

**Сведения об официальных оппонентах
по диссертации Тимченко Юрия Валерьевича**

«Одновременное определение гидразинов методом реакционной жидкостной хроматографии со спектрофотометрическим и тандемным масс-спектрометрическим детектированием»

1. Ф.И.О.: Рыбальченко Игорь Владимирович

Ученая степень: док. хим. наук.

Ученое звание: профессор

Научная(ые) специальность(и): /указывается шифр и название специальности, по которой защищена последняя диссертация/ 02.00.02 - Аналитическая химия (хим. науки)

Должность /указывается с подразделением/: НИО 31, ведущий научный сотрудник

Место работы: 27-ой Научный центр Минобороны РФ

Адрес места работы: Бригадирский переулок, 13, Москва, 105005 Россия

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Список основных научных публикаций по специальности 02.00.02 - Аналитическая химия (хим. науки) последние 5 лет: (указываем не менее 5)

1. Rybalchenko I.V., Rodin I.A., Baygildiev T.M., Stavrianidi A.N., Braun A.V., Morozik Y.I., Shpigun, O.A. Novel analytical approaches to determination of chemical warfare agents and related compounds for verification of nonproliferation of chemical weapons. // Pure and Applied Chemistry. 2017. V. 89. №. 10. P. 1491-1503.

2. Baygildiev T., Vokuev M., Ogorodnikov R., Braun A., Rybalchenko I., Rodin I. Simultaneous determination of organophosphorus nerve agent markers in urine by IC-MS/MS using anion-exchange solid-phase extraction. // Journal of Chromatography B. 2019. V. 1132. P. 121815.

3. Baygildiev T., Vokuev M., Braun A., Rybalchenko I., Rodin I. Monitoring of hydrolysis products of mustard gas, some sesqui- and oxy-mustards and other chemical warfare agents in a plant material by HPLC-MS/MS. // Journal of Chromatography B. 2021. M. 1162. C. 122452.

4. Braun A.V., Stavitskaya Y.V., Baigil'diev T.M., Oreshkin D.V., Rybal'chenko I.V., Rodin I.A. Determination of Cyclohexylmethylfluorophosphonate Metabolites in Human Blood Plasma Using High-Resolution Liquid Chromatography–Mass Spectrometry. // Journal of Analytical Chemistry. 2020. V. 75. №. 6. P. 783-791.

5. Baygildiev T.M., Braun A.V., Vokuev M.F., Stavrianidi A.N., Rybalchenko I.V., Rodin I.A. Identification of Adducts of O-Isopropylmethylphosphonic and O-Cyclohexylmethylphosphonic Acids with a Tripeptide (Tyr-Thr-Lys) in Human Plasma by Liquid Chromatography–Mass Spectrometry. // Journal of Analytical Chemistry. 2020. V. 75. №. 13. P. 1736-1742.

6. Baygildiev T.M., Vokuev M.F., Oreshkin D.V., Braun A.V., Godovikov I.A., Rybalchenko I.V., Rodin I. A. p-Methoxyphenacyl Bromide as a Versatile Reagent for the Determination of Alkylphosphonic and Alkylmethylphosphonic Acids by High-Performance Liquid and Gas Chromatography with Mass Spectrometric Detection. // Journal of Analytical Chemistry. 2020. V. 75. №. 13. P. 1708-1718.

7. Dudkin A.V., Morozik Y.I., Rybal'chenko I.V., Terentyev A.G. Determination of the structure of alkyl radicals in a series of highly toxic organophosphorus compounds using mass spectrometry databases and library search. // Journal of Analytical Chemistry. 2018. V. 73. №. 13. P. 1275-1281.

8. Braun A.V., Taranchenko V.F., Tikhomirov L.A., Grechukhin A.P., Rybal'chenko I.V. Detection of Ricin in Plant Extracts and Soil Using Liquid Chromatography–High-Resolution Mass Spectrometry. // Journal of analytical chemistry. 2018. V. 73. №. 8. P. 786-795.

9. Rybal'chenko I.V., Baigil'diev T.M., Rodin I.A. Chromatography–Mass Spectrometry Analysis for the Determination of the Markers and Biomarkers of Chemical Warfare Agents. // Journal of Analytical Chemistry. 2021. V. 76. №. 1. P. 26-40.

2. Ф.И.О.: Ульяновский Николай Валерьевич

Ученая степень: док. хим. наук.

