



EVALUATION REPORT

Referee:

Prof. Stefan Angelov Denev, Ph.D.

Doctor of Sciences,

Scientific specialty: *Microbiology;*

Professional field **4.3. Biological sciences;** Higher education area **4.0. Natural sciences,**
Faculty of Agriculture (FA), Trakia University (TrU), Stara Zagora, Bulgaria

Regarding:

Competition for conferring the academic rank: **Associate Professor**

Scientific specialty: *Microbiology;*

Professional field **4.3. Biological sciences;** Higher education area **4.0. Natural sciences,**
FA, TrU, Stara Zagora, Bulgaria

Candidate:

Chief Assistant Prof. Toncho Gospodinov Dinev, Ph.D.

1. Information about the competition

The competition was announced for the needs of the Department of Biochemistry, Microbiology and Physics at the FA, TrU, promulgated in State Gazette № 61/ 10.07.2020.

I participate in the composition of the scientific jury of the competition, according to Order № 2466/01.10.2020 of the Rector of TrU, Stara Zagora.

2. Information about the candidate in the competition

The only candidate in the announced competition for the academic position of Associate Professor is **Chief Assistant Prof. Toncho Gospodinov Dinev, Ph.D.** from the Section of Microbiology at the same department. He was born on July 23rd, 1977 in the town of St. Zagora. He graduated in Veterinary Medicine as **MSc.** in the Faculty of Veterinary Medicine, TrU (**2002**), with an average grade of excellence - **Excellent 5.64**. Later, after winning a competition, he was appointed **Full-time Ph.D. student (2004-2007)** at the same faculty. After successfully defending a dissertation on "*Comparative studies on antimicrobial activity and pharmacokinetics of aminoglycosides and aminocyclitols in goats*

and microorganisms isolated from goats" the Specialized Scientific Council on Veterinary Medicine in the Higher Attestation Commission of the Council of Ministers, awarded him the scientific degree **Doctor of Philosophy - Ph.D. (2007)**.

- ***Academic positions held, scientific degree, scientific organization***

Through competitions, he was successively selected and appointed to the academic positions: **Assistant (2009)** in the Department of Pharmacology, Faculty of Veterinary Medicine, TrU; **Senior Assistant (2014)** and **Chief Assistant Professor (2016)**, scientific specialty *Microbiology* in the Department of Biochemistry, Microbiology and Physics at the FA, TrU, St. Zagora, where he still works.

- ***Language and computer training***

The candidate has very good language training - he speaks written and spoken English and Russian. He has an enviable computer literacy, which he skilfully uses in his teaching and research activities.

- ***Membership in scientific organizations***

He is a member of the Bulgarian Microbiological Society and the Union of Scientists in Bulgaria.

Considering his long-term research and teaching activity at TrU, as well as his establishment as a young scientist in this field, I believe that his participation in the competition for the academic position of *Associate Professor* is deserved and justified.

1. Evaluation of teaching activity

Dr. T. Dinev has an active teaching activity. He is a leading author and/or co-author in the development and updating of several curriculums in Microbiology, included in the curriculums of the specialties: *Ecology & Environmental Protection, Fish pharming & Aquaculture, Agronomy and Animal Husbandry*. By decision of the Faculty Board of FA he was elected a lecturer in the disciplines "*Microbiology and microbiological methods of purification*", "*Biological control of water purification*", "*Microbiology of meat and meat products*". Actively participates in conducting semester and other additional exams in the taught disciplines. Every year he performs his study schedule, determined by the department.

I know Dr. T. Dinev from the first day of his appointment. My personal impressions are that he is a precise and disciplined teacher who is extremely responsible for the education and training of microbiology students in FA. His teaching activity is based on constantly updated and modern multimedia presentations. Combined with his very good pedagogical, methodological and scientific-practical training, his lectures and exercises are attended with great interest by students. They contribute to raising the quality of the learning process, to increase the motivation of students, their theoretical and practical training.

He is a co-author of the **Guidebook of Microbiology** for students of the above specialties of AF, which is of particular interest to students from other specialties, as well as practitioners.

Dr. T. Dinev has very good academic competence in the scientific specialty Microbiology. He is a responsive, loyal and ethical colleague. He enjoys the respect of his students and colleagues. He has good communication skills and can work in a team. Performs the tasks assigned to him responsibly.

