Curriculum Vitae

Smirnov O.E.
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SMIRNOV Oleksandr

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Sex M | Date of birth 30.10.1989 | Citizenship Ukraine

Scientific degrees (specialization)	PhD, 03.00.12 – plant physiology
Position	Associate Professor
Academic rank	-
Department	Plant Biology
Faculty/Institute	ESC "Institute of Biology and Medicine"
Part-time position	Research fellow in Department of Plant nutrition physiology, Institute of Plant Physiology and Genetics of National Academy of Science of Ukraine

EDUCATIONAL DISCIPLINES IN WHICH WAS INVOLVED

Current year	**«Plant physiology» «Plant anatomy and physiology» «Plant stability» «Plant nutrition» «Laboratory course in plant physiology»**
Previous years	**«Plant ecophysiology» «Botany» «Allelopathy» «Modern biological research methods» «Stress-tolerance of plants» «Oxidative stress in plants»**

SCIENTIFIC AND PEDAGOGICAL EXPERIENCE

2021	**Associate Professor**
	Taras Shevchenko National University of Kyiv (64/13 Volodymyrska str., 01601 Kyiv, Ukraine. Website: http://knu.ua
	Area of activity: Education/Science
2015-2021	**Assistant Professor**
	Taras Shevchenko National University of Kyiv (64/13 Volodymyrska str., 01601 Kyiv, Ukraine. Website: http://knu.ua
	Area of activity: Education/Science
2012-2015	**Specialist of the educational laboratory**
	Taras Shevchenko National University of Kyiv (64/13 Volodymyrska str., 01601 Kyiv, Ukraine. Website: http://knu.ua
	Area of activity: Education/Science
2011-2012	**Laboratory Assistant**
	Taras Shevchenko National University of Kyiv (64/13 Volodymyrska str., 01601 Kyiv, Ukraine. Website: http://knu.ua
	Area of activity: Education/Science

EDUCATION AND TRAINING

11.2021	**Institute of Plant Physiology and Genetics, NAS of Ukraine**
	Advanced training (internship)
11.2020	**M.G. Kholodny Institute of botany, NAS of Ukraine**
	Advanced training (internship)
04-05.2020	**The National Plant Phenomics Centre (NPPC) of Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth University (United Kingdom)**
	International Project «Interaction of heavy metals and pH on plant growth and root cell viability»
11.2019	**Federal Research Centre for Cultivated Plants of Julius Kühn Institute (Germany)**
	International course «Genetic diversity – The key for improving drought stress tolerance in crops» on behalf of the Federal Ministry of Food and Agriculture of Germany

10.2019	**Techniques and Efficient Roadmaps: New Options for Practicals and Innovative Learning (Ukraine)**
	Practical seminars «FEBS Workshops on Molecular Life Sciences Education» on behalf of the FEBS Education Committee
2012-2015	**Taras Shevchenko National University of Kyiv**
	PhD student. Thesis "Aluminium resistance of Buckwheat plants under acidification of substrate"
2012	**Taras Shevchenko National University of Kyiv**
	Student. Degree: – physiologist

PERSONAL SKILLS

Native language	Ukraian
Foreign language	English
Fields of professional interests	• Plant physiology and biochemistry, secondary plant metabolites, plant growth regulators. • Plant adaptation and stress signaling under extreme conditions. • Plant raw materials as a source of bioactive substances and potential nutraceuticals. • Regulating of biosynthesis of secondary plant metabolites (phenolics, terpenoids, alkaloids). • "Green synthesis" of nanosized composites for biomedical applications, sustainable agricultural and environmental safety. • Testing of potential biocompatibility and toxicity of newly created chemical, biochemical, nanotechnological compounds and materials. • The influence of plant domestication on the adaptive plasticity of modern varieties of cereals, study of crop wild relatives. • Anatomical-morphological and histochemical assessment of adaptive potential of plant organisms, microscopic methods for studying markers of stress response. • The use of nonionic colloidal solutions of nanometals as adaptogens to increase the adaptive plasticity of crops under the action of extreme environmental factors. • Phenotyping of manifestations of adaptive reactions of plants in the early stages of ontogenesis under the action of air and soil drought (changes in the osmotic potential of the growing medium) in order to develop an express system of prognostic markers to preserve and increase the productive potential of strategically valuable cereals.

