

SCI-CONF.COM.UA

THE WORLD OF SCIENCE AND INNOVATION



**ABSTRACTS OF VII INTERNATIONAL
SCIENTIFIC AND PRACTICAL CONFERENCE
FEBRUARY 10-12, 2021**

**LONDON
2021**

THE WORLD OF SCIENCE AND INNOVATION

Abstracts of VII International Scientific and Practical Conference
London, United Kingdom
10-12 February 2021

**London, United Kingdom
2021**

UDC 001.1

The 7th International scientific and practical conference “The world of science and innovation” (February 10-12, 2021) Cognum Publishing House, London, United Kingdom. 2021. 1055 p.

ISBN 978-92-9472-197-6

The recommended citation for this publication is:

Ivanov I. Analysis of the phaunistic composition of Ukraine // The world of science and innovation. Abstracts of the 7th International scientific and practical conference. Cognum Publishing House. London, United Kingdom. 2021. Pp. 21-27. URL: <https://sci-conf.com.ua/vii-mezhdunarodnaya-nauchno-prakticheskaya-konferentsiya-the-world-of-science-and-innovation-10-12-fevralya-2021-goda-london-velikobritaniya-arhiv/>.

Editor

Komarytskyy M.L.

Ph.D. in Economics, Associate Professor

Collection of scientific articles published is the scientific and practical publication, which contains scientific articles of students, graduate students, Candidates and Doctors of Sciences, research workers and practitioners from Europe, Ukraine, Russia and from neighbouring countries and beyond. The articles contain the study, reflecting the processes and changes in the structure of modern science. The collection of scientific articles is for students, postgraduate students, doctoral candidates, teachers, researchers, practitioners and people interested in the trends of modern science development.

e-mail: london@sci-conf.com.ua

homepage: <https://sci-conf.com.ua>

©2021 Scientific Publishing Center “Sci-conf.com.ua” ®

©2021 Cognum Publishing House ®

©2021 Authors of the articles

28.	<i>Savenko V., Honcharenko T., Nesterenko I., Klyuyeva V.</i> ORGANIZATIONAL GENETICS AND SYNERGETIC APPROACH TO THE EFFECTIVE DEVELOPMENT OF PRODUCTION SYSTEMS.	180
29.	<i>Seitova T. S., Kuttykozhayeva S. N.</i> APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN TEACHING MATHEMATICS IN THE CONTEXT OF SMART EDUCATION.	191
30.	<i>Sergeyeva T. V., Vasylieva K. O., Iamnytskyi S. O.</i> SELF-MANAGEMENT OF THE PROCESS OF SUBJECT COMPETENCE DEVELOPMENT WITHIN BLENDED LEARNING COURSES.	198
31.	<i>Shevchenko L., Sviatiuk Yu., Sandyha L.</i> INFORMATION AND COMMUNICATION TECHNOLOGIES IN MODERN ESP EDUCATION.	209
32.	<i>Shylinska I.</i> THE ROLE OF MACHINE TRANSLATION IN IT-SPECIALISTS' TRANSLATION ACTIVITY.	215
33.	<i>Syrova G. O., Lukianova L. V., Prysiashnyi O. V., Synelnyk V. V., Haychuk A. V.</i> INVESTIGATION OF THE INFLUENCE OF THE PHARMACEUTICAL COMPOSITION OF CELECOXIB WITH LICOPID ON THE MNESTIC ACTIVITY OF RATS UNDER CONDITIONS OF FORMALIN EDEMA.	221
34.	<i>Viala S.</i> IMPROVEMENT OF THE SYSTEM OF ACCUMULATION OF INFORMATION ABOUT DENTAL PATIENTS WITH TYPE I AND II DIABETES MELLITUS.	230
35.	<i>Volkova L.</i> A SURVEY OF CHANGES INTRODUCED INTO SCHOOL CURRICULAR FROM THE POSITION OF MULTICULTURALISM.	237
36.	<i>Vyshtak V.</i> MULTI MEASUREMENT OF MEANS OF EXPRESSING NEGATION IN MODERN ENGLISH.	244
37.	<i>Yurkovskiy A. M., Achinovich S. L.</i> DIFFERENTIATION BETWEEN AGE RELATED AND FUNCTIONAL OVERUSE DYSTROPHIC CHANGES IN ILIOLUMBAR, LONG DORSAL SACROILIAC AND SACROTUBEROUS LIGAMENTS.	250
38.	<i>Zhengis Z. Z.</i> FOOD TOURISM AS ONE OF THE MAIN WAYS TO PROMOTE CULTURE.	255

