

CURRICULUM VITAE

Nadiia MATVIEIEVA

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29.08.1956 (Kyiv, Ukraine)

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Personal Internet page (on the
institution's website)

https://icbge.org.ua/ukr/%D0%9C%D0%B0%D1%82%D0%B2%D1%94%D1%94%D0%B2%D0%B0_%D0%9D%D0%B0%D0%B4%D1%96%D1%8F_%D0%90%D0%BD%D0%B0%D1%82%D0%BE%D0%BB%D1%96%D1%97%D0%B2%D0%BD%D0%B0

h-index

Scopus 10

Google Scholar i10index 22

WOS 8

EDUCATION AND QUALIFICATIONS

Doctor Habilitovany, "Biotechnology" (Dissertation: "Creation of plants producing biologically active compounds by Agrobacterium-mediated transformation")

Candidate of Biological Sciences (PhD), "Biotechnology" (Dissertation: "Creation of transgenic plants of the Compositae and Solanaceae families")

Higher education in biology: T.G. Shevchenko Kyiv State University, Ukraine

EXPERIENCE

Since 2009, head of the Laboratory of Adaptational Biotechnology of the Institute of Cell Biology and Genetic Engineering of the National Academy of Sciences of Ukraine

1998 - 2009 Department of Genetic Engineering, Institute of Cell Biology, Institute of Genetic Engineering, National Academy of Sciences of Ukraine

1982 – 1998 M.H. Kholodny Institute of Botany National Academy of Sciences of Ukraine

1980 – 1982 Institute of Plant Physiology of the National Academy of Sciences of Ukraine

1978 - 1980 Institute of Hydrobiology of the National Academy of Sciences of Ukraine

DIRECTION OF RESEARCH

The main interests of the research are focused on genetic engineering of plants, creation of transgenic plants and "hairy" roots, synthesis of biologically active compounds in biotechnological plants, molecular biology and biochemical study of biotechnological roots, biofortification of medicinal plants (*Althaea officinalis*, *Bidens pilosa*, *Artemisia spp*, *Ruta graveolens*, *Lemna minor*, *Tragopogon officinalis*, *Hypericum perforatum* etc), nanobiotechnology, environmental engineering, microbiology.

PROFESSIONAL MEMBERSHIP

- member of the editorial board of the journal "Cytology and Genetics"
- member of the editorial board of the journal "Pharmacological Journal"
- member of the Vavilov Ukrainian Society of Geneticists and Breeders
- member of the Ukrainian Biochemical Society

SOME PRESENTATIONS AT CONFERENCES

- International Congress on Multidisciplinary Approaches in Agricultural Sciences (ASMAC) (15-17 May 2024, Bayburt, Türkiye).

- 7th International Conference “Nanotechnology” (GTUNano2024) (7-11 October 2024, Tbilisi, Georgia).
- Twenty-Third Annual Conference YUCOMAT 2022 & Twelfth World Round Table Conference on Sintering XII WRTCS, 144. Herceg Novi, Montenegro: Materials Research Society of Serbia, August 29 - September 2, 2022
- 10th Jubilee International Conference On Radiation In Various Fields Of Research (RAD 2022) SPRING EDITION (Herceg Novi, Montenegro, 13–17.06.2022
- 9th International Conference on Materials Science and Nanotechnology for Next Generation (Ankara, Turkey, Sep 22-24, 2022
- International Conference on Experimental Sciences and Biotechnology (ICESB), 2021. Muğla, Turkey.
- 9th International Conference “Nanotechnology and Nanomaterials” (NANO-2021), Lviv, Ukraine
- 6th International Conference “Nanotechnology” GTUnano2021, Tbilisi, Georgia.
- World Congress on In Vitro Biology .2020, San Diego, California, USA <https://www.cvent.com/c/express/665dffa-e-ba53-4799-b3cf-5c3adeb2a640>
- 4th International Conference on Natural Products Utilization: from Plant to Pharmacy Shelf , Albena, Bulgaria, 2019
- SmartBio conference, Kaunas, Lithuania, 2019
- SmartBio conference, Kaunas, Lithuania, 2018
- 3rd IPFS International Symposium, Fuzhou, China, 2018
- SmartBio conference, Kaunas, Lithuania, 2017
- Agrobiodiversity for improving nutrition, health and life quality, Nitra, Slovak republic, 2015
- Plant physiology and genetics – Achievements and challenges. Sofia, Bulgaria, 2014
- Plant genomics and biotechnology. Kyiv, Ukraine, 2013
- Ecological Engineering and Environment Protection. Sofia, Bulgaria, 2013
- Biotechnology and plant breeding. Perspectives towards food security and sustainability”. Radzikow, Poland, 2012

