

REVIEW

From associated professor Dr Dimitar Ivanov Vuchev, PhD, parasitologist,

Sector Parasitology and tropical medicine,

Department infectious diseases, parasitology, and tropical medicine,

Medical University – Plovdiv

Concerning: Competition for the academic position "Associate Professor" in the field of higher education 4. Natural Sciences, Mathematics, and Informatics professional field 4.3. Biological Sciences scientific speciality "Parasitology and helminthology" for the needs of the Department of Infectious Diseases, Parasitology and Dermatovenereology, Sector of Infectious Diseases and Parasitology, Faculty of Medicine at Medical University – Varna, announced in State Gazette No 53/12.06.2020.

According to Order №P-109-300/07.08.2020 of the Rector of MU-Varna I have been appointed as a member of the Scientific Jury, and in implementation of protocol № 1 of the first meeting of the Scientific Jury - as an official reviewer. The only candidate who submitted documents within the legal term is Dr Kalina Stoyanova Pavlova, PhD. The presented set of papers is in accordance with the requirements of the Law for the development of the academic staff in the Republic of Bulgaria and the Regulation of its application of Medical University – Varna.

Curriculum vitae and career development of the candidate:

Dr Kalina Stoyanova Pavlova, PhD was born in 1976 in the city of Varna. She graduated from the High School of Natural Sciences and Mathematics "Metodi Popov" – Varna /biology profile/. Higher medical education /Master of Medicine/ acquires at the Medical University - Varna, in 2001, graduating with honours. Since 2001 she has been working as an assistant GP, and at the end of the year, she is appointed as a resident in parasitology at MU-Varna. Since 2002, after a competition, she is selected for an assistant in the Department of Infectious Diseases, Parasitology and Dermatovenereology where she continues to work till now as a chief assistant. She also performs the duties of a course leader of the 5th year medical students at the Medical University - Varna and as an administrative assistant in the DIDPDV. In 2006 she acquired the medical speciality - Medical parasitology. In parallel with her academic career, since 2009 she has been working as head of the parasitological laboratory at SMDL, wherein the routine practice she enriches her practical knowledge and experience in clinical parasitology. In 2017 at NCIPD - Sofia, after successfully defending a dissertation on "Epidemiological studies and analysis of risk factors for the distribution of the intestinal parasitoses with person-to-person transmission in Varna district " she received the scientific and educational degree Doctor of Philosophy /PhD/. Dr K. Pavlova has considerable computer skills, speaks English and Russian.

Additional qualification /postgraduate education/:

Dr Kalina Pavlova has periodically and purposefully improved her professional qualification in several postgraduate courses - in the country - 12 courses and abroad - 2 courses, conducted at leading academic medical institutions - parasitological units - of NCIPD, MU-Sofia, MU-Plovdiv, MU-Varna and Medical faculty of University of Cologne, Germany. Thematically, the qualification courses cover the main areas of the medical parasitology speciality - epidemiology and prevention, clinical presentation and therapy, morphological, immunological, and molecular diagnostics of parasitoses.

Also, Dr K. Pavlova has participated in courses for modern methods in university education in medicine, currently improving her pedagogical training and the quality of teaching in MU and Medical College- Varna.

Teaching activity:

The academic work of Dr K. Pavlova is multifaceted concerning the student audience. It includes practical training /in seminars/ and theoretical training /in lectures/ of medical students in parasitology - of English-speaking and Bulgarian students /fifth year, tenth semester/; and a free elective module in tropical medicine. She also conducts theoretical training of students from the MU in the specialities "nurse", "midwife" - in Varna, Sliven, VelikoTarnovo and Shumen, as well as theoretical and practical training in the specialities "medical laboratory assistant" and "public health inspector" at MC - Varna. Dr K. Pavlova takes part in the postgraduate courses and individual training in parasitology in different medical specialities. In recent years, she supervised the education of one specialist in medical parasitology, who successfully acquired her medical speciality in 2019.

A distinctive feature of the modern curricula for the training of students from MU and MC-Varna in parasitology, taught by Dr K. Pavlova, is that they are entirely her work and indicate a high level of professionalism of the candidate.

Her teaching workload, reported in academic hours exceeds the standards /average per year of the last five years/, as follows: a/ lectures in Bulgarian - 116 hours, b/ lectures in English - 3.6 hours, c/ seminars in Bulgarian - 30.6 hours, d/ seminars in English - 166 hours. The average annual workload is 313.4 hours, but in the last two years, it has increased respectively at 402 hours /2018/ and 385 hours /2019/.