He works actively in laboratory and scientific work, often with students and graduates who are included in the teams of scientific projects developed by him. On this basis, under his leadership, they successfully prepare diploma theses for the acquisition of Bachelor's and Master's degrees. **There are 9 successfully defended graduates.**

2. General characteristics of scientific papers/publications

A list of a total of **34 scientific** papers is presented, of which a Dissertation (**1**), Abstract of the dissertation (**1**) and publications on the dissertation (**3**). In principle, the latter are not subject to review in this competition, as they have acquired Ph.D. degree.

The remaining **19 fully published scientific works**, for which he applied for the academic position *Associate Professor*. They are in English in authoritative references, and indexed in SCOPUS and/or in WEB OF SCIENCE scientific editions, with impact factor (**IF**) (№ 6-11; 17 and 22) and impact rank (**SJR**) (№ 12-16; 18-21). They also have quartiles from **Q₁** to **Q₄** (according to the national minimum requirements for professional field: 4.3. *Biological sciences*). Apart from them, the candidate has submitted a scientific **Monograph** (№. 23) and a **Guidebook of Microbiology** (№ 24).

It is good to note that most of the candidate's scientific output has been published in indexed foreign scientific journals with impact factor (**IF**) and impact rank (**SJR**): *Journal of Veterinary Pharmacology and Therapeutics*; *The Veterinary Journal*; *Journal of Avian Medicine and Surgery*; *British Poultry Science*; *Fresenius Environmental Bulletin* and *Romanian Biotechnological Letters*, which deserves high praise. The situation is similar with the other part of his scientific production, which is published in authoritative scientific indexed publications that have an impact rank (**SJR**).

Apart from the above-mentioned fully published papers, the candidate has presented more **10 scientific papers**, which have been reported at international scientific forums at home and abroad and have been published as plenary reports in the form of posters and/or abstracts. Three of them are in authoritative foreign indexed scientific journals: *European Journal of Drug Metabolism & Pharmacokinetics* (№ 25) and *Journal of Veterinary Pharmacology & Therapeutics* (№ 26 and 27), which also have **IF** and **SJR**.

The presented scientific Monograph (№ 23) entitled “*Antimicrobial potential of probiotic lactic acid bacteria*” fully meets all the requirements of the *Law on the Development of the Academic Staff in the Republic of Bulgaria*. It has a volume of 157 pages; There are reviewers - two professors; It has ISBN 978-619-7546-15-6, as well as a comprehensive contemporary bibliography with 326 literature sources. In addition, it is up-to-date, competently written and corresponds to the scientific specialty of the competition.

3. Fulfilment of the requirements for holding the academic position *Assoc. Professor*

3.1. Fulfilment of the requirements under Annex 8.1.

The documents on the competition show that:

- ▶ **The candidate has participated in the development and implementation of a total of 8**

research projects in the field of microbiology, of which **1 - international**. Of these: in 7 he is a member of the scientific teams, and in 1 - a leader. Most of his research is funded on their basis;

▶ **Eight of the published scientific papers** (№ 6-11; 17 and 22) are in authoritative indexed scientific journals, **with impact factor (IF=9.55)**;

▶ **Eight of the scientific papers** (№ 12, 13, 15, 16, 18-21) are in authoritative indexed scientific journals, **with impact rank (SJR)**;

▶ The candidate is also the author of a modern **Monograph** on the scientific specialty of the competition (№ 23), which meets all the requirements of the *Law on the Development of the Academic Staff in the Republic of Bulgaria*. **It successfully completed indicator B**, which includes **100 points**;

▶ **Indicator D**, which includes **200 points**, based on the values of the quartiles (**Q₁ - Q₄**) of the indexed editions with **IF** and **SJR**, in which the candidate's works have been published, **has also been fulfilled**;

▶ **A Guide of Microbiology** (№ 24) is also presented, which, together with the points under the other fulfilled criteria under **indicator E**, **also leads to its over fulfilment**;

▶ **Citation of scientific papers** - A reference is presented, which includes a list of a **total of 68 citations of scientific papers, in indexed scientific journals with IF and SJR**, each of which is given the relevant Internet link for quick reference. Apart from that, the original of the publications with citations are presented. My review in the profile of the candidate in **SCOPUS** and **WEB of SCIENCE** confirmed the objectivity of the presented report, and this one in **Google Scholar** showed that T. Dinev has many other citations in various scientific journals, not included in the report, which cannot be underestimated with dignity. **The requirements of Annex 8.1. - Indicator D - citation of scientific papers in the world-famous databases SCOPUS and WEB of SCIENCE, which is an objective criterion for their relevance and significance, only on the basis of the 68 citations presented in the list has been exceeded more than 2 times.**

▶ **The citation index of the candidate** for Associate Professor (**h-index according to SCOPUS**) is **6.00**, which is another objective and globally recognized criterion for evaluating scientists, based on the quality and citation of their scientific publications.

