isu-conference.com

ISU
INTERNATIONAL SCIENTIFIC UNITY

COLLECTION OF SCIENTIFIC PAPERS

ISSUE
№101



3rd International Scientific and Practical Conference

MODERN CHALLENGES IN ECONOMIC AND TECHNOLOGICAL INNOVATION

October 7-9, 2026
Bologna, Italy

INTERNATIONAL SCIENTIFIC UNITY

3rd International Scientific and Practical Conference

«Modern Challenges in Economic and Technological Innovation»

Collection of Scientific Papers

October 7-9, 2026
Bologna, Italy

UDC 001(08)

Modern Challenges in Economic and Technological Innovation: Collection of Scientific Papers with Proceedings of the 3rd International Scientific and Practical Conference. International Scientific Unity. Bologna, Italy. October 7-9, 2026.

ISBN 979-8-89704-974-5 (series)
DOI 10.70286/ISU-07.10.2026

The conference is included in the Academic Research Index ReserchBib International catalog of scientific conferences.

The materials of the collection are presented in the author's edition and printed in the original language. The authors of the published materials bear full responsibility for the authenticity of the given facts, proper names, geographical names, quotations, economic and statistical data, industry terminology, and other information.

The materials of the conference are publicly available under the terms of the CC BY-NC 4.0 International license.

ISBN 979-8-89704-974-5

ISU
INTERNATIONAL SCIENTIFIC UNITY

© Participants of the conference, 2026
© Collection of Scientific Papers "International Scientific Unity", 2026
Official site: https://isu-conference.com/

Андрєєв О.В., Тагунова І.К.
ОЦІНКА КЛІНІЧНОЇ ЕФЕКТИВНОСТІ АПАРАТНОЇ НИЗЬКОЧАСТОТНОЇ УЛЬТРАЗВУКОВОЇ ВАКУУМ-АСИСТОВАНОЇ САНАЦІЇ У КОМПЛЕКСНОМУ ЛІКУВАННІ ХРОНІЧНОГО ТОНЗИЛІТУ…….. 292

Веснін В.В., Богданова Є.С., Федорова М.М.
ПЕРЕЛОМИ ТАЗОВОГО КІЛЬЦЯ ПІД ЧАС ВАГІТНОСТІ: СУЧАСНІ ПІДХОДИ ДО ДІАГНОСТИКИ, ЛІКУВАННЯ ТА ПРОГНОЗУВАННЯ МАТЕРИНСЬКО-ПЕРИНАТАЛЬНИХ НАСЛІДКІВ…….. 294

Гнучих К.О., Візір М.О.
БЕЗПЕКА ТА ЕФЕКТИВНІСТЬ ГАСТРОПРОТЕКТИВНОЇ ТЕРАПІЇ У ВАГІТНИХ ІЗ СТРЕС-ІНДУКОВАНИМИ ДИСПЕПСИЧНИМИ РОЗЛАДАМИ……... 297

Дзьомбак А.В., Горбатюк І.Б.
ЕНТЕРОВІРУСНА ЕКЗАНТЕМАТОЗНА ЛИХОМАНКА У ДІТЕЙ: КЛІНІКО-ЕПІДЕМІОЛОГІЧНІ ОСОБЛИВОСТІ
(Огляд літератури та клінічний випадок)…….. 299

Брівка К.О., Котелюх М.Ю.
СПАЗМ КОРОНАРНИХ АРТЕРІЙ, ІНДУКОВАНИЙ ТЕРАПІЄЮ КАПЕЦИТАБІНОМ……. 304

Приймак Д.В., Слєпченко М.Ю.
ОЦІНКА ДИНАМІКИ НЕЙРОІНФЕКЦІЙ В ХАРКІВСЬКІЙ ОБЛАСТІ У 2020-2025 РОКАХ…….. 307

Вишневська Г.О.
ОЦІНКА ПРОТИЗАПАЛЬНОЇ ЕФЕКТИВНОСТІ ПРЕПАРАТІВ АУТОПЛАЗМИ У КОМПЛЕКСНІЙ ТЕРАПІЇ ГЕНЕРАЛІЗОВАНОГО ПАРОДОНТИТУ ЗА ПОКАЗНИКАМИ РОТОВОЇ РІДИНИ……... 309

Новакова Л., Прокопенко О.
ВИКОРИСТАННЯ ВПРАВ З ФІТБОЛОМ ДЛЯ КОРЕКЦІЇ ПОРУШЕНЬ ПОСТАВИ У ПРОЦЕСІ ФІЗИЧНОЇ РЕАБІЛІТАЦІЇ…… 310