Apart from the regular academic work, Dr K. Pavlova has participated in six public scientific and promotional events on the control of some problematic parasitoses /cryptosporidiosis, toxocariasis, contact parasitoses, etc./.

Scientific and research activity:

The research activity of the candidate, reflected in the presented thematic publications, as well as the practical contributions, are divided into several essential areas, as follows:

- **Epidemiological studies of intestinal parasitosis**

The studies are performed based on an impressive number of parasitological tests executed in the laboratory led by the candidate - on epidemiological, prophylactic, and clinical indications. Solely the dissertation thesis summarised the results of 56 060 subjects, of which 2 573 infected with various parasites - for ten years /2007-2016/.

Determined are the current parameters of the epidemic process in North-eastern Bulgaria and Varna region for several intestinal parasitosis /enterobiosis, hymenolepidosis, giardiasis, blastocystosis and cryptosporidiosis/. The tendencies in the dynamics of the distribution of these parasitoses are also revealed.

The importance of the parasitological research on different indications /clinical, prophylactic and anti-epidemic / is confirmed in the conditions of the current health situation of the population in our country and the respective administrative region. The parasitological status among the different age groups of the population is revealed as well as the importance of asymptomatic carriers, latent morbidity, occupational risk groups /in the food sector, etc./.

The need for targeted research in diarrheal diseases for parasitic pathogens is emphasised, as they are a common cause in childhood, as well as the need for asystematic parasitological examination in all hospitalised patients.

In logical clinical order, the candidate reaches emphasised upon the need for selection of effective therapeutic methods, with an individual approach to each patient - with adequate control of the therapeutic effectiveness and within the required monitoring period.

From an epidemiological point of view, the clinical and laboratory data of the studied patients are subjected to a statistical processing, with several modern statistical and mathematical methods. Thus, prognostic visual models are achieved, revealing the dynamics of manifestation of the most common intestinal parasitoses - enterobiosis and giardiasis. The prognostic results correspond to the actual data reported in recent years for the prevalence of these contact parasites.

In this line of diagnostic and epidemiological studies, the candidate, based on emerging in her practical work in parasitological laboratory findings, describes in a separate monograph competently and comprehensively, with the necessary extensive literature review, the current scientific knowledge about enterobiosis and giardiasis.

The author's studies on the opportunistic protozoan parasitosis cryptosporidiosis are unique for the country. The results of her research and review of current scientific data, covering up to 1000 literature sources, the author completed in two monographs dedicated on this insufficiently studied in the world and our country parasitosis - one of which is presented as a habilitation thesis. The only research in our country on various water sources with the presence of cryptosporidium and giardia cysts, proven by immunofluorescence method and PCR, arouse sufficient interest and concern. To secure the clarity of the water sources for drinking water, the author recommends the introduction of sanitary and parasitological methods for their control. During the periodic prophylactic coprological examinations for intestinal parasitosis, Dr K. Pavlova introduced into the routine practice an immuno-chromatographic test and a modified Zill-Nelsen method for the diagnosis of cryptosporidia, discovering asymptomatic carriers and clinically manifested disease. Thus, for the first time, she establishes the extent of the invasion in the different age groups and determines the risk groups amongst the population of North-Eastern Bulgaria.

• **Studies of zooparasitosis - epidemiology, clinic, diagnosis, treatment and control**

The complex studies of toxocariasis in the Varna region lead by the author are pioneering for the region. For the first time, she implemented and applied ELISA serological testing for diagnosing of numerous clinical cases, and additionally implemented a Westernblot test to verify positive results. Dr K. Pavlova studies the disease manifestations in children and adults with clinical data, as well as those among risk groups. The results are surprising due to the discovered high levels of seroprevalence and the revealed data for the significant spread of toxocariasis in the region. The research on toxocariasis is of great theoretical and practical importance - both for clinical and prophylactic parasitological practice. Targeted sanitary-parasitological examinations of the environment show contamination with helminth eggs of *Toxocara* and other zooparasites, revealing possible routes of invasion and the presence of effective sources - parasitised dogs in the settlements.

Diagnostic and clinical-therapeutic studies on trichinosis have been performed in several outbreaks in the Varna region, analysing the difficulties encountered in the diagnostic process of this zoonosis. Clinical and diagnostic aspects of the cosmopolitan protozoan zoonosis toxoplasmosis are also subject to observation and study, reflected in publications.