ADDITIONAL INFORMATION

Publications	**The total number: 95. Papers: 36. Abstracts: 59.**	
	Latest publications	**Link**
	Romanenko K.O., Babenko L.M., **Smirnov O.E.**, Kosakivska I.V. Antioxidant defense system and photosynthetic pigment composition in *Secale cereale* subjected to short-term temperature stresses // Open Agriculture Journal – 2021 **(in press)**	Scopus
	T. Levenets, **O. Smirnov**, M. Kovalenko, L. Mykhalska, V. Schwartau, N. Taran Agar gel phenotyping of root traits as rapid and sensitive assay of wheat seedlings response to edaphic factors: on example of cadmium // Agraarteadus: Journal of Agricultural Science. – 2021, 32(2) **(in press)**	Scopus
	O. Smirnov, V. Kalynovskyi, Y. Yumyna, P. Zelena, M. Skoryk, V. Dzhagan, N. Taran Green synthesis of silver nanoparticles using aqueous extract of hot chili peppers fruits and its antimicrobial activity against *Pseudomonas aeruginosa* // Ukr. Biochem. J. – 2021, 93(5): 102-110	https://doi.org/10.15407/ubj93.05.102 Scopus
	N. Svietlova, N. Topchiy, V. Storozhenko, **O. Smirnov**, M. Kovalenko, L. Batsmanova, N. Taran Photosynthetic response of some *Triticum* cultivars to the combined influence of nanofertilizers and water deficit // Journal of Central European Agriculture. – 2021, 22(3): 539-545	https://jcea.agr.hr/10.5513/JCEA01/22.3.3174 Scopus
	O. Smirnov, M. Kovalenko, L.-A. Karpets, V. Dzhagan, O. Kapush, V. Dzhagan, Y. Konotop, N. Taran Phytotoxic effects of CdTe quantum dots on root meristems of *Allium cepa* L. // Nova Biotechnologica et Chimica. – 2021, 20(1): e890	https://doi.org/10.36547/nbc.890 Scopus
	O.E. Smirnov, A.M. Kosyan, Yu.V. Pryimak, O.I. Kosyk, N.Yu. Taran Organo-specific accumulation of phenolic compounds in a buckwheat seedlings under aluminium-acid stress // Ukr. Biochem. J. – 2021, 93(1):75-81.	https://doi.org/10.15407/ubj93.01.075 Scopus
	Smirnov O.E., Kosyan A.M., Kosyk O.I., Batsmanova L.M., Mykhalska L.M., Schwartau V.V., Taran N.Y. Effect of aluminium on redox-homeostasis of common buckwheat (*Fagopyrum esculentum*) // Biosystems Diversity. – 2020,	https://doi.org/10.15421/012055 Scopus