SECTION: MICROBIOLOGY AND ECOLOGY

Radlovska Y.V., Tarasova Y.V., Kochnieva O.V.
CURRENT THERAPEUTIC STRATEGIES AND PATENTING OF NEW DRUGS AGAINST NAEGLERIA FOWLERI……... 314

SECTION: MICROBIOLOGY AND ECOLOGY

CURRENT THERAPEUTIC STRATEGIES AND PATENTING OF NEW DRUGS AGAINST NAEGLERIA FOWLERI

Radlovska Yulia Vitaliivna
3rd-year student
Tarasova Yelizaveta Viktorivna
3rd-year student
Faculty of Medicine II
Kochnieva Olena Volodymyrivna
PhD, Associate Professor
Department of Microbiology, Virology and Immunology
named after D. P. Grynyov,
ORCID ID: 0000-0002-1039-9313
Kharkiv National Medical University
Kharkiv, Ukraine

Introduction. Naegleria fowleri is a thermophilic free-living amoeba that causes primary amoebic meningoencephalitis (PAM), an extremely acute and fatal infection of the central nervous system (CNS) [1]. The case-fatality rate for PAM exceeds 97%, which is associated with the lightning-fast progression of the disease, rapid destruction of brain tissue, and the lack of highly specific, established treatment protocols [1, 2]. Infection occurs upon contact with warm freshwater, when trophozoites penetrate the olfactory epithelium and migrate along the olfactory nerve directly to the brain [1]. Given global climate change and the expansion of N. fowleri's range [8], as well as epidemiological outbreaks in certain regions of the world [5], studying global research trends [4] and developing new therapeutic agents are critical tasks for modern microbiology and pharmacology.

Objective of the study: To conduct a comprehensive analysis of the pathogenic mechanisms of Naegleria fowleri, evaluate the efficacy of existing treatment regimens, analyze the latest patents and promising drug compounds, and identify key translational challenges on the path from in vitro experimental research to clinical application.

Materials and Methods. The study was based on scientific publications, peer-reviewed articles, and patent documents indexed in the international PubMed/MEDLINE database from 2015 to 2025.

Results and Discussion. An analysis of global research trends indicates a significant increase in scientific interest in the problem of PAM [4], reflecting the relevance of further studying the pathogenesis of the infection, particularly the combination of mechanical tissue damage with the action of biochemical virulence factors that contribute to the progression of the pathological process [1, 2]. Upon penetrating the olfactory epithelium, trophozoites release pore-forming proteins, phospholipases, and proteases, which cause

massive necrosis of neurons and glial cells, followed by the rapid development of cerebral edema [1, 2, 6]. Traditional combination treatment regimens based on amphotericin B, rifampicin, fluconazole, and miltefosine demonstrate limited clinical efficacy, which is due to the high systemic toxicity of these agents and their poor penetration across the blood-brain barrier (BBB) [2, 6]. Given the high threat to public health and the epidemiological risks in the context of environmental changes [5, 8], there is an urgent need for a substantial reevaluation of existing pharmacological approaches. To overcome these limitations, the development and patenting of new drugs against N. fowleri have intensified in recent years [3, 7]. Among the new drugs and compounds, the most promising are repurposed molecules (in particular, sterol-14α-demethylase (CYP51) inhibitors, synthetic derivatives with enhanced amoebicidal activity, as well as new patented chemical compounds that specifically inhibit the pathogen's metabolic enzymes [3, 7]. In addition to developing new active ingredients, key attention is being paid to drug vectorization using nanotechnological delivery systems, particularly liposomal and polymeric nanoparticles, which are viewed as a potential means of improving the delivery of active ingredients to the central nervous system and reducing systemic toxicity [3]. The main translational challenge in this area remains the weak correlation between the high in vitro activity of new compounds and their actual in vivo efficacy, which requires the implementation of more adequate experimental models and interdisciplinary solutions [3].

Conclusion.

1. Current treatment for primary amoebic meningoencephalitis is insufficiently effective and is associated with high mortality rates and drug toxicity, which calls for an immediate reevaluation of treatment approaches [1, 2, 6].

2. The patenting of new synthetic compounds and the development of nanotechnological drug delivery systems capable of crossing the blood-brain barrier are promising avenues for improving the treatment of primary amoebic meningoencephalitis [3, 7].

3. Bridging the translational gap between experimental research and clinical application requires an interdisciplinary approach within the framework of the "One Health" concept, combining epidemiological monitoring with the use of innovative drug delivery methods [3, 5, 8].