MAIN PUBLICATIONS (2014-2024)

1. Matvieieva N., Bohdanovych T., Duplij V. Bacteria-plant interaction: transgenic roots for human health. 2023; Nitra. <https://doi.org/10.15414/2023.9788055226408> <http://www.slpk.sk/eldo/2023/dl/9788055226408/9788055226408.pdf>
2. Matvieieva N., Bohdanovich T. Native to Ukraine plants with anti inflammatory, antioxidant and antiviral activities. In: Plants for Immunity. Eds Behl R.K., Sharma P.K., Arya R.K., Chibbar R.N. Agrobios. India. 2022; pp 97-122. ISBN 13: 9789394380011 https://www.abebooks.com/servlet/BookDetailsPL?bi=31181990146&searchurl=isbn%3D9789394380011%26sortby%3D17&cm_sp=snippet-_srp1-_image2
3. Matvieieva, N., Bohdanovych, T., Belokurova, V., Duplij, V., Shakhovsky, A., Klymchuk, D., & Kuchuk, M. (2024). Variability in growth and biosynthetic activity of *Calendula officinalis* hairy roots. Preparative Biochemistry & Biotechnology, 1–11. <https://doi.org/10.1080/10826068.2024.2418015> (Q3)
4. Matvieieva N., Bessarabov V., Khainakova O., Duplij V., Bohdanovych T., Ratushnyak Y., Kuzmina G., Lisovyi V., Zderko N., Kobylinska N. *Cichorium intybus* L.“hairy” roots as a rich source of antioxidants and anti-inflammatory compounds. Heliyon. 2023; 9(3), e14516 <https://doi.org/10.1016/j.heliyon.2023.e14516> (Q1)
5. Kobylinska N., Klymchuk D., Khaynakova O., Duplij V., Matvieieva N. Morphology-controlled green synthesis of magnetic nanoparticles using extracts of ‘hairy’ roots: environmental application and toxicity evaluation. Nanomaterials. 2022; 12(23):4231. <https://doi.org/10.3390/nano12234231> (Q1)
6. Kobylinska N., Klymchuk D., Shakhovsky A., Khainakova O., Ratushnyak Y., Duplij V., Matvieieva N. Biosynthesis of magnetite and cobalt ferrite nanoparticles using extracts of “hairy” roots: preparation, characterization, estimation for environmental remediation and

