

To

P-HO-1415/07.10.2026

The Chair of the Scientific Jury,

appointed by Order No. R-4740/31.08.2026

of the Rector of the Medical University of Plovdiv

OPINION

by Assoc. Prof. Atanas Slavchev Ivanov, MD, PhD

Department of Urology and General Medicine

Medical University of Plovdiv

on a dissertation submitted for the award of the educational and scientific degree “Doctor” (PhD)

Professional field 7.1. Medicine

Doctoral Programme: Urology

Author: Blagovest Peshkov Petrov MD

Form of doctoral study: Full-time

Department: Department of Urology and General Medicine, Faculty of Medicine, Medical University of Plovdiv

Title: “Clinical and Epidemiological Studies of Trichomoniasis in Infertile Men”

Scientific supervisors: Prof. Ivan Dechev, MD, PhD; Assoc. Prof. Krasimira Eneva, MD, PhD

1. General presentation of the procedure and the doctoral candidate

The submitted set of materials in paper/electronic format complies with Article 70(1), Section I, concerning the acquisition of the educational and scientific degree “DOCTOR” and the scientific degree “DOCTOR OF SCIENCES” at the Medical University of Plovdiv, pursuant to the Regulations of the Medical University of Plovdiv dated 28.01.2021.

By Order No. R-4740/31.08.2026 of the Rector of the Medical University of Plovdiv, the composition of the Scientific Jury was approved for the procedure for awarding the educational and scientific degree “Doctor” (PhD) to Dr Blagovest Peshkov Petrov, a full-time doctoral candidate at the Department of Urology and General Medicine, Faculty of Medicine, Medical University of Plovdiv. The dissertation was preliminarily discussed by an extended Departmental Council and approved by the Faculty Council of the Faculty of Medicine.

Dr Blagovest Peshkov Petrov is a graduate of the Medical University of Plovdiv, where he completed his degree in Medicine. His professional development has been closely associated with urology and clinical medicine. He has worked at the Clinic of Urology, University Hospital “St. George” EAD, Plovdiv, as a resident physician and urology trainee, as well as a physician at Pazardzhik Hospital.

His professional training includes an international placement at the Faculty of Medicine, University of Rijeka, Croatia, at the Clinic of Urology and the National Centre for Kidney Transplantation, where he participated in clinical and operative activities. He is proficient in English and German and has participated in scientific conferences, university projects, and professional organisations.

2. Relevance of the topic

The topic of the dissertation is current and has clear scientific and applied significance. Male infertility represents an important medical and social problem with a complex aetiology. Alongside anatomical, genetic, endocrine, and functional factors, the role of infections of the male genital tract continues to be a subject of scientific interest and discussion.

Particular attention should be given to infection with *Trichomonas vaginalis*, which in men frequently follows an asymptomatic or subclinical course and may therefore remain undiagnosed for a prolonged period. Knowledge concerning *T. vaginalis* has been derived predominantly from studies in women, whereas its prevalence, clinical course, and potential impact on male reproductive function have been considerably less extensively investigated.

I consider the choice of the study population- infertile and subfertile men- to be particularly relevant. This group is of direct clinical importance to urologists and andrologists, and the identification of potentially treatable infectious factors may influence both the diagnostic algorithm and subsequent therapeutic management.

The aim of the dissertation is clearly formulated: to determine the type and frequency of sexually transmitted infections associated with trichomoniasis, to investigate and assess the influence of selected clinical and epidemiological factors on its spread, and to evaluate the effect of *T. vaginalis* on male fertility. Four logically related objectives have been set to achieve this aim, including the development of a diagnostic algorithm for patients with trichomoniasis and infertility.

3. Knowledge of the problem

The literature review demonstrates an in-depth knowledge of the scientific problem under consideration. The author systematically presents the biological and genetic characteristics of *T. vaginalis*, the mechanisms of pathogenicity and transmission, the epidemiology of the disease, the relationship between trichomoniasis and male infertility, as well as contemporary diagnostic options.

I positively assess the attention given to the different diagnostic methods- direct microscopy, culture-based diagnostics, PCR, and other molecular techniques. This is important because the sensitivity of the diagnostic approach used is one of the key factors determining the observed prevalence of *T. vaginalis* and must be taken into account when interpreting the results.

The literature review provides the necessary theoretical basis for the candidate's own studies and demonstrates his ability to analyse and systematise the available scientific evidence.

4. Research methodology

The study was conducted in a clinically relevant cohort of 359 infertile or subfertile men. It covers the period from May 2018 to May 2024 and combines retrospective analysis of available data with additional collection and validation of clinical and laboratory information.

Patients were selected according to predefined inclusion and exclusion criteria. A comprehensive andrological assessment was performed, including medical history, physical examination, semen analysis, and microbiological and parasitological investigations. Different biological specimens were used- ejaculate, expressed prostatic secretion, urethral secretion, and urine—allowing a more comprehensive assessment of infectious status.

