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ASSESSMENT OF AMBIENT AIR WHILE AGRICULTURAL CROPS TREATMENT WITH FORMULATIONS BASED ON THE NEW ACTIVE SUBSTANCE CYFLUFENAMID

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Pesticides are widely used in agricultural practice the last few decades and each year few new active ingredients as cyflufenamid are registered. The only way to reduce the negative impact of pesticide preparations on human health with parallel preservation of their effectiveness is compliance with the approved hygienic standards and regulations. Methods for determining and monitoring of each active ingredient standards are developing.

The purpose of our work was the development of analytical method of cyflufenamid determination in the air for hygiene monitoring.

The first phase of research was devoted to establishment of optimum conditions of cyflufenamid chromatography: capillary chromatographic glass column HP-5 (30 m×0,32 mm), column temperature of thermostat - (250±1) °C, temperature of the evaporator and heat detector - (280±1) °C, volumetric flow rate of carrier gas (nitrogen) - (30±0,5) ml/min. Limit of cyflufenamid quantification in air of working area – 0,1 mg/ m^3, atmosphere air – 0,004 mg/m^3.

In the second phase of research calibration curve was built in accordance with international standards.

At the third stage the optimal conditions of extraction (acetone, 2×30 ml, every 30 minutes) and purification (not necessary) of the test compound from matrices without impurities that hinder to chromatographic determination have established.

The average value of cyflufenamid determination at research of different samples was not less than 70 %, corresponding to modern requirements for guidelines.

Developed analytical methods allow to control all substantiated hygienic norms in air of working zone and atmosphere air.

Conclusion. Therefore, developed method meets modern requirements, is selective and allows to control over the cyflufenamid content in air of working zone and atmosphere air after the application of pesticides based on new compound of amidoxin class.