	28(4):426-432	
	Smirnov O., Zinchenko A., Karpets L.-A., Kovalenko M., Taran N. Changes of compatible solutes content in *Triticum aestivum* and *Triticum dicoccum* seedlings in response to drought stress // Agraarteadus: Journal of Agricultural Science. – 2020, 31(2):208-2011	https://dx.doi.org/10.15159/jas.20.19 Scopus
	[UKR] Приймак Ю.В., **Смірнов О.Є.,** Таран Н.Ю., Швартау В.В. Особливості калусогенезу контрастних за вмістом антоціанів сортів *Lactuca sativa* L. // Доповіді НАНУ. – 2020, 7:94-100.	https://doi.org/10.15407/dopovidi2020.07.094
	Smirnov O., Karpets L.-A., Zinchenko A., Kovalenko M., Belava V., Taran N. Changes of morphofunctional traits of *Triticum aestivum* and *Triticum dicoccum* seedlings caused by polyethylene glycol-modeling drought // Journal of Central European Agriculture. – 2020, 21(2):268-274.	https://doi.org/10.5513/JCEA01/21.2.2341 Scopus
	Konotop Ye., Stepanchenko K., Karpets L.-A., Zinchenko A., Kovalenko M., **Smirnov O.,** Batsmanova L., Taran N. Phytotoxicity of colloidal solutions of stabilized and non-stabilized nanoparticles of essential metals and their oxides // Nova Biotechnologica et Chimica. – 2019, 18(1):1-9.	https://doi.org/10.2478/nbec-2019-0001 Scopus
	[UKR] Демченко М.К., Футорна О.А., Баданіна В.А., **Смірнов О.Є.,** Ольшанський І.Г., Таран Н.Ю. Продихові комплекси листків представників листопадних магнолієвих як маркери терморегулюючої та мікрокліматоформуючої здатності рослин // Екологічні науки. – 2019, 1(24). Т.1:149-159.	https://doi.org/10.32846/2306-9716-2019-1-24-1-27
	Babenko L.M., **Smirnov O.E.,** Romanenko K.O., Trunova O.K., Kosakivska I.V. Phenolic compounds in plants: biogenesis and functions // Ukr. Biochem. J. – 2019, 91(3):5-18.	https://doi.org/10.15407/ubj91.03.005 Scopus
	Babenko L.M., Vodka M.V., Akimov Yu.N., **Smirnov O.E.,** Babenko A.V., Kosakovskaya I.V. Specific features of the ultrastructure and biochemical composition of *Triticum spelta* L. leaf mesophile cells in the initial period of stress temperature action // Cell and Tissue Biology. – 2019, 13(1):70-78.	https://doi.org/10.1134/S1990519X19010024 Scopus
	Smirnov O.E., Karpets, L.A., Zinchenko, A.V., Kovalenko, M.S., Konotop, Y.O., Schwartau, V.V., Taran, N.Y. Aluminum nanoscales as hormetic response effectors in *Fagopyrum esculentum* seedlings // Reports of NASU. – 2019, 2:90-95.	https://doi.org/10.15407/dopovidi2019.02.090
	[UKR] Конотоп Є.О., Карпець Л.А., Зінченко А.В., Лопатько С.К., Коваленко М.С., **Смірнов О.Є.** Вплив цитратстабілізованих Cu- і Mn-вмісних наноколоїдів на ріст та проліферативну активність апікальних меристем кореня *Allium cepa* L. // Доповіді НАНУ. – 2019, 1:86-92.	https://doi.org/10.15407/dopovidi2019.01.086
October 2021 **h-index (citation impact)**	Scopus **4 (45)**	ResearchGate **5 (90)** Google Scholar **6 (144)**
Reviewer	• Revista Brasileira de Farmacognosia (5-Year Impact Factor: 1.983). • Bulletin of Environmental Contamination and Toxicology (5-Year Impact Factor: 1.707). • Journal of Pharmaceutical Research International. • Біологічні студії / Studia Biologica. • Advancement in Medicinal Plant Research. • Journal of Advances in Biology. • International Journal of Environmental Science and Toxicology Research. • Modern Phytomorphology. • Plant Varieties Studying and Protection. • Bulletin of Taras Shevchenko National University of Kyiv - Biology. • Bulletin of Taras Shevchenko National University of Kyiv – Problems of Physiological Functions Regulation.	
Scientific projects	• **«Interaction of heavy metals and pH on plant growth and root cell viability»** (National Plant Phenomics Centre (NPPC) of Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth University (United Kingdom, 2020-2021). • Project Manager **"Cereal crops and legumes adaptive potential and its correction with nano-sized nutrients"** (Grant of the President of Ukraine in 2018).	
Membership	• Head of Young Scientists Council of Educational & Scientific Centre "Institute of Biology and Medicine" • Member of Free International Association of Researchers on Natural Substances. • Member of Ukrainian society of plant physiologists.	

	• Member of Ukrainian Biochemical Society. • Member of Phytobiomes Alliance.
Honors & awards	• European Plant Phenotyping Network (EPPN) Grant (Aberystwyth, United Kingdom 2020-2021). • Honors of Poltava National Pedagogical University (2019). • Grant of the President of Ukraine for Young Scientists (2018). • Honors of Taras Shevchenko National University of Kyiv award to the day of science (2018, 2019). • Award of Presidium of National Academy of Science of Ukraine (2017). • Groupe Polyphénols Junior Travel Grant (Bordeaux, France, 2016). • Taras Shevchenko Award of the Taras Shevchenko National University of Kyiv (2015). • Award of Ukrainian Biochemical Society (2014).