

OPINION

from Assoc. Prof. Ilia Zhelev Slavov, PhD

Head of the Education Sector of "Pharmacognosy and Pharmaceutical Botany"

Department of Biology

Faculty of Pharmacy at Medical University - Varna

I have been appointed based on a proposal by the Faculty Council at the Faculty of Pharmacy at MU-Varna with protocol No. 64/24.11.2023/ and order No. P-109-546/ of the rector of MU-Varna, to the composition of the scientific jury according to the procedure for acquiring a scientific and educational degree "Ph.D" with a candidate of MPharm. Ivalina Valerieva Vasileva - full-time doctoral student in the "Pharmaceutical Chemistry" doctoral program accredited by the Medical University - Varna, higher education field "7. Healthcare and sports", professional direction "7.3. Pharmacy".

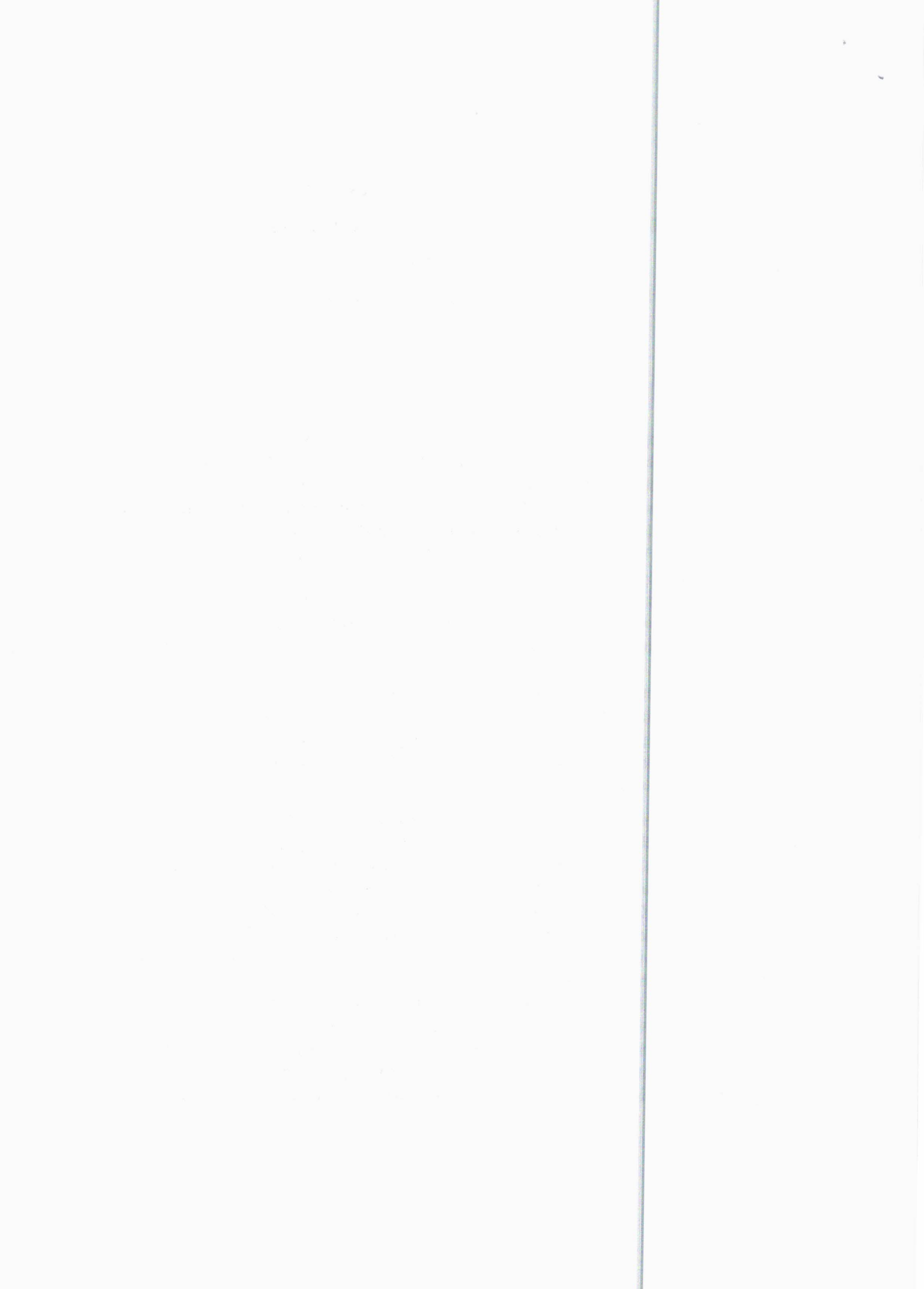
The dissertation is on the topic: *"New aspects in the pharmaceutical analysis of Quinine and some of its oxidation products"* with author MPharm. Ivalina Valerieva Vasileva and scientific supervisors: Assoc. Prof. Svetlana Fotkova Georgieva, Ph.D. and Assoc. Prof. Iliyan Nikolov Kolev, Ph.D.

