REVIEW

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Elected as an external member of the Academic Jury by Order No 788/ 13.03.2023 on holding a competition for the conferral of the academic position "Associate Professor" in Health Care Management, basic specialty "Medical Laboratory Technician" in the area of higher education 7. Healthcare and Sport, professional field 7.4. Public Health, for the purposes of the specialty "Medical Laboratory Technician" at the Medical College to Trakia University, promulgated in State Gazette, issue 99/ 13.12.2022 and the webpage of Trakia University, Stara Zagora.

1. General description of the submitted materials

The sole participant who has submitted their application for the present competition is Katya Stefanova Kichukova, senior lecturer at the Medical College to Trakia University, Stara Zagora.

The presented set of documents in physical and digital form fully complies with the Procedure for occupying the academic position of "Associate Professor" at Trakia University, Stara Zagora, according to the Law on the Development of the Academic Staff in the Republic of Bulgaria, and the Rules of the university, and includes all requested items:

- ✓ Application
- ✓ Declaration of Trustworthiness (according to Appendix 9)
- ✓ Information card for occupied academic position
- ✓ Copy of an announcement for the competition published in State Gazette
- ✓ Higher education diplomas
- ✓ Diploma for the educational and scientific degree of Doctor
- ✓ Curriculum Vitae
- ✓ Abstracts of all research works
- ✓ List and copies of all publications
- ✓ List of required number of citations
- ✓ Inquiry from the Central University Library of TrU for impact factor and impact ranking (if applicable)
- ✓ Inquiry from the Central University Library of TrU for citations included in Web of Science and/or Scopus databases (if applicable);
- ✓ Inquiry for original scientific contributions
- ✓ List of habilitated co-authors
- ✓ Certificate of foreign language aptitude
- ✓ Certificate of conviction
- ✓ Inquiry for meeting the minimal scientific requirements
- ✓ Inquiry for IF, IR

- ✓ Materials for indicator E
- ✓ Thesis abstract paper and monograph
- ✓ Additional materials

The documents are arranged with respect to the requirements in an orderly and duly manner. In the presented inquiry for the minimal requirements for the research and teaching activity of Katya Kichukova for the occupation of this position, it is apparent that the candidate has presented research production, which meets the criteria in the respective indicator groups. The research works presented for the procedure of the competition do not repeat the submitted works for the acquisition of the educational and qualification degree of Doctor. The candidate's publication activity is as follows:

- ✓ In journals, referenced in Scopus or Web of Science – 1 item
- ✓ Publications in journals and collections included in the national reference list – 16 items
- ✓ Publications in journals, indexed in secondary databases – 12 items (of which 1 in print)
- ✓ Chapters from books with own bibliography (co-author) – 1 item
- ✓ Participation in congresses, conferences and symposia: in total 32, of which 7 international, and 5 in Bulgaria
- ✓ Citations: 11
- ✓ Citations in IF journals – 7

2. Brief biography of the candidate

Katya Stefanova Kichukova was born inKotel in 1969. She graduated the Institute for Training of Health Care Personnel at Secondary Specialized Level in Plovdid (1989) as a Medical Laboratory Technician, and later acquired a degree in the same specialty at the Semi-higher Medical Institute in Sliven (1993). Immediately after her graduation, Kichukova started work as a medical laboratory technician at the Clinical Laboratory in the Municipal Hospital of Kotel, and since 2001 she has been a medical laboratory technician at the Central Clinical Laboratory of the Multi-profile Hospital for Active Treatment "Prof. Dr. StoyanKirkovich" in Stara Zagora. Between 2002 and 2007 she acquired a bachelor degree in Health Care Management from Trakia University, Stara Zagora. In Spetember 2009 Kichukova became a lecturer at the Medical College of Trakia University, Stara Zagora in the specialty "Medical Laboratory Technician". In 2012 she acquired the educational and qualification degree of Master at MU-Plovdiv and competed a qualification course "Manager of healthcare and practical trainer". Since 2016 to date Katya Kichukova has been employed as a senior lecturer at the Medical College of Trakia University, Stara Zagora. In 2022 she was awarded the educational and scientific degree of Doctor in Healthcare Management in the professional field 7.4. Public Health with a thesis on *Continuing education as a means of increasing the professional competence of medical laboratory technicians*.

She has taken part in 23 postgraduate trainings, seminars in Lithuania and North Macedonia, and also in scientific publications and forums. She is a member of the Bulgarian Association of

Health Care Professionals and the Preventative Information Centre for Addictions to the Municipality of Stara Zagora. She speaks French at A1 and English at B2 level.