• **Studies on malaria and other imported parasitoses**

The geographical location of the Varna region puts it in the position of a possible gateway for exotic parasites that are imported from tropical countries. The interest of Dr K. Pavlova in these diseases, to which she has dedicated publications on clinical and epidemiological problems of malaria and schistosomiasis, can be explained and praised.

In partnership with fellow infectious disease specialists, epidemiologists and hygienists, Dr K. Pavlova has competently participated in complex studies of nosocomial infections, brucellosis, anthrax, and others.

General quantitative characteristics of the research activity:

As an illustration, I will mention some indicative scientometric data on the impressive volume and relevance of the publishing activity of Dr K. Pavlova:

- **Published monographs:** 3 issues / 555 pp. /,

Among them is the monograph "Cryptosporidiosis - current aspects of taxonomy, clinic, diagnosis and treatment" presented as a habilitation thesis / 187 pp. /, which meets all the requirements of the LDASRB.

- **Chapters from a book or monograph** - 2 titles / 20 pp. /.

- **Full-text articles:**

a / in referenced international magazines: 8 articles / 59 pp. /. Of them with impact factor - 2 papers / total IF – 3.287 /

b / in other foreign and Bulgarian magazines - 24 articles / 131 pp. /.

- **Citations:** in scientific publications, referenced in world databases (World of Science and Scopus) - 58, in other international editions - 44, and in Bulgarian issues - 6.

The candidate has participated in 32 scientific forums, of which international - 14 and Bulgarian - 18. She was included in several research teams and has worked on two scientific projects / including one international / and one educational project.

Dr K. Pavlova is the only or first leading author in 59.4% of the presented scientific papers - monographs, articles and reports /22 titles/. In seven scientific publications, she is the second and in the remaining eight a subsequent co-author.

Therefore, the presented scientific and publication activity of the candidate, in both quantitative and qualitative aspect, meets and exceeds the minimum state requirements for acquiring an academic position of "Associate Professor" according to LDASRB and the Regulations for its implementation of MU-Varna.

Medical and diagnostic activity:

As head of the parasitological diagnostic laboratory at SMDL, Dr K. Pavlova systematically applies and enriches her practical knowledge and experience in clinical parasitology – in the diagnostic and therapeutic field. She has invested the rich clinical and laboratory material from her consultations and parasitological research in several scientific

publications /on enterobiosis, cryptosporidiosis, giardiasis, trichinosis, hymenolepidosis, etc./ as well as in the development of her doctoral dissertation and monographs.

Social-scientific activity. Membership in scientific societies and professional organisations:

In 2018 Dr K. Pavlova was elected a member of the Control Commission of the Bulgarian Association of Medical Parasitology /BAMP/, and in 2019 she was endorsed as a member of the Expert Council on Medical Parasitology at the Ministry of Health. She is also a member of the Bulgarian Medical Association and the Bulgarian Scientific Society of Parasitology - BAS.

Personal impressions:

They originate from the beginning of the professional training of Dr K. Pavlova as a parasitologist, two decades ago, and continue consistently in her career as a lecturer at MU-Varna, head of the parasitology laboratory and in parallel with her development in the scientific field in the process of defending a doctoral dissertation. Based on her positive professional traits and scientific output, I can wholeheartedly recommend Dr K. Pavlova as a lecturer and researcher with great creative potential and productivity and a serious and in-depth approach to the overall work of PIPDDV - pedagogical, medical and diagnostic, scientific, and administrative. These qualities predetermine the realization of her successful work in the education of students and specialists in MU and MC - Varna, as the only highly specialized base for training in medical parasitology in the Northeastern region of the country.

Conclusion:

The candidate for the academic position "Associate Professor" is an established, respected, and excellently trained specialist with many years of professional experience, teaching skills and practice in the medical parasitology. She is the author of a scientific production exceeding the required quantitative and scientometric criteria. She is a highly erudite teacher with an extreme pedagogical workload. Due to the outstanding qualities and achievements, I am voting positively and strongly suggest to the esteemed Scientific Jury to vote "yes" for awarding the academic position "Associate Professor" in the scientific speciality "Parasitology and Helminthology" to Dr Kalina Stoyanova, PhD for the needs of the Medical University - Varna, Faculty of Medicine, Department of Infectious Diseases, Parasitology and Dermatovenereology.

Reviewer: D. Vuchev, MD, PhD

Date: 30.09.2020

/ Assoc. prof. Dr Dimitar Vuchev, PhD /