The analysis of the presented documentation and of the scientific production of the candidate convincingly showed that **Dr. T. Dinev overfulfills the national minimum requirements in the professional field 4.3. Biological Sciences, regulated in the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its application, as well as the criteria for the academic position Associate Professor of the same professional field, set out in Annex 8.1. from Regulations for the development of the academic staff in TrU**. I accept the reference submitted by the candidate for fulfilment of the above requirements, defined in the same regulations, which also shows the fulfilment and over fulfilment of the indicators from groups A, B, G, D and E.

3. Evaluation of scientific and applied scientific contributions

There are a number of scientific-fundamental and scientific-applied contributions in the scientific works of the candidate:

Area 1: Study of the pharmacokinetics and side effects of some up to date antimicrobials in the body of different species of birds.

In-depth studies have been performed on the pharmacokinetics and side effects of a number of up to date antibacterial agents and antibiotics such as: pefloxacin, norfloxacin, sulfanilamides, fluoroquinoloxins, penicillins, aminoglycosides, aminocyclitols, amoxicillin, kanamycin, gentamycin, apramycin, tobramycin, enrofloxacin, marbofloxacin, danofloxacin, spectinomycin and etc., which are the first of their kind in our country. Their behavior in the body of different species of birds during oral, intravenous and/or intramuscular administration has been established; their pharmacokinetic characteristics, incl. bioavailability, absorption, retention and rate of elimination - *original and innovative contributions of important scientific-theoretical and scientific-applied significance, which have been published in authoritative indexed scientific journals and have been repeatedly cited in the international databases SCOPUS WEB of SCIENCE;*

Area 2: Antimicrobial activity of probiotic bacteria, plant species, plant extracts, foods and environmental factors

The scientific information published in the last 10 years on the antimicrobial activity of *Lactobacillus plantarum* against a number of Gram-positive and Gram-negative bacteria - *Escherichia coli* (including *E. coli* O157: H7), *Pseudomonas aeruginosa*, *Helicobacter pylori*, *Yersinia enterocolitica*, *Campylobacter jejuni*, *Listeria monocytogenes*, *Staphylococcus aureus*, *Klebsiella*, *Salmonella*, *Shigella*, *Bacillus*, *Clostridium*, *Enterococcus*, *Lactobacillus* spp. etc., as well as against widespread molds and yeasts - *Aspergillus*, *Fusarium*, *Mucor*, *Candida* spp. and etc., has been summarized and analyzed - *contribution of important scientific-fundamental significance for medicine, the food industry, the production of functional foods, nutrition and dietetics;*

An overview of the scientific information published in the last 10-15 years has been made on the antimicrobial activity of *Lactobacillus acidophilus*, which is one of the main representatives of the resident microbiome in the intestinal ecosystem of humans and animals, has been summarized and analysed. The antimicrobial metabolites of the species and its antagonistic activity against a number of pathogens were analysed: *Escherichia coli* (incl. *E. coli* O157: H7), *Klebsiella*, *Salmonella*, *Shigella*, *Bacillus* and *Clostridium* spp., *Staphylococcus aureus*, *Listeria*, *Vibrio parahaemolyticus*, *Vibrio cholera* and etc., which are extremely important for the food safety. Based on the summarized literature information on the antimicrobial activity of *Lactobacillus acidophilus*, the prospects and its application as a biocontrol probiotic agent for maintaining normal microbial balance in the gastrointestinal ecosystem of humans and animals, for prevention and treatment of dysbacteriosis, for control of enteropathogens and for prevention of gastrointestinal diseases - *contribution of scientific-fundamental significance;*

For the first time the inhibitory activity of the seaweed *Ulva rigida*, *Cladophora vagabunda* and *Ceramium rubrum*, distributed in the Black Sea, against 10 species of microorganisms - *Staphylococcus aureus* ATCC 25923, *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 8585, *Aspergillus ochraceus* 2002 IM-BAS, *Fusarium moniliforme* 394 FN-9, *Fusarium graminearum* 2294 IMI 155426, *Penicillium verrucosum* subsp. *verrucosum* 2003 NRRL F – 143, as well as clinical isolates of *Bacillus*

cereus, *Salmonella typhimurium* and *Candida albicans*. The prospects for their application as biological means for improving food safety, for preventing the development of certain types of toxigenic moulds and the dangers of mycotoxin formation in them are outlined – *original contribution of an innovative nature*.