3. Evaluation of the research and applied activity – volume and structure specifics of the research works

In the materials submitted for evaluation Dr. Katya Stefanova Kichukova has presented research works published in Bulgaria and abroad in the period 2010-2023. The total number of scientific articles is 32, of which 3 are related to her thesis.

The contributions from the research works may be thematically systematized into several main directions:

I. Increasing the professional competence of medical laboratory technicians and taking advantage of the opportunities for relevant continuing education (contributions with scientific theoretical, methodological and applied character).
II. Study and introduction of new indicators and medical forms (nutritional supplements) to improve diagnostics and change the course of treatment of some socially important diseases (contributions with scientific-theoretical, methodological and applied character).
III. Study on some socially significant and dangerous infectious diseases and the role of the human factor for their spreading (contributions with scientific-theoretical character)
IV. Application of innovative approaches and technologies to medical training and education (contributions with theoretical and applied character)
V. Contemporary approaches applied to medical laboratory sciences and oriented to various areas in the broad profile training of medical laboratory technicians (contributions with theoretical and applied character).
VI. Varia

I. The studies on the necessity of **increasing the professional competence of medical laboratory technicians** are a subject of a considerable part of the research works in the whole academic activity of Katya Kichukova (incl. 1 thesis and 1 monograph). In the conducted original studies,she uses herown methodologies, developed for research purposes. The need for systemic increase and updating of professional knowledge, skills and competences of medical laboratory technicians as a continuous process is determined by the exceptional development of medical sciences. In this sphere the candidate has done:

1. Thorough study among laboratorystudents, practicing laboratory technicians and physicians on their interest in the forms of continuing training, and mostly in the one focusing on medical laboratory technicians. The preferred lifelong learning forms for these medical specialists areexamined, as well as the practical applicability of their knowledge received from short-term courses as the most popular form of postgraduate training. The attitudes of employers for offering

incentives for postgraduate training of laboratory technicians are determined. The author has proven that laboratory students show a positive attitude to lifelong learning as a resource for maintaining and increasing their professional competence.

2. The presented monograph *Lifelong learning for medical laboratory technicians – present and future* describes the conceptual foundations and paradigm of continuous professional training, organizational and regulatory aspects of this training for medical laboratory technicians and the opportunities for career development. The author has studied the interest, attitudes and inclinations of students and practicing laboratory technicians with respect to various learning forms and the possibilities for opening different profile specializations. Interesting are the theoretical groundings and results related to the conducting postgraduate training of varying duration, e-learning, as well as the attitudes of employers for incitement and support of laboratory technicians during continuing training. The author has applied a historical method to describe the emergence and development of this profession in Bulgaria, as well as the studied and described specifics of the education and professional development of medical laboratory technicians in some European countries **[Dissertation, monograph].**
3. A thorough study on the motivation for their choice of major was conducted with laboratory students and practicing laboratory technicians. The influences of internal and external motives for continuing professional training have been explored. The influence of alienation from the specialty and the profession has been studied in laboratory technicians. **[Dissertation, П2]**.
4. A study on the motivation for achievement in laboratory students and the influence of their internal and external motivation on their interest in various forms of lifelong learning was conducted **[П2]**.

II. In the second scientific direction are included research works related to participations of the authors in pilot research on some enzymes, impacting the levels of the indicators of lipid exchange, with the aim to develop a methodology for their introduction in the routine practice, as well as a study on biochemical indicators in people and laboratory animals, and determination of their relationship to a number of socially significant diseases.

1. Participation in a pilot study for adapting methods for determining the serum levels of paraoxonase and arylesterase activity of PON1(belongs to the paraoxonase family, comprising three isoenzymes PON1, PON2, and PON3). There is evidence that serum PON1 is the most essential enzyme of HDL-complexes, responsible for their protective functions with respect to LDL. Thanks to the multiple ateroprotective functions of HDL, such as removing the excessive cholesterol from the tissues and inhibiting the inflammatory process, HDL protection is perhaps the main role of PON1 in mammals and humans. The relationship between the activity and concentration of PON1 and the severity and degree of cardiac coronary disease has been proven. The obtained values of paraoxonase and arylesterase activity are similar to data in research literature. A positive association of arylesterase activity to total cholesterol and triglycerides has been established, yet without any interrelation with HDL [I.1.].