UDC: 615.276.015.21:616-099-092.9:612.825

**INVESTIGATION OF THE INFLUENCE OF THE PHARMACEUTICAL
COMPOSITION OF CELECOXIB WITH LICOPID ON THE MNESTIC
ACTIVITY OF RATS UNDER CONDITIONS OF
FORMALIN EDEMA**

Syrova Ganna Olegivna

Doctor of Sciences (Pharmacy)

Professor, Head of Department,

Lukianova Larysa Vladimirovna

Ph.D., Associate Professor, Assistant Professor,

Prysiashnyi Oleksandr Vasyliovych

Ph.D., Assistant,

Synelnyk Viacheslav Volodymyrovych

Senior Laboratory Assistant

Department of Medical and Bioorganic Chemistry

Haichuk Alesya Vasylivna

student of the 2nd year, Faculty II, Group 13,

Kharkiv National Medical University

Abstract. Coxibs are the most popular and the most modern among nonsteroidal anti-inflammatory drugs. Celecoxib and rofecoxib are the most commonly used today. Object and methods. Experimental study of the pharmaceutical composition of celecoxib with licopid. A laboratory rat subject experimental study of the effect that the pharmaceutical composition of celecoxib with licopid makes on mnesic activity of laboratory rats on the model of the conditioned reflex of passive avoidance under conditions of formalin edema was performed. Results. Analysis of the results of experimental studies indicates that celecoxib has a positive effect on formation of mnesic activity in rats. Administration of the pharmaceutical composition of celecoxib with licopid reduced

both the latency period and the time spent in the dark compartment. The percentage of animals studied did not differ from the control group and the reference drug. **Conclusions.** Administration of celecoxib to laboratory rats under conditions of formalin edema promotes formation of short-term memory. The created two-component pharmaceutical composition of coxib (celecoxib) with licopid has a positive effect on mnesic activity of the brain of rats under conditions of formalin edema, especially on preservation of the conditioned reflex of passive avoidance.

Key words: two-component pharmaceutical composition, celecoxib, licopid, conditioned reflex of passive avoidance, formalin edema.

Introduction. An integral property of increasing effectiveness of medical science is its constant and continuous development, which in the first turn involves introduction of new drugs into clinical practice, and rethinking the possibilities of using existing drugs, including pharmaceutical compositions. New scientific studies sometimes radically change the concept of application methods, effectiveness, safety of drugs and treatments [1]. This also applies to the group of nonsteroidal anti-inflammatory drugs (NSAIDs), which are currently the most popular drugs in the fight against inflammation and pain – the accompaniment of many pathologies [2, 3]. However, these effective, convenient and inexpensive drugs have a significant disadvantage: they can cause "class-specific" adverse reactions from the gastrointestinal tract, cardiovascular system, kidneys, etc. [4-7].

In light of the above, the creation of combination drugs based on existing NSAIDs is promising, as it allows to increase efficiency, expand the spectrum of pharmacological action, reduce toxicity, reduce the development of side effects. This is evidenced by both the literature data [8-10] and the results of their own research by scientists of the Department of Medical and Bioorganic Chemistry of Kharkiv National Medical University [11-15].

Among NSAIDs, coxibs are the most popular and modern. Therefore, celecoxib was chosen as the object of our study, which is an effective tool in treatment of acute pathologies of the musculoskeletal system, surgical interventions,

post-traumatic pain [16, 17]. Celecoxib is an effective remedy for control of chronic pain in rheumatology [18]. Quite often this drug is used as an urgent analgesic [19, 20].

There are no combination drugs based on celecoxib. The second component of a potential combined analgesic is licopid (glucosiminylmuramyl dipeptide (GMDP)), which exhibits immunomodulatory properties and is an adjuvant of immunological reactions [21, 22].

The purpose of our study is to research the effect of a two-component pharmaceutical composition of celecoxib and licopid on mnestic activity of laboratory rats on the model of the conditioned reflex of passive avoidance (CRPA) under conditions of formalin edema (f.e.).

Object of study. Experimental study of a two-component pharmaceutical composition of celecoxib and licopid.

Methods of study. Experimental studies of pharmacological activity were conducted at the Department of Medical and Bioorganic Chemistry of Kharkiv National Medical University (KhNMU) on laboratory animals: 36 adult Wistar rats weighing 180-280 g of both sexes. The research was performed in accordance with the methodological recommendations of the State Pharmacological Center of the Ministry of Health of Ukraine [23]. Recalculation from human doses to rats was performed using the species sensitivity coefficient of Rybolovlev Yu.R. [24]. The economical approach, bioethical rules and statistics requirements were considered when selecting the number of animals and dividing them into groups.

