



Міжнародний
науково-практичний симпозиум

«100 РОКІВ УСПІХУ ТА ЯКОСТІ»,

присвячений 100-річчю кафедри
фармацевтичної хімії
Національного фармацевтичного
університету

MINISTRY OF HEALTH OF UKRAINE
NATIONAL UNIVERSITY OF PHARMACY
PHARMACEUTICAL CHEMISTRY DEPARTMENT

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
КАФЕДРА ФАРМАЦЕВТИЧНОЇ ХІМІЇ

100 РОКІВ УСПІХУ ТА ЯКОСТІ

Матеріали міжнародного науково-практичного симпозиуму,
присвяченого 100-річчю кафедри фармацевтичної хімії
Національного фармацевтичного університету

100 YEARS OF SUCCESS AND QUALITY

Materials of the international scientific and practical symposium,
dedicated to the 100th anniversary of pharmaceutical chemistry
department of National University of Pharmacy

18 жовтня 2021 р.
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Рєсстраційне посвідчення УКРІНТЕІ № 756 від 20.09.2021 р.

С 81 **100** років успіху та якості : матеріали міжнар. наук.-практ. симпозиуму, присвяченого 100-річчю кафедри фармацевтичної хімії Національного фармацевтичного університету (18 жовтня 2021 р., м. Харків) = 100 years of success and quality: materials of the international scientific and practical symposium, dedicated to the 100th anniversary of pharmaceutical chemistry department of National University of Pharmacy (October, 18, 2021, Kharkiv). – Електрон. дані. – Х.: НФаУ, 2021. – 89 с.

Збірка містить матеріали Міжнародного науково-практичного симпозиуму «100 років успіху та якості», присвяченого 100-річчю кафедри фармацевтичної хімії Національного фармацевтичного університету, які згруповано за напрямками, представленими науковцями в ході роботи симпозиуму. Розглянуто теоретичні та практичні аспекти цілеспрямованого конструювання та синтезу біологічно активних сполук; створення на лікарських субстанцій; стандартизації ліків, фармацевтичного аналізу субстанцій, фітопрепаратів та екстемпоральної рецептури.

Для широкого кола наукових і практичних працівників фармації та медицини.

The collection contains materials of the International Scientific and Practical Symposium «100 years of success and quality», dedicated to the 100th anniversary of Pharmaceutical Chemistry Department of National University of Pharmacy, which are grouped by the topics of the scientific reports presented during the symposium. It contains the theoretical and practical aspects of targeted design and synthesis of biologically active compounds, development on medicinal substances, standardization of drugs, pharmaceutical analysis of substances as well as plant drugs and individually prepared formulations.

The book is published for a wide number of scientific and practical workers in pharmacy and medicine.

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**КОНКУРС НАУКОВИХ
РОБІТ**

**COMPETITION OF SCIENTIFIC
ARTICLES**

СЕКЦІЯ 2

**ФАРМАЦЕВТИЧНИЙ АНАЛІЗ
ТА СТАНДАРТИЗАЦІЯ**

SECTION 2

**PHARMACEUTICAL ANALYSIS
AND STANDARDIZATION**

Development of a spectrophotometric method for identification and assay of capsaicin in the fruits of *Capsicum frutescens*

Afanasenko Olga*, Pham Thi Chau Giang

Bogomolets National Medical University, Kyiv, Ukraine

**Corresponding author e-mail: olgaaf@ukr.net*

Introduction. One of the main requirements of the modern pharmaceutical quality system is the development of new and improvement of existing analytical methods and tests of drugs at all stages of its life cycle, as well as their validation. The development and validation of easy-to-perform, fast, accurate and reproducible methods for the assay of certain active substances in the presence of other components in drugs is very important. Recently, researchers focused a lot of attention on the fruits of the semi-shrub *Capsicum frutescens*, that contain many biologically active substances, a large part of which are alkaloids – capsaicinoids (0,1-2,0%); the main one being capsaicin (48,6%) or isodecyl acid vanillylamide [1]. Due to the presence of capsaicin *Capsicum frutescens* has antioxidant, antiviral, antibacterial effect, and is also used to treat neuropathic pain [2,3]. In Ukraine, the range of drugs containing capsaicin is small, and the vast majority of them are represented by alcohol tinctures. Since the conditions of cultivation of *Capsicum frutescens* are quite favorable and allow to obtain raw materials for the national production of ointments containing capsaicin, finding methods of isolation and standardization of capsaicin is a very important task.

Materials and methods. The objects of the study were fresh and dried *Capsicum* fruits, capsaicin tincture and a standard sample of the substance. Samples of fresh and dried pepper were being extracted for three days with 96% ethanol and acetonitrile, the extracts were filtered through Whatman No.1 filter paper, the maceration process was repeated until vibrant color was achieved. In all extracts, the solvent was evaporated using a rotary evaporator at 60 °C. The UV spectra of the obtained solutions were recorded using a Jenway 6305 spectrophotometer.

Results and discussion. Spectra analysis has shown that the most complete extraction occurred when ethanol was used as a solvent. The requirements and validation of the assay method of capsaicin in the fruits of *Capsicum frutescens* were also determined.

Conclusions. The method is cost-effective and environmentally friendly due to the use of ethanol as a solvent. The working concentration of capsaicin $1 \cdot 10^{-4}$ g/ml, in which the Beer–Lambert–Bouguer law is observed, was determined. Validation of the analytical method according to the parameters: specificity, linearity, range of application, precision, correctness. The basic statistical parameters were calculated and their similarity with the corresponding norms was checked.

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