2. Participation in a study on new aspects of beneficial effects of lactic acid bacteria. The author has conducted a study on the influence of the combination of two original Bulgarian strains of lactic acid bacteria (*Lactobacillus brevis*and*Lactobacillus plantarum*) on indicators of the lipid profile in rats. A good tolerability of the two strains of potential probiotics has been found in the experimental animals. No convincing proof for the beneficial use of their intake on the lipid profile has been established, perhaps due to the short-term period of strain intake **[III.B1]**.

III. Direction, including **studies on some of the socially significant and dangerous infectious diseases** and the role of the human factor for their spreading.

1. In a conducted study it was found that Echinococcosis is a socially significant disease for the Stara Zagora region with an average morbidity for 2006-2014 above the average for the country. The relative share of the affected children is 1/5 of all registered. These data are an indicator for the high degree of parasite infestation with *E. granulosus* eggs in the environment in the region. A project has been initiated to examine the environment of vulnerable and risk groups for contamination with parasitic elements, which awaits the publication of its results [**III. A3. IV B8**.].

2. A historical review of the efforts and the anti-epidemic measures taken by all institutions in combating malaria and the vectors of malaria plasmodia has been done. Though rare, there are cases of malaria in the southern parts of the country, or in migrants [**III. A3, III. A4**].

3. Some of the significant ancient and newly emerged disease that have had a strong impact on the history of mankind are explored, including COVID-19. The role of people's behavior has been studied as a factor for the emergence of pandemics [**III A4, IIIA5, IVB8**].

4. The main risk factors for the spread of *T. gondii* among risk groups of the population of Stara Zagora region are studied. It was found that among certain groups the share of seropositive for Toxoplasmosis is higher than the average for the country. Among the main risks for contracting the disease are established – consumption of uncooked meat, cohabitation with infested pets, etc. [**II.1.**]

IV. Innovative approaches in medical education

Interactive learning methods for students of the specialty "Medical Laboratory Technician", viewed as innovative practices in teaching and their application in various disciplines among the medical specialties are evaluated as very effective. Contemporary information and communication technologies offer a wide range of opportunities for visualization and interaction in learning.

1. The positive sides of interactive learning methods have been defined. The advantages of situational methods in medical specialties are reviewed, as well as the resources of research methods (through inclusion of students in projects) for developing essential skills in students. The role of the instructor is presented both as a source of knowledge, and as generator of ideas. In the use of the interactive learning approach, better results are achieved, compared to classical teaching forms [**III B2, III B3, III B4, IV A1**].

2. The possibilities for applying interactive presentation systems are presented – interactive whiteboard and document camera in the teaching of students from the Medical College [IV A1].
3. The use of e-forms of learning is explored with respect to recent teaching forms, which may be alternative, complementary or enriching the learning process. The attitudes of laboratory students, laboratory technicians and physicians to using e-forms in postgraduate teaching of specialists have been studied [**IV A2**].

V. Medical laboratory sciences

The articles are oriented to different areas of the wide profile training of medical laboratory technicians.

1. A study among students from the Medical College in Stara Zagoraabout their awareness of Human Papilloma Virus (HPV). Despite the relatively low knowledge of the diseases caused by HPV, students are familiar with the existence of a vaccine. **[III Б2]**
2. A study among the inhabitants of Chirpan region on the ways of getting infected with HIV and thepossibilities for protection. High awareness of the population about the ways of infectionis found, but a lower level of knowledge in the persons who declare their use of protection **[III B2].**
3. Retrospective study on people with clinical signs of Acute Coronary Syndrome. The values of the serum Troponin, benchmark in diagnosing Acute Miocardial Infarction, slightly increase after catheterization and placement of stent, then gradually return to normal. The risk of AMI is higher in people with multiple risk factors [**III Б1**].
4. Study and analysis of the self-assessment of the knowledge of laboratory students at the Medical College in Stara Zagora about tuberculosis. A good knowledge of the sources of infection, risk groups, diagnostic and monitoring methods, including non-laboratory is found [**III B6**].
5. The therapeutic approaches and the groups of laboratory analyses at different stages of renal diseases are summarized and systematized. The significance of early diagnosis is clarified for the optimistic prognosis of kidney diseases [**III B3**].
6. An overview of the significance of researching antiphospholipid antibodies in patients with recurring miscarriages, as well as women with reproductive failures or other connective tissue autoimmune diseases is presented **[III B5].**
7. An empirical survey of the opinion of laboratory students on the quality of the acquired knowledge for the pre-clinical stage of laboratory analysis. The students evaluate the teaching content in the section as up-to-date, including the specifics of the requirements at this stage in children [**III B9, IV A4**].
8. The most frequent factors for Acquired Aplastic Anemia are reviewed and examined – biological, physical, chemical, and symptomatic of the disease. The focus is placed on the molecular-genetic, cytogenetic laboratory parameters in the diagnostics and monitoring of treatment [**IV B3**].
9. The methods for detecting bacterial toxins in food products are reviewed, and an emphasis is placed on contemporary rapid methods [**III Г1**].