The work was carried out on laboratory animals from the experimental-biological clinic of KhNMU, taking into account the standards of storage, care and feeding (air temperature – 23-25°C, lighting – 100 lx in the room, 20-40 lx in the cage. Duration of laboratory animals stay – 1.5 months; acclimatization period – 2 weeks; basic diet – vegetables, fodder beet; water source – settled tap water. The rats were kept in vivarium according to the rules of humane treatment for laboratory animals. The studies were carried out according to the principles of the "European Convention for the Protection of Vertebrate Animals used for Experimental and

Scientific Purposes" (Strasbourg, 1986) [25], Directive 2010/63/EU of the European Parliament and the EU Council "On Protection of Animals Used for Scientific Purposes" (Brussels, 2010) [26], and «General Ethical Principles for Experiments on Animals» (Kyiv, 2001), the Decree of the First National Bioethics Congress (Kiev, 2009) [27]. The experiments were conducted in the first half of the day, which according to the literature agrees with the dependence of the basic pharmacological parameters and pharmacological activity of the drugs taken from the circadian rhythms [28, 29].

Statistical processing of the obtained data was carried out using generally accepted methods of statistical analysis (mean, mean average error, Fisher Student's exact probability test) using MS Excel and Stat Graphics Plus 2.1 programs [30].

Experimental studies of the effect mono-administration celecoxib and licopid or administration their pharmaceutical composition on mnesic activity of the central nervous system of rats was studied on the model of CRPA under conditions of f. e. [31]. The known NSAID diclofenac sodium was used as the reference drug.

The animals were subdivided into 6 groups of 6 animals each. The animals of the 1st control group were once intragastrically administered 3% starch mucus (2 ml per 200 g of rat's weight). Animals of the 2nd to 8th groups were simulated to have f. e. by sub-plantar administration 0.1 ml of 2% formalin solution into the hind paw of rat [23]. A suspension on 3% starch mucus was administered intragastrically in a single dose 1 hour before the development of maximum edema in the hind paw of rats, considering their pharmacokinetic characteristics. Similarly, the animals of the 3rd-8th groups were once intragastrically administered with experimental drugs and their pharmaceutical composition in a suspension of 3% starch mucus: the animals of the 3rd group – celecoxib (5.0 mg/kg), the 4th group – licopid (0.6 mg/kg), the 5th group – composition of celecoxib (5.0 mg/kg) with licopid (0.6 mg/kg), the 6th group – the reference drug diclofenac sodium (8 mg/kg). The maximum development of formalin-induced edema is observed 4 hours after its simulation [23].

At the beginning of testing, the animals were placed in a light compartment. Upon transition to the dark compartment, rats received electrodermal irritation with

alternating current (20-30 mA, 1s, 50 Hz). The latent time of the first visit to the dark compartment and the time of their stay in the dark compartment were recorded, testing for reflex reproduction was performed after 1 hour: the number of animals with the produced reflex.

Research results. Influence of f. e. on mnesic activity of the brain of rats showed a pronounced tendency to reduce the latent period (LP) of the reflex (67.8 ± 17.7 s instead of 72.2 ± 10.4 s in control) and the duration of its manifestation (31.5 ± 5.6 with against 51.2 ± 9.6 s in the control); tendency to weaken the production and preservation of short-term memory (STM): 50% and 33%, respectively, instead of 83% and 67% in control (Table 1).

Table 1

Effect of celecoxib, licopid and their pharmaceutical composition on CPAR of laboratory rats under conditions f. e. (n = 6)

Seq. №	Groups of animals	Parameters of CPAR:			
		latent period, s	time of staying in the dark compartment, s	learned animals, %	animals with kept CPAR after 1 hour, %
1.	Control	72.2±10.4	51.6±9.6	83	67
2.	F. e.	67.8±17.7	31.5±5.6	50	33
3.	Celecoxib + f. e.	82.6±23.5	5.0±1.7 ^{*/**}	100	83
4.	Licopid + f. e.	110.2±16.3	53.4±15.1 ^{***}	83	67
5.	Celecoxib + licopid + f. e.	33.3±6.4 ^{*/****}	6.8±1.4 ^{*/**/****}	83	83
6.	Sodium diclofenac + f. e.	45.2±13.0 ^{****}	12.3±4.0 ^{*/**/****}	83	67

Note 1. (mean ± mean error) * – the difference is probable against with the control group, $P < 0.05$;

Note 2. (mean ± mean error) ** – the difference is probable against the group with f. e., $P < 0.05$;

Note 3. (mean ± mean error) *** – the difference is probable against the group with mono-administration of celecoxib, $P < 0.05$;

Note 4. (mean ± mean error) **** – the difference is probable against the group with mono-administration of licopid, $P < 0.05$.