The provided set of materials related to the prescribed procedure (in electronic and paper versions) is in accordance with the requirements of the law and the Regulations for the terms and conditions for obtaining a scientific degree and holding academic positions at the University of Varna. The candidate also provides documents with which she legally declares the originality and reliability of the results and data presented in his dissertation.

Biography: MPharm. Ivalina Valerieva Vasileva is a graduate of Medical University - Varna. She graduated in 2016. For the period 2016 - 2021, she held the academic position of "Assistant" at the same university. She is an assistant in the specialised discipline "Pharmaceutical Analysis". By order of the rector of the MU-Varna (No. P-109-391), in 2020, she was enrolled in full-time study in the "Pharmaceutical Chemistry" doctoral program accredited for the MU-Varna. The doctoral candidate passed on time all the specialised and general exams prescribed in her doctoral program.

The dissertation is presented in a volume of 95 pages. The latter is structured according to established national norms and contains a total of 24 figures, three tables and 49 diagrams. A considerable number of scientific sources are cited in the bibliography (159).

The literature review is presented in 34 pages, and its content is structured to fully reflect what is considered in the following points. Extensive information is presented on the studied alkaloids, concerning not only their medicinal importance and application but also their "chemical behaviour" and synthesis. The information regarding their qualitative analysis is also correctly



systematised. In general, the literature review is an adequate basis for formulating the main dissertation objective and setting five work tasks.

In the section "Experimental part", with a total volume of 9 pages, all the methods used by the doctoral student are presented in detail. Analytical techniques for chemiluminescent and chiral-sensor alkaloid analysis originally introduced by the doctoral student are also adequately presented.

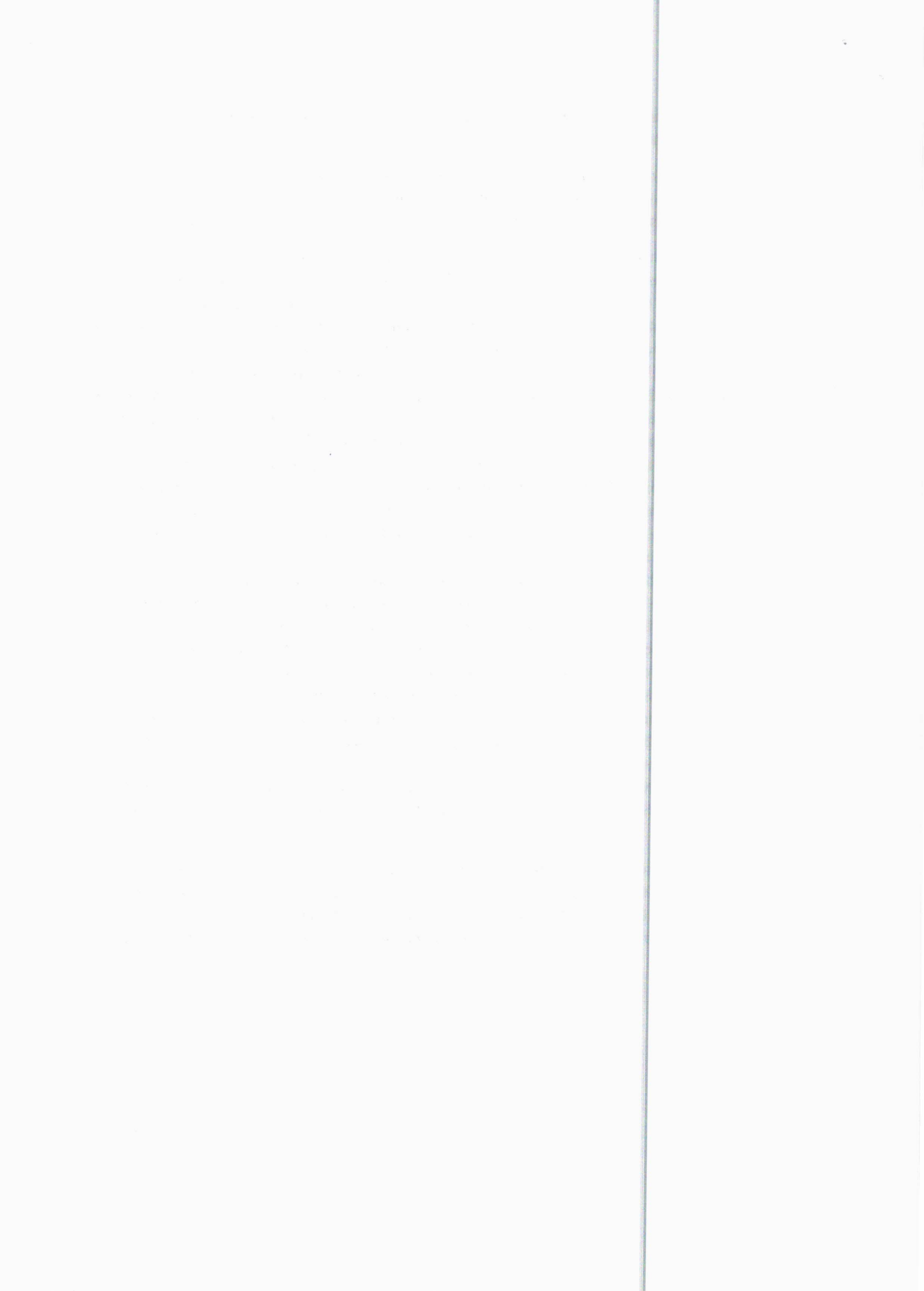
In a total of 32 pages, information is presented regarding the most essential part of the dissertation - "Results and Discussion". The first part of this section contains information regarding the analytical potential of the element sulfur in qualitative quinine analysis. A new microanalytical algorithm was also introduced, with the help of which the main analytical indicator limit of detection was determined. The doctoral student also used the obtained data for the preparation of a scientific publication (Vasileva I., I. Kolev. A sulfur-based qualitative test for determining the presence of the secondary alcohol functional group of (-)-quinine and (+)-quinidine. Bulgarian Chemical Communications, Volume 54, Issue 2 (pp. 147-151), 2022. doi: 10.34049 /bcc. 54.2. 5466), which she presents in a refereed and indexed scientific journal.