- biological application. RSC Advances. 2021; 11(43):26974–26987. <https://doi.org/10.1039/D1RA04080D> (Q1)
7. Matvieieva N.A., Morgun B.V., Lakhneko O.R., Duplij V.P., Shakhovsky A.M., Ratushnyak Y.I., Sidorenko M., Mickevicius S., Yevtushenko D.P. *Agrobacterium rhizogenes*-mediated transformation enhances the antioxidant potential of *Artemisia tilesii* Ledeb. Plant Physiology and Biochemistry. 2020; 152(4):177-183. <https://doi.org/10.1016/j.plaphy.2020.04.020> (Q1)
 8. Kobylinska N., Shakhovsky A., Khaynakova O., Klymchuk O., Avdeeva L., Ratushnyak Ya., Duplij V., Matvieieva N. ‘Hairy’ root Extracts as Source for ‘Green’ Synthesis of Silver Nanoparticles and Medical Applications. RSC Advances. 2020; 10(65), 39434–39446. <https://doi.org/10.1039/D0RA07784D> (Q1)
 9. Bohdanovych, T. A., Shakhovsky, A. M., Duplij, V. P., Ratushnyak, Y. I., Kuchuk, M. V., Poyedinok, N. L., & Matvieieva, N. A. (2021). Effects of Genetic Transformation on the Antioxidant Activity of “Hairy” Roots of *Althaea officinalis* L., *Artemisia vulgaris* L., and *Artemisia tilesii* Ledeb. *Cytology and Genetics*, 55(6), 531–539. <https://doi.org/10.3103/S0095452721060037> (Q4)
 10. M. Kharkhota, M. Kharchuk, V. Duplij, J. Brindza, L. Avdieieva, N. Matvieieva (2023) Effect of *Priestia endophytica* on the metabolites accumulation in chicory and lettuce plants cultivated *in vitro*. Prep. Biochemistry and Biotechnology, <https://pubmed.ncbi.nlm.nih.gov/36762765/> (Q3)
 11. N. Matvieieva, V. Bessarabov, O. Khainakova, V. Duplij, T. Bohdanovych, Y. Ratushnyak, G. Kuzmina, V. Lisovyi, N. Zderko, N. Kobylinska (2023) *Cichorium intybus* L. “hairy” roots as a rich source of antioxidants and anti-inflammatory compounds. Heliyon, 9, e14516, <https://doi.org/10.1016/j.heliyon.2023.e14516> (Q1)
 12. Matvieieva, N. A., Ratushnyak, Y. I., Duplij, V. P., Shakhovsky, A. M., & Kuchuk, M. V. (2021). Effect of Temperature Stress on the *Althaea officinalis*’s “Hairy” Roots Carrying the Human Interferon $\alpha 2b$ Gene. *Cytology and Genetics* 2021 55:3, 55(3), 207–212. <https://doi.org/10.3103/S0095452721030051> (Q4)
 13. Matvieieva, N., Shakhovsky, A., Tashyreva, H., Ratushnyak, Y., Duplij, V., Bohdanovych, T., & Kuchuk, M. (2022). Study of superoxide dismutase activity in long-term cultivated *Artemisia* and *Althaea* “hairy” roots. *Current Microbiology*, 79(1), 14. <https://doi.org/10.1007/S00284-021-02709-0> (Q3)
 14. Kobylinska N., Klymchuk D., Khainakova O., Duplij V., Matvieieva N. Morphology-Controlled Green Synthesis of Magnetic Nanoparticles using Extracts of ‘Hairy’ Roots: Environmental Application and Biototoxic Evaluation *Nanomaterials* (2022) 12(23):4231 <https://doi.org/10.3390/nano12234231> Website online (Q1)
 15. N. A. Matvieieva, Bogdan V. Morgun, Olha R. Lakhneko, Volodymyr P. Duplij, Anatolij M. Shakhovska, Yakiv I. Ratushnyak, Marina Sidorenko, Saulius Mickevicius, Dmytro P. Yevtushenko *Agrobacterium rhizogenes*-mediated transformation enhances the antioxidant potential of *Artemisia tilesii* Ledeb. Plant Physiol and Biochem 2020, 152, 177-183 <https://doi.org/10.1016/j.plaphy.2020.04.020> (Q1)
 16. N. Kobylinska, D. Klymchuk, A. Shakhovsky, O. Khainakova, Y. Ratushnyak, V. Duplij and N. Matvieieva Biosynthesis of magnetite and cobalt ferrite nanoparticles using extracts of “hairy” roots: preparation, characterization, estimation for environmental remediation and biological application// RSC Advances 2021, DOI: 10.1039/d1ra04080d (Q1)
 17. N. Kobylinska, A. Shakhovsky, O. Khainakova, D. Klymchuk, L. Avdieieva, Y. Ratushnyak, V. Duplij, N. Matvieieva ‘Hairy’ root Extracts as Source for ‘Green’ Synthesis of Silver Nanoparticles and Medical Applications// RSC Advances 2020, 10(65): 39434–39446. doi: 10.1039/d0ra07784d (Q1)
 18. Borovaya MN1, Naumenko AP, Matvieieva NA, Blume YB, Yemets AI. Biosynthesis of luminescent CdS quantum dots using plant hairy root culture. *Nanoscale Res Lett.* 2014 Dec;9(1):2407. doi: 10.1186/1556-276X-9-686. (Q2)