Ученое звание: нет

Научная(ые) специальность(и): 03.02.08 - Экология (хим. науки), 02.00.02 - Аналитическая химия (хим. науки)

Должность: Лаборатория химии природных соединений и биоаналитики, ведущий научный сотрудник

Место работы: Северный (Арктический) федеральный университет имени М.В. Ломоносова

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Список основных научных публикаций по специальности 02.00.02 - Аналитическая химия (хим. науки) за последние 5 лет:

1. Kosyakov D.S., Amosov A.S., Ul'yanovskii N.V., Ladesov A.V., Khabarov Y.G., Shpigun O.A. Spectrophotometric determination of hydrazine, methylhydrazine, and 1, 1-dimethylhydrazine with preliminary derivatization by 5-nitro-2-furaldehyde. // *Journal of Analytical Chemistry*. 2017. V. 72. №. 2. P. 171-177.
2. Ul'yanovskii N.V., Kosyakov D.S., Pikovskoi I.I., Khabarov Y.G. Characterisation of oxidation products of 1,1-dimethylhydrazine by high-resolution orbitrap mass spectrometry. // *Chemosphere*. 2017. V. 174. P. 66–75.
3. Kosyakov D.S., Pikovskoi I.I., Ul'yanovskii N.V., Kozhevnikov A.Y. Direct determination of hydrazine, methylhydrazine, and 1,1-dimethylhydrazine by zwitterionic hydrophilic interaction liquid chromatography with amperometric detection. // *International Journal of Environmental Analytical Chemistry*. 2017. V. 97. N 4. P. 313– 329.
4. Amosov A.S., Ul'yanovskii N.V., Kosyakov D.S., Shpigun O.A. Simultaneous Determination of Hydrazine, Methylhydrazine, and 1, 1-Dimethylhydrazine by High-Performance Liquid Chromatography with Pre-and Post-Column Derivatization by 5-Nitro-2-Furaldehyde. // *Journal of Analytical Chemistry*. 2018. V. 73. №. 5. P. 497-503.
5. Ul'yanovskii N.V., Kosyakov D.S., Pikovskoi I.I., Shavrina I.S., Shpigun, O.A. Determination of 1, 1-dimethylhydrazine and its transformation products in soil by zwitterionic hydrophilic interaction liquid chromatography/tandem mass spectrometry. // *Chromatographia*. 2018. V. 81. №. 6. P. 891-900.
6. Ul'yanovskii N.V., Kosyakov D.S., Pikovskoi I.I., Popov M.S. Study of the Products of Oxidation of 1,1-Dimethylhydrazine by Nitrogen Dioxide in an Aqueous Solution by High-Resolution Mass Spectrometry. // *Journal of Analytical Chemistry*. 2018. V. 73. № 13. P. 1223–1228.
7. Kosyakov D.S., Ul'yanovskii N.V., Ivakhnov A.D., Pikovskoi I.I. Transformation of unsymmetrical dimethylhydrazine in supercritical water. // *Russian Journal of Physical Chemistry B*. 2019. V. 13, N. 7. P. 1103–1110.
8. Kosyakov D.S., Ul'yanovskii N.V., Pikovskoi I.I., Kenessov B., Bakaikina N.V., Zhubatov Z., Lebedev A.T. Effects of oxidant and catalyst on the transformation products of rocket fuel 1, 1-dimethylhydrazine in water and soil. // *Chemosphere*. 2019. V. 228. P. 335-344.
9. Popov M.S., Ul'yanovskii N.V., Kosyakov, D.S. Application of Atmospheric Pressure Photoionization to the Determination of 1,1-Dimethylhydrazine Transformation Products by Liquid Chromatography/Mass Spectrometry. // *Journal of Analytical Chemistry*. 2020. V. 75. № 13. P. 1700–1707.
10. Ul'yanovskii N.V., Kosyakov D.S., Popov M.S., Pikovskoi I.I., Khoroshev, O.Y. Using a stationary phase based on porous graphitized carbon for the determination of 1,1-dimethylhydrazine transformation products by liquid chromatography–mass spectrometry. // *Journal of Analytical Chemistry*. 2020. V. 75. №. 4. P. 510-518.
11. Ul'yanovskii N.V., Lakhmanov D.E., Pikovskoi I.I., Falev D.I., Popov M.S., Kozhevnikov A.Y., Kosyakov D.S. Migration and transformation of 1,1-dimethylhydrazine in peat bog soil of rocket stage fall site in Russian North. // *Science of the Total Environment*. 2020. V. 726. P. 138483.
12. Ul'yanovskii N.V., Kosyakov D.S., Popov M.S., Shavrina I.S., Ivakhnov A.D., Kenessov B., Lebedev A.T. Rapid quantification and screening of nitrogen-containing rocket fuel transformation products by vortex assisted liquid-liquid microextraction and gas chromatography–high-resolution Orbitrap mass spectrometry. // *Microchemical Journal*. 2021. P. 106821.
13. Popov M.S., Ul'yanovskii N.V., Kosyakov D.S. Gas Chromatography–Mass Spectrometry Quantification of 1, 1-Dimethylhydrazine Transformation Products in Aqueous Solutions: Accelerated Water Sample Preparation. // *Molecules*. 2021. V. 26. №. 19. P. 5743.