References

1. Jahangeer M., Mahmood Z., Munir N., Waraich U. E., Tahir I. M., Akram M., Ali Shah S. M., Zulfqar A., Zainab R. Naegleria fowleri: Sources of infection, pathophysiology, diagnosis, and management: a review. Clinical and Experimental Pharmacology and Physiology. 2020. Vol. 47, No. 2. P. 199–212. DOI: 10.1111/1440-1681.13192.

2. Güémez A., García E. Primary amoebic meningoencephalitis by Naegleria fowleri: pathogenesis and treatments. Biomolecules. 2021. Vol. 11, No. 9. 1320. DOI: 10.3390/biom11091320.

3. Siddiqui R., Maciver S. K., Khan N. A. Naegleria fowleri: emerging therapies and translational challenges. Expert Review of Anti-infective Therapy. 2025. Vol. 23, No. 9. P. 753–761. DOI: 10.1080/14787210.2025.2536827.

4. Ekici A., Alkan S., Aydemir S., Gurbuz E., Unlu A. H. Trends in Naegleria fowleri global research: a bibliometric analysis study. Acta Tropica. 2022. Vol. 234. 106603. DOI: 10.1016/j.actatropica.2022.106603.

5. Nadeem A., Malik I. A., Afridi E. K., Shariq F. Naegleria fowleri outbreak in Pakistan: unveiling the crisis and path to recovery. Frontiers in Public Health. 2023. Vol. 11. 1266400. DOI: 10.3389/fpubh.2023.1266400.
6. Grace E., Asbill S., Virga K. Naegleria fowleri: pathogenesis, diagnosis, and treatment options. Antimicrobial Agents and Chemotherapy. 2015. Vol. 59, No. 11. P. 6677–6681. DOI: 10.1128/AAC.01293-15.
7. Siddiqui R., Lloyd D., Khan N. A. Emerging patents versus brain-eating amoebae, Naegleria fowleri. Pharmaceutical Patent Analyst. 2024. Vol. 13, No. 4–6. P. 181–186. DOI: 10.1080/20468954.2025.2459584.
8. Leal Dos Santos D., Chaúque B. J. M., Virginio V. G., Cossa V. C., Pettan-Brewer C., Schrekker H. S., Rott M. B. Occurrence of Naegleria fowleri and their implication for health: a look under the One Health approaches. International Journal of Hygiene and Environmental Health. 2022. Vol. 246. 114053. DOI: 10.1016/j.ijheh.2022.114053.

DOI 10.70286/ISU-07.10.2026.019

FUNCTIONAL COMPOSITION OF THE TOMATO RHIZOSPHERE MICROBIOME UNDER THE INFLUENCE OF KMD

Oksana V. Prokhorova
Technical Director, NGO “Ecological Standard”
Kyiv, Ukraine
https://orcid.org/0009-0008-7999-0321
Tatiana I. Tugay
Doctor of Biological Sciences, Professor
Head of the Department of Microbiology, Modern Biotechnologies, Ecology and Immunology
Open International University of Human Development “Ukraine”, Kyiv, Ukraine
D.K. Zabolotny Institute of Microbiology and Virology, Kyiv, Ukraine
https://orcid.org/0000-0001-7660-9582
Andrii V. Tugay
PhD (Biology), Associate Professor
Researcher, Department of Physiology and Systematics of Micromycetes
D.K. Zabolotny Institute of Microbiology and Virology, Kyiv, Ukraine
Open International University of Human Development “Ukraine”, Kyiv, Ukraine
https://orcid.org/0000-0002-7131-5574

The effect of KMD, obtained through the bioconversion of food organic waste with the participation of Eisenia fetida, on the functional composition of the microbial complex of the tomato rhizosphere was investigated. To assess structural and functional changes in the microbiome, the abundance of the main ecological-trophic groups of microorganisms was determined: ammonifiers, nitrifiers, oligotrophs, and pedotrophs.

Collection of Scientific Papers
with Proceedings of the 3rd International Scientific and Practical Conference
«Modern Challenges in Economic and Technological Innovation»
October 7-9, 2026
Bologna, Italy

Organizing committee may not agree with the authors' point of view.
Authors are responsible for the correctness of the papers' text.

Contact details of the organizing committee:
Sole Proprietor Viktoriia Tsiundyk
E-mail: info@isu-conference.com
URL: https://isu-conference.com/

Certificate of the subject of the publishing business: ДК №7980 of 03.11.2023.



ISU

INTERNATIONAL SCIENTIFIC UNITY