VII. **Effective collaboration between the Medical College and the bases for practical training of medical laboratory technicians.** Evaluation of the employers regarding the acquired professional competences of laboratory graduates.

1. A study shows that the students from the specialty "Medical Laboratory Technician" prefer to participate in clinical practice in smaller groups, which allows them to engage actively in the work. In this way they develop the independence and creative thinking of a new type of specialists [**III A1**].
2. A study has found that employers evaluate highly the professional skills, teamwork and patient communication skills of the laboratory graduates of the Medical College – Stara Zagora. [**IV B7**]

VIII. Varia

1. Reviewed are the psychosocial aspects of natural disasters. It is found that during a calamity (natural cataclysms, acts of terror, pandemic influenza, etc.) the psychiatric traumas may exceed the physical. By means of first psychological aid as an early crisis intervention tool, and thanks to their knowledge and experience, medical specialists may play a lead role in providing psychological assistance. [**IV B4, IV B5**].
2. Main aspects in the attitudes of TrU medical students to narcotic substances are studied. Despite the massive supply, the share of students who have used or are using narcotic substances at the time of the survey is very low. [**IV B6**].
3. A study on the risk factors for osteoporosis among women in different age groups. The levels of Vitamin D are examined as one of the key factors for the disease. A low level of Vitamin D is found in two thirds of the studied persons [**IV A3, IV B2**].

4.Pedagogical activity

The candidate Dr. Katya Kichukova has a rich professional and practical training in the area of clinical laboratory practice and 14-year-long pedagogical experience as a lecturer at the Medical College of Trakia University, Stara Zagora. She conducts practical seminars in the following disciplines: Clinical laboratory, Parasitology, Clinical practice and an elective in Quality control in the laboratory practice. Kichukova actively participates in the development and updating of curricula in the above mentioned courses. She is on exam committees and is actively involved in the academic life of the department and the university.

In the Inquiry for lecturing workload, presented with the documents for this competition Dr. Katya Kichukova verifies that she conducts seminars, practicals, and pre-diploma traineeships with an average load of the total lecturing period amounting to over 630 hours per year.

Katya Stefanova Kichukovahas taken part in seven intra-university research projects for the period of 2016-2023 and in six research projects of the Medical Faculty of Trakia University – Stara Zagora.

5.Evaluation of the overall performance of the candidate

All materials, submitted by the candidate Katay Kichukova for the purposes of this competition meet all requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Rules for its implementation at Trakia University – Stara Zagora.

The theoretical works and research of the candidate bear scientific value and have practical applicability, and representative of the work of Katya Kichukova. The scientific and teaching qualification of Katya Kichukova is unarguable. The results she has achieved in her research and teaching activity fully comply with the specific requirements for the desired position at the Medical College, specialty of Medical Laboratory Technician.

I give my overall*positive evaluation* of the application of **Katya Stefanova Kichukova, PhD** for the conferral of the academic rank of "**Associate Professor**". The presented application **fully meets the requirements and criteria** of the Law on the Development of the Academic Staff in the Republic of Bulgaria, its Rules for implementation and the Statute for Development of the Academic Staff at Trakia University – Stara Zagora. I believe that the permanent scientific interests of the candidate in the area of clinical laboratory science and her rigorous work on the problems of education of laboratory students may contribute to a quality academic education, whereas the research production of the candidate, as well as the merits of her monograph will considerably facilitate and enable this training. She is an experienced lecturer and researcher, assiduous and ethical colleague. Katya Kichukova shows a responsible attitude to her scientific and teaching activity and is respected and loved by students and colleagues. I am convinced that Katya Kichukova will continue to contribute to the prosperity of the Medical College at Trakia University, Stara Zagora.

Conclusion:

I give my positive evaluation **for the conferral of the academic rank of "Associate Professor"** to Katya Stefanova Kichukova, PhD.

I fully recommend to the honorable members of the Academic Jury **to vote in favor of appointing Katya Stefanova Kichukova, PhD to the academic position of "Associate Professor"** in the area of higher education 7. Healthcare and Sport; professional field 7.4. Public Health; scientific specialty "Healthcare Management", with reference to the competition promulgated in State Gazette, (SG) issue 99/13.12.2022.

05.05.2023

Sofia

Reviewer:

Prof. IvankaStambolova, MD, PhD