19. **Matvieieva, N.**, Drobot, K., Duplij, V., Ratushniak, Y., Shakhovsky, A., Kyrpa-Nesmiian, T., Mickevičius, S., & Brindza, J. (2019). Flavonoid content and antioxidant activity of *Artemisia vulgaris* L. "hairy" roots. *Preparative Biochemistry and Biotechnology*, 49(1), 82–87 (**Q3**)
20. Drobot K.O., **Matvieieva N.A.**, Ostapchuk A.M., Kharkhota M.A., Duplij V.P. Study of Artemisinin and Sugar Accumulation in *Artemisia vulgaris* and *Artemisia dracunculus* "Hairy" Root Cultures. *Prep Biochem Biotechnol.* 2017, 47(8), 776–781. (**Q3**)
21. **Matvieieva N.**, A.M. Shakhovsky, V.B. Belokurova, K.O. Drobot *Artemisia tilesii* Ledeb hairy roots establishment using *Agrobacterium rhizogenes*-mediated transformation// *Preparative Biochem. and Biotechnol.* 2016. 46, 4. P. 342-345. (**Q3**)
22. Kuchuk N. V., V. B. Belokurova, **N. A. Matvieieva**, A. A. Peterson, M. Yu. Vasylenko, I. M. Kurchenko, L.E. Kurbatova, T. Torok, J. C. Hunter-Cevera Screening plant biodiversity *in vitro* for new natural products // *Industrial Biotechnol.* – 2014. – Vol.10, №5. – P. 363-368. (**Q3**)
23. **N. Matvieieva**, H. Shutava, S. Shysh, K. Drobot, , Ya. Ratushnyak, and V. Duplij Alterations in the Antioxidant Status of Transgenic Roots of *Artemisia* spp. Representatives after *A. rhizogenes*-Mediated Genetic Transformation// *Cytology and Genetics*, 2018, Vol. 52, No. 4, pp. 253–259. (**Q4**)
24. **Matvieieva N.A.**, A.Shakhovsky, O.Kvasko, N.Kuchuk High frequency genetic transformation of *Cichorium intybus* L. using *nptII* gene as a selective marker//*Cytol. and Genet.* - 2015. – Vol.49, № 4. – P. 220-225. (**Q4**)

GRANTS

- NASU grant "Development of a pharmaceutical composition of bioflavonoids with phlebotonic and anti-inflammatory properties", 2021, supervisor
- MES grant of the joint Ukrainian-Belarusian competition "Development of a method of obtaining active pharmaceutical ingredients with anti-inflammatory and antioxidant activity based on wormwood root biotechnology", 2021-2022, supervisor
- Personal Grant for conducting scientific research in Slovakia, provided by the Slovak agency SAIA "Comparative study of biological active compounds content in Asteraceae family "hairy" root cultures and evaluation of their using as a row material for medicine and cosmetology"(2018).
- Study of the molecular bases and physiological features of adaptation to abiotic stresses on the example of Antarctic plants (SFFR grant), supervisor
- The development of biotechnological platform for obtaining of natural and recombinant plant compounds with medicinal properties". Ukrainian-Belorussian project (2016-2017) between ICBGE NASU and Central Botanical Garden of NAS of Belarus (SFFR grant), supervisor
- Studying peculiarities of antioxidant protection system in transgenic plants with *ifn-alfa 2b* gene under the phytoviral infection effect conditions as the biotic stress model". Ukrainian-Czech project (2014-2016) between ICBGE NASU and AND Institute Of Experimental Botany Academy Of Sciences Of The Czech Republic (NASU grant), supervisor
- Using of natural and synthetic growth regulators for seed germination" Ukrainian-Polish Joint Research Project (2015-2017) between ICBGE NASU and Plant Breeding And Acclimatization Institute - National Research Institute in Radzikow, Poland (NASU grant), supervisor
- Research of nuclear and chloroplast genes as markers for DNA barcoding of plants (Grant of MES-National Antarctic Center of Ukraine), supervisor