Celecoxib in similar conditions, on the contrary, increased the latent period (LP) of the reflex, i. e. it acts slowly and statistically significantly reduced the

duration of its manifestation relative to the control groups (Group 1) and the group with f. e. (Group 2).

Licopid increased the LP of the reflex, i.e. it acted slower than celecoxib, while increasing the duration of its manifestation to 53.4 ± 15.1 s relative to the control groups (Group 1) and the group with f. e. (Group 2) and increased the percentage of learned animals, maintaining CPAR reflex after 1 hour similarly to the control group (see Table 1).

Administration of the pharmaceutical composition of celecoxib with licopid reduced both the LP and the time spent in the dark compartment. The percentage of animals that have learned did not differ from the control group and the reference drug. Stable keeping of CPAR of rats was observed with administration of the pharmaceutical composition, the percentage of animals with preserved CPAR was observed at the level of celecoxib and exceeded the control group and sodium diclofenac.

Conclusions.

1. Mono-administration of celecoxib and licopid has a positive effect on mnemonic activity of rats both in terms of types of formation and preservation of STM. Comparative analysis shows that the leader is celecoxib, the effectiveness of which in most respects exceeds the reference drug from the group of NSAIDs – sodium diclofenac.

2. The created two-component pharmaceutical composition of celecoxib with licopid has a positive effect on mnemonic activity of the brain of rats under conditions of f. e., especially for preservation of the CPAR.

REFERENCES

1. Satybaldyiev A. M., Karateiev A. Ye. What is safer for the gastrointestinal tract – coxibs or meloxicam? // Modern rheumatology. 2017. № 11 (1). P. 72-78.

2. Nasonov Ye. L. Nonsteroidal anti-inflammatory drugs (Prospects for use in medicine). M.: Anko, 2000. 142 p.

3. Karateiev A. Ye., Yakhno N. N., Lazebnik L. B. et al. Use of nonsteroidal

anti-inflammatory drugs. Clinical recommendations. M.: IMA-press, 2009. 167 p.

4. Lain. L. Proton pump inhibitor cotherapy with nonsteroidal anti-inflammatory drugs-nice or necessary? // *Rev Gastroenterol Disord.* 2004. Vol. 4. P. 33-41.

5. Fries J., Kristen N., Bennet M. et al. The rise and decline of nonsteroidal anti-inflammatory drugs associated gastropathy in rheumatoid arthritis // *Arthritis Rheum.* 2004. Vol. 50. P. 2433-2440.

6. Karateiev A. Ye., Nasonova V. A. Development and recurrence of gastric and duodenal ulcers in patients taking nonsteroidal anti-inflammatory drugs: the influence of standard risk factors // *Ter. archive.* 2008. No.5. P. 62-66.

7. Karateiev A. Ye., Uspensky Yu. P., Pakhomova I. G., Nasonov Ye. L. Short course on the history of NSAIDs // *Scientific-practical rheumatology.* 2012. No. 3. P. 101-117.

8. Kyrychok L. T., Trutayev I. V., Fedorin H. F. Combined phytopreparations – a new promising source of pharmacotherapy // *Pharmacology 2001 – Step into the future: materials of the 2nd National Congress of Pharmacologists of Ukraine, Dnepropetrovsk, October 1-4, 2001. Dnepropetrovsk, 2001. P. 111.*

9. Lawrence D. R., Bennit P. N. Inflammation and nonsteroidal anti-inflammatory drugs // *Clinical pharmacology: hand. transl. from English M.: Medicine,* 1991. T. 1. P. 485-523.

10. Belousov Yu. B., Moiseiev V. S. *Clinical pharmacology and pharmacotherapy: Guide for physicians.* M.: Universum Publishing, 1997. 532 p.

11. Syrova G. O., Zvyagintseva T.V . Study of potentiating analgesic properties of caffeine in an experiment // *XII Congress of the World Federation of Ukrainian Medical Societies: abstracts ext. Ivano-Frankivsk, September 25-28, 2008. Ivano-Frankivsk, 2008. P. 454.*

12. Syrova G. O., Bachynskyi R. O., Lukyanova L. V., Shaposhnyk V. S. A method of enhancing the analgesic effect of the peripheral genesis of carbamazepine: Pat. 59253, patent applicant and owner – Kharkiv National Medical University, Ukraine. № 2014 08577; declared 28.07.2014; publ. 10.12.2014, Bull. № 23. 6 p.

