak with a retention time –10.58 minutes and fragment ions with a mass - 45, 71, 96, 145, 172, 187, 227, 276 m/z, typical for coniine. For the purpose of detection fluvoxamine in biological substrat are used method surface - ionization spectroscopy. The thermodesorption range fluvoxamine has characteristic peaks at ˜123±15° C and ˜203±10° C (sensitivity 1 ng).

Conclusions

The investigations led to the conclusion about the suitability of these methods of isolation, identification and quantitative determination of fluvoxamine in biological fluids. The results of the given investigation have been introduced into practice of all forensic-chemical and medical laboratories of the Republic of Uzbekistan.