The fungicidal activity of flowers, leaves and stems of *Amaranthus* spp. (*A. deflexus*, *A. retroflexus* and *A. hybridus*) against 5 species of mycotoxigenic fungi - *Aspergillus ochraceus* 2002 IM-BAS, *Aspergillus niger*, *Fusarium graminearum* 2294 IMI 155426, *Penicillium verrucosum* subsp. *verrucosum* 2003 NRRL F-143 and *Penicillium expansum*. It was found that the alcoholic extracts of *Amaranthus* spp. can be used to combat fungal infections caused by mycotoxigenic fungi, which are a serious problem for the food and feed industries - *original contribution of an innovative nature*;

The influence of the water lentil *Lemna minuta*, as the only plant in the aquaponics recirculation system, on the microbial count of the water microflora was studied. It was found that this plant has a strong antimicrobial activity and the ability to reduce the number of unwanted microorganisms. It has been proven that *Lemna minuta* can be used in aquaculture as a biological agent for microbial water purification in aquaponics recirculation systems, and cultivated plant biomass as feed material in agriculture - *innovative contribution of scientific and applied importance*;

The influence of vermicomposting with red California worm (*Lumbricus rubellus*) and its effectiveness on the microflora of sewage sludge from a municipal treatment plant and poultry processing plant, has been investigated - *contribution of scientific and practical importance*;

4. Critical remarks and recommendations

- In some of the publications of an overview nature, the candidate has not reflected the state of the considered problems in our country. Mainly scientific publications and achievements of foreign scientists are cited;

- In the report submitted by the applicant, the total number of points, based on the value of the quartiles (**Q**) of the indexed editions with **IF** and **SJR**, in which his works were published is **237.00**, with a requirement under indicator **D** (Annex 8.1.) - **200.00** points. During my inspection on the official website of the *Scimago Journal & Country Rank (SJR)* it was found that scientific works with numbers: 7, 10, 13, 14 and 15, having a quartile **Q₃** - carry 15, not 10 points, as is written and calculated in the applicant's report. Thus, the actual total number of points on indicator D, instead of **237.00**, becomes **262.00**.

I recommend to the candidate for the academic position *Associate Professor*:

- To deepen his future training and increase his professional qualification in the field of molecular genetic methods in microbiology;
- To continue its publishing activity in authoritative scientific publications with IF and SJR, indexed in the world databases SCOPUS and WEB OF SCIENCE.

5. Conclusion

From the above, it is evident, that **Chief Assistant Prof. Toncho Gospodinov Dinev, Ph.D.** has a serious scientific production. It is published in indexed scientific journals, included in the world databases - SCOPUS and WEB of SCIENCE, and is well cited. He has developed in his professional career as a good teacher and researcher. With it's scientific production and scientific contributions, with it's objective scientometric indicators and teaching experience, it fully satisfies the requirements of the *Law on the Development of the Academic Staff in the Republic of Bulgaria* and the *Regulations for its application*, including the minimum national requirements and all other indicators, according to the criteria for the academic position *Associate Professor* in the Scientific specialty *Microbiology*; Professional field 4.3. *Biological Sciences*; Area of Higher Education 4.0. *Natural sciences*, laid down in Annex 8.1. from the *Regulations for the development of the academic staff* in TrU, Stara Zagora.

In connection with the above, I strongly recommend to the esteemed scientific jury and the Faculty Board at FA to award Chief Assistant Prof. Toncho Gospodinov Dinev, Ph.D. academic position Associate Professor, in the scientific specialty Microbiology; Professional field 4.3. Biological Sciences; Area of Higher education 4.0. Natural sciences.

Date: Oct. 30th, 2020 г.

Signature:

Prof. Stefan Denev, D.Sc., Ph.D.