

Determination of amizone and thiotriazoline by gas chromatography / mass spectrometry

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Introduction. With the spread of coronavirus infection, the production of pharmaceutical products in Ukraine at the end of April 2020 increased by 22%. Drug sales have increased exponentially, namely for groups such as painkillers, antipyretics, disinfectants, antibiotics (cephalosporins, glycopeptide antibiotics, vancomycin) and antivirals (Oseltamivir, Amiksin and Amizon), antioxidants and vitamin C.

Amizon is an active oral inhibitor of influenza A and B viruses in cell culture and is clinically approved in the Commonwealth of Independent States.

Coronavirus disease is associated with a pronounced inflammatory process, as well as a cytokine storm. Inflammation in viral infection leads to oxidative stress, secondary mitochondrial dysfunction. All this theoretically substantiates the prospects for the use in complex therapy of post-cocious syndrome of thiotriazoline, which has a metabolite-positive (positive effect on energy, carbohydrate, protein metabolism), immunomodulatory, anti-inflammatory, antioxidant, anti-ischemic, cardioprotective and cardioprotective.

Gas chromatography with mass-selective detector (GC MS) allows analyzing mixtures of thermally stable volatile compounds. Derivatization is used to determine non-volatile substances. The most common reagents for derivatization are N, O-bis-trimethylsilyltrifluoroacetamide (BSTFA) and methyl tert-butyl dimethylsilyltrifluoroacetamide (MTBSTFA).

Despite many improvements in analytical studies in the analysis of GC-MS, there are no studies of specific substances, such as amizon and thiotriazoline using reagents BSTFA and MTBSTFA, which would lead to the identification of amizon and thiotriazoline in biological samples and soil. Properly developed methods and conditions of derivatization can be used to quickly compare large data sets of GC-MS soil samples, as we know that the soil contains a large number of contaminants (pesticides and antibiotics).

Materials and methods. Acetonitrile, standard sample of amizon and thioyriazoline, N, O-bis (trimethylsilyl) acetamide (BSTFA) and N-methyl-N- (tert-butyl dimethylsilyl) -trifluoroacetamide (MTBSTFA).

Results and discussion. Analyzes were performed using an SHIMADZU GC / MS-QP2010nc ultrachromatographic system (in combination with an electron ionization (EI) ion source and one four-pole MS) (Shimadzu Technologies, Kyoto, Japan). Experimentally selected silylating reagents for derivatization, which includes the following stages of liquid extraction with acetonitrile, evaporation of the extract to dryness, silylation of BSTFA and MTBSTFA, GC-MS analysis on a capillary column Rxi-5 ms.

Conclusions. A technique for derivatization of amizon and thiotriazoline was developed, which allows the use of GC MS for the analysis of substances. The method will be used for further determination of substances in the environment.

References

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