The laboratory methodology includes morphodiagnostic, microbiological, and, to a limited extent, molecular methods. Statistical analysis was performed using SPSS version 29 and R version 4.5, employing descriptive statistics, parametric and non-parametric tests, the χ^2 test, Fisher's exact test, correlation analysis, and regression analysis. Overall, the methodological approach is appropriate to the stated aim and objectives and demonstrates that the doctoral candidate is proficient in the fundamental principles of clinical research.

5. Characteristics and evaluation of the dissertation and its contributions

The submitted dissertation comprises a total of 121 pages and is consistently structured into an introduction, literature review, aim and objectives, materials and methods, original studies with results and discussion, summary, conclusions, contributions, scientific publications, and references.

The original results constitute the principal value of the dissertation. A high prevalence of sexually transmitted infections- 48.5%- with a broad aetiological spectrum was identified in the analysed cohort. *T. vaginalis* was detected in 6.7% of the infertile men studied. Of particular interest are the polymicrobial nature of the identified infections and the substantial proportion of co-infections.

The findings highlight the clinical relevance of infectious factors in the assessment of men with infertility and support the need for targeted microbiological testing in appropriately selected patients. Of practical importance is also the fact that a substantial proportion of patients with *T. vaginalis* have no pronounced clinical symptoms, supporting an active diagnostic approach in selected groups of patients with reproductive disorders.

In patients with confirmed *T. vaginalis* infection, significantly lower ejaculate volume, total sperm motility, and normal morphology were observed compared with uninfected patients, whereas statistical significance was not reached for total sperm count or liquefaction time. These findings have been interpreted in the context of the study design and its limitations.

I positively assess the fact that the dissertation does not end with an epidemiological description alone. Based on the findings, a diagnostic algorithm for patients with trichomoniasis and infertility has been proposed, giving the work a clearly defined clinical and applied orientation.

The contributions are systematised into three groups: original contributions, confirmatory contributions, and clinical-applied contributions. Among the most significant are the clinical and epidemiological analysis of a large Bulgarian cohort of infertile men, the presentation of data on the prevalence of urogenital trichomoniasis in this population, the analysis of the co-infection profile, and the assessment of the relationship between *T. vaginalis* and semen parameters.

Critical remarks and recommendations: The presented work has certain limitations inherent to its observational and predominantly retrospective nature. These mainly concern the inability to establish definitive cause-and-effect relationships, the limited use of molecular diagnostic methods, and the lack of systematic follow-up of the patients' female partners. Some of the microorganisms identified may represent colonisation, which requires cautious interpretation of their clinical significance. It should be noted that the doctoral candidate himself has discussed these limitations in detail, demonstrating a critical approach to his own findings. These limitations do not diminish the overall scientific and applied value of the dissertation.

6. Assessment of the publications and the doctoral candidate's personal contribution

Four scientific publications have been submitted in connection with the dissertation. Some are directly related to infectious aetiology and *T. vaginalis* in infertile men, including a publication in *Folia Medica* in 2026, while others address related aspects of male infertility and oxidative stress.

The doctoral candidate is first author of some of the principal publications directly related to the dissertation topic. Participation in scientific forums and in a research project funded by the Medical University of Plovdiv has also been documented. The publication activity and scientific work provide sufficient grounds to conclude that Blagovest Petrov MD has made a substantial personal contribution to the collection, analysis, and interpretation of the material and possesses the skills required for independent scientific research.

7. Dissertation abstract

The dissertation abstract accurately reflects the structure of the work and contains the most important results and conclusions obtained.

CONCLUSION

The dissertation by Blagovest Peshkov Petrov MD entitled “Clinical and Epidemiological Studies of Trichomoniasis in Infertile Men” constitutes a completed scientific study with a clearly defined clinical and applied orientation.

The work addresses a current issue in urology, andrology, and reproductive medicine, is based on substantial original clinical material, and contains original data on the prevalence, clinical and epidemiological characteristics, and potential impact of *T. vaginalis* and other genital infections on male reproductive health.

Despite the limitations inherent to the observational and retrospective design, the methods used are appropriate to the stated objectives, the results have been analysed using suitable statistical methods, and the limitations have been critically discussed. I particularly appreciate the clinical and applied orientation of the work and the proposed diagnostic algorithm.

The dissertation demonstrates that Blagovest Peshkov Petrov MD possesses the necessary theoretical knowledge, clinical training, and skills to plan, conduct, and analyse independent scientific research.

On the basis of the submitted dissertation, the results obtained, the stated scientific and applied contributions, and the candidate’s publication activity, I give a positive assessment and propose that the esteemed Scientific Jury award the educational and scientific degree “DOCTOR” (PhD) to Blagovest Peshkov Petrov MD in the Doctoral Programme in Urology, Professional Field 7.1. Medicine.

Date: 21.09.2026

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