Analysis of the alkaloid is also presented with studies involving its conversion to cupreine, its interaction with citric acid and acetic anhydride, the photoinitiated synthesis of its clathrate form (herepatite), and its chemiluminescent behaviour toward cerium ions. Separately, a quinine-printed polymer layer was also composed, on which the sorption behaviour was established with respect to the two enantiomers of the terpenoid carvone.

Subsequently, the reactivity of the alkaloid hinotoxin with respect to phenothiazine and the weak oxidising agent - bromine was established. The doctoral student proves that the alkaloid interacts thoroughly with the introduced reagents, forming with them a blue-coloured product - of the methylene blue type presented in an article (Vasileva I., I. Kolev. Phenothiazine dye labeling test for quinotoxine. Scripta Scientifica Pharmaceutica, 2022; 9(2): 36-41. doi: 10.14748/ssm.v54i4.8662), who published in a non-refereed peer-reviewed journal.

I believe that the doctoral student summarised the obtained results in a correct way. She correctly reflected all the conclusions from the presented discussion points. She has adequately considered all the more significant elements of her dissertation work as contributions. I also think that the personal contribution of the doctoral candidate during the development of the dissertation, the presentation and interpretation of the results and the shaping of the scientific publications is essential.

Critical remarks and recommendations: In the dissertation work, there are some minor technical and spelling errors; some of them have been transferred to the deposited abstract. Comments can also be made regarding the description and interpretation of some methods. However, I would not categorise the remarks made as critical, belittling the real scientific value of the work presented.



Conclusion:

I consider the dissertation given to me by the doctoral candidate Ivalina Valerieva Vasileva to be a serious development in the field of pharmaceutical analysis. In addition, other important tasks were completed during the training period of the doctoral program, such as expediency in the solution of all set tasks, their skillful solution with the introduction of new analytical algorithms and a wide range of analytical methods applied.

All this testifies to the excellent scientific and educational preparation of the doctoral candidate and the competence she has acquired in this field.

Because of that, I give my **POSITIVE ASSESSMENT** and to confidently propose to the honourable scientific jury to award the educational and scientific degree "PhD" to MPharm. Ivalina Valerieva Vasileva in the field of higher education "7. Healthcare and sports", professional direction "7.3. Pharmacy", doctoral program in "Pharmaceutical Chemistry".

Заличено на основание чл. 5,
§1, б. „В“ от Регламент (ЕС)
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Varna

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