13. Syrova G. O., Bachynsky R. O., Lukyanova L. V., Shaposhnyk V. S. A method of enhancing the analgesic effect of the peripheral genesis of paracetamol: Pat. 59254, patent applicant and owner – Kharkiv National Medical University, Ukraine. № 2014 08579; declared 28.07.2014; publ. 10.12.2014, Bull. No. 23. 6 p.
14. Syrova G. O., Bachynskiy R. O., Vakulenko N. V., Boyko Ye. P. Experimental study of the effect of caffeine on the analgesic effect of known nonsteroidal anti-inflammatory drugs of different chemical structure // Zaporozhye Medical Journal. V. 13, № 5. 2011. P. 60-62.
15. Boyko Ye. P., Lymanskaya A. P., Petyunin P. O., Bachynskiy R. O. Study of the effect of caffeine composition with ibuprofen on the central component of the nociceptive reaction in rats // Modern theoretical and practical aspects of clinical medicine: materials of the international conference of students and young scientists, dedicated to the 155th anniversary of the birth of V. V. Pidvysotsky, Odessa, April 19-20, 2012. Odessa, 2012. P. 116.
16. Karateiev A. Ye. Celecoxib: evaluation of efficacy and safety in the 2nd decade of the XXI century // Modern rheumatology. 2013. № 4. P. 54-61.
17. Singh G., Fort J., Goldstein J. et al. Celecoxib versus naproxen and diclofenac in osteoarthritis patients: SUCCESS-1 study // Am J Med. 2006. № 119. P. 255-266.
18. McGettigan P., Henry D. Use of nonsteroidal anti-inflammatory drugs that elevate cardiovascular risk: an examination of sales and essential medicines lists in low-, middle-, and high-income countries // PLoS Med. 2013. № 10(2): e1001388. DOI: 10.1371/journal.pmed.1001388. Epub 2013 Feb 12.
19. Karateiev A. Ye. Celecoxib: Assessment of efficacy and safety in the 2nd decade of the 21st century. // Modern rheumatology. 2013. № 4. P. 54-61.
20. Patel M, Arber N, Eagle C et al. Celecoxib for the prevention of colorectal adenomatous polyps. N Engl J Med. 2006; 355(9): 885-95.
21. Ivanov V. T., Haitov R. M., Andronova T. M., Pinegin B. V. Likopid (glucosaminylmuramyl dipeptide) – a new domestic highly effective immunomodulator for treatment and prevention of diseases associated with secondary

immunological insufficiency // Immunology. 1996. № 2. P. 4-6.

22. Nesmeyanov V. A. Mechanism of action and clinical efficacy of the immunomodulator glucosaminylmuramyl dipeptide (licopid) // Clinical Medicine. 1997. V. 75, № 3. P. 11-15.

23. Preclinical studies of drugs: method. recommendations / ed. O. B. Stefanova. Kyiv, 2001. 527 p.

24. Rybolovlev Yu. R., Rybolovlev R. S. Dosage of substances for mammals by constants of biological activity // Reports of the USSR Academy of Sciences, 1979. № 6. P. 1513-1516.

25. European convention for the protection of vertebrate animals used for experimental and other scientific purposes // Council of European. Strasbourg, 1986, № 123. 51 p.

26. Modern problems of bioethics / resp. ed. Yu. I. Kundiyeu. Kyiv: Akadempriodika, 2009. 278 p.

27. Drogovoz S. M., Rapoport S. I., Kononenko A. V. et al. Chronopharmacology clearly (chronopharmacology in tables and figures): reference book / Kharkiv: Titul, 2014. 128 p.

28. Dorogoy A. P. On the question of chronopathology, chronotherapy and chronopharmacology in cardiology // Current issues in modern therapy: Book of scientific works, Kharkov, 1992. P. 22-25.

29. Zapadnyuk I. P., Zapadnyuk V. I., Zakhariya Ye .A. Laboratory animals: breeding, maintenance, use in the experiment. 3rd ed., reworked and amended, Kyiv: Higher School, 1983. 383 p.

30. Glants S. Medical and biological statistics: transl. from English, Moscow: Praktika, 1998. 459 p.

31. Methods and basic experiments to study the brain and behavior: trans. from English by Ye. N. Zhyvopisnaya / Buresh Ya., Bureshova O., Houston D.P.; edited by Batuyeva A.S. M.: Higher School, 1991. 399 p.