3. Ф.И.О.: Вирус Эдуард Даниэлевич

Ученая степень: док. хим. наук.

Ученое звание: нет

Научная(ые) специальность(и): 02.00.02 - Аналитическая химия (хим. науки)

Должность: Лаборатория функциональной ангиопротеомики и метаболомики, ведущий научный сотрудник

Место работы: Научно-исследовательский институт общей патологии и патофизиологии

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Список основных научных публикаций по специальности 02.00.02 - Аналитическая химия (хим. науки) за последние 5 лет:

1. Ivanov A.V., Alexandrin V.V., Paltsyn A.A., Nikiforova K.A., Virus E.D., Luzyanin B.P., Maksimova M.Y., Piradov M.A., Kubatiev A.A. Plasma low-molecular-weight thiol/disulphide homeostasis as an early indicator of global and focal cerebral ischaemia. // *Redox Report*. 2017. V. 22. №. 6. P. 460-466.
2. Ivanov A.V., Nikiforova K.A., Bulgakova P.O., Virus E.D., Kubatiev A.A. Determination of Blood Plasma Aminothiols Using Derivatization-enhanced Capillary Transient Isotachopheresis. // *Analytical Sciences*. 2018. V. 34. №. 4. P. 505-508.
3. Ivanov A.V., Bulgakova P.A., Virus E.D., Alexandrin V.V., Luzyanin B.P., Kubatiev A.A., Kruglova M.A., Gadieva V.A., Kushlinskii N.E., Fedoseev A.N. Capillary electrophoresis coupled with chloroform-acetonitrile extraction for rapid and highly selective determination of cysteine and homocysteine levels in human blood plasma and urine. // *Electrophoresis*. 2017. V. 38. №. 20. P. 2646-2653.
4. Maksimova M.Y, Ivanov A.V, Virus E.D, Alexandrin V.V, Nikiforova K.A, Bulgakova P.O, Ochtova F.R, Suanova E.T, Piradov M.A, Kubatiev A.A. Disturbance of thiol/disulfide aminothiols homeostasis in patients with acute ischemic stroke stroke: Preliminary findings. // *Clinical neurology and neurosurgery*. 2019. V. 183. P. 105393.
5. Ivanov A.V., Dubchenko E.A., Kruglova M.P., Virus E.D., Bulgakova P.O., Alexandrin V.V., Fedoseev A.N., Boyko A.N., Grachev S.V., Kubatiev A.A. Determination of S-adenosylmethionine and S-adenosylhomocysteine in blood plasma by UPLC with fluorescence detection. // *Journal of Chromatography B*. 2019. V. 1124. P. 366-374.
6. Ivanov A.V., Kruglova M.P., Virus E.D., Bulgakova P.O., Grachev S.V., Kubatiev A.A. Determination of S-adenosylmethionine, S-adenosylhomocysteine, and methylthioadenosine in urine using solvent-modified micellar electrokinetic chromatography. // *Electrophoresis*. 2020. V. 41. №. 3-4. P. 209-214.
7. Sokolovskaya A., Korneeva E., Zaichenko D., Virus E., Kolesov D., Moskovtsev A., Kubatiev A. Changes in the surface expression of Intercellular adhesion molecule 3, the induction of apoptosis, and the inhibition of cell-cycle progression of human multidrug-resistant jurkat/A4 cells exposed to a random positioning machine. // *International journal of molecular sciences*. 2020. V. 21. №. 3. P. 855.
8. Yashin Y.S., Revelsky I.A., Tikhonova I.N., Karavaeva V.G., Virus E.D., Chepelyansky D.A., Revelsky A.I. A Comparison of the Limits of Detection for a Number of Surrogates of Organophosphorus Toxic Agents and Methylphosphonic Acid Silyl Derivatives and its O-Alkyl Esters by Gas Chromatography/Mass Spectrometry with Various Ionization Methods and a Flameless Thermionic Ionization Detector. // *Journal of Analytical Chemistry*. 2020. V. 75. №. 13. P. 1653-1659.

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