

**Attention of the members of the scientific jury,
determined by Order No. РД-38-609/14.11.2023
issued by the Rector of SU "St. Kliment Ohridski"
Sofia**

R E V I E W

**written by Prof. Dr. Zlatko Nikolov Kalvachev D.M.S., medical
doctor-virologist, head of virology lab in MHAT "Nadezhda", Sofia**

**in connection with the procedure for occupying the academic
position of "ASSOCIATE PROFESSOR" in direction 4.3 Biological
sciences (Virology - molecular virology), announced in State
Gazette (SG) No. 86/ 13.10.2023**

DEAR MR/Ms CHAIRMAN OF THE SCIENTIFIC JURY,

DEAR RESPECTED MEMBERS OF THE SCIENTIFIC JURY,

To participate in the competition for the academic position of "ASSOCIATE PROFESSOR", the candidate **Chief Assistant Dr. Anton Vesselinov Hinkov** presents the documents necessary for disclosure and conducting the procedure, in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the rules for its application and the recommendations of SU "St. Kliment Ohridski" for the terms and conditions for occupying the academic position of "ASSOCIATE

PROFESSOR ". I have no objection regarding the documentary part, which by its structure and content meets the above requirements.

Chief Assistant Dr. Anton Vesselinov Hinkov applies a autobiography in which he describes his career step by step: graduated from SU "St. Kliment Ohridski", Faculty of Biology, with Bachelor's Degree of "Molecular Biology" in 2004 and Master's Degree of "Virology". In 2012 he defended his doctoral thesis on the topic: "RESEARCH OF NEWLY SYNTHESIZED STYRYLQUINOLINES FOR ANTI-HIV-1 ACTIVITY IN CELL CULTURE ". Since 2012, he has been an assistant; since 2014 - chief assistant in the Laboratory of "Virusology" in the Faculty of Biology, SU "St. Kliment Ohridski", Sofia.

Evaluation of scientific and publication activity:

To participate in the competition for the academic position of "ASSOCIATE PROFESSOR" **chief assistant dr. Anton Vesselinov Hinkov** presented his dissertation work, a total of 32 scientific articles, of which he participated in the competition with 17 (evaluated according to the quartile system with 206 points), 101 citations, participation in 13 scientific projects, scientific supervision of 9 graduates to obtain a master's degree and 4 to obtain a "bachelor's" degree. Hinkov presents 21 participations in international fora and 8 – in national scientific fora, all closely related to the scientific specialty. All scientific publications and presentations are reflecting the results obtained from research related to the scientific subject of the current competition. The presented research results published and/or presented at national and international scientific fora have been conducted accurately with modern virological and molecular virological methods and techniques. They are interdisciplinary in nature and forward-looking in terms of their innovativeness. The personal involvement of the candidate is there, although it could be even more definite.

Most of the articles were printed in foreign scientific journals with IF, among them:

Front. Plant Sci. 13:866777. **IF2021=6.627**

Biotechnol. Biotechnol. Eq.,29(Suppl. 1): 39-S43. **IF2015=0.379**

Compt.rend. Acad. bulg. Sci., 68 (12):1519-1526. **IF2015=0.233**

Compt.rend.Acad.bulg.Sci.,72,11,pp.1475-1483. **IF2018=0.251**

Journal of Herbal Medicine (2020), **IF2020=1.554**, SJR2020=0.483;

Nucleosides, Nucleotides & Nucleic Acids, 39:7, 979-990.

IF2020=1.381

Journal of applied microbiology 128(2), 458-472. **IF2020=3.066**

Bul Chem Commun 53, Special Issue-A, 66–72. **IF2021=1.554**

Fresenius environmental bulletin, 31(9), 9831-9838. **IF2021=0.61**

Microbiol. Res. 2023, 14, 333–342.**IF2022=1.5**

Biotechnol & Biotechnological Eq, 37, 1, 2221752, **IF2022=1,762**

Industrial Crops and Products. 2015, 63, p. 58-64 **IF2015=3.449**,

Phytochem. Rev., 13 (2): 525-538. **IF2014=2.894**

Medicinal Chemistry Research, 2012; 21, 4053-4059. **IF2012=1.612**,

J. Med. Chem. 2012, 55, p. 3900–3910; **IF2012=5.614**,
SJR2012=2.343

The scientific interests of the candidate Anton Hinkov are mainly concentrated in the field of experimental virology - research of natural products for antiviral activity (selective and/or combined), incl. newly synthesized compounds.

His main scientific and theoretical contributions are related to the elucidation of the antiviral activity and mechanisms of action of various natural products. The thematic grouping of his contributions leads to three categories:

(A) Original and significant are the results on the research of the Hemolymph from *Rapana venosa*, *Helix lucorum* and *Eriphia verrucosa*, as well as mucus from *Helix aspersa* replication against replication of acyclovir-susceptible strains F и BA of HSV type 1 and 2. Different fractions from the hemolymph of *R. venosa* and *E. verrucosa* showed high antiviral activity (over 99% inactivation of extracellular virion infectivity), suggesting practical application.

The effect of cell-free supernatants of ten newly isolated strains of lactic acid bacteria from traditional fermented foods was also investigated. [11]. The antiherpetic activity of secondary metabolites isolated from Lactic Acid Bacteria isolated from fermented products /14/ has been investigated and proven, some of which are promising for future studies due to their high selective index. The probiotic strains *Lactobacillus delbrueckii* subsp. *Bulgaricus* KZM 2-11-3 and *Lactiplantibacillus plantarum* KC 5-12 were found to have strong activity against human herpes virus type 2 with a selectivity index above 45, which is a good premise for further research. It is worth noting that the interest in these studies is very high, which is confirmed by the fact that 6 articles were cited 62 times by foreign and Bulgarian authors.

The evaluation of the methanolic extract of *Haberlea Rhodopensis* leaves and the demonstration of high activity against Herpes simplex type 1 and 2 expands our knowledge regarding the Orpheus flower, which is a naturally protected species. In addition to the scientific significance of the results of these studies (the mechanism and impact of the studied activities), they also have a serious practical application in the treatment of herpes infection.

(B) A significant part of A. Hinkov's work is related to the study of the antiviral effect of new synthetic compounds. The results obtained in collaboration with an Italian team that demonstrate the activity of four newly synthesized dihydroxyethylene isosteres of the dipeptides Phe-Pro and Pro-Pro against HIV-1 aspartate protease at low cytotoxicity. Besides the scientific significance of these results, the development of a rapid screening method for the evaluation of protease inhibitors of HIV-1 is of particular practical importance here.

A significant result of A. Hinkov's work with a team from Southwestern University in Blagoevgrad is the synthesis of three glycine-containing esters and the evaluation of their anti-HIV-1 III B-activity. I recommend the candidate to continue the work towards blocking the activity of other viruses with similar synthetic substances, despite some results obtained with human herpes viruses.

(C) We must admire the innovative approach of A. Hinkov in studying the impact of previously unexplored physical factors on the replication and extracellular virions of HSV-1. I am referring to the original study on the virucidal effect of a plasma-treated virus suspension treated with gas-discharge plasma.

Besides the significant research activity, Chief Assistant A. Hinkov is also charged with significant educational and teaching activities. He gives lectures on Microbiology with Virology within the Master's degree programs of Pharmacy students, and leads practical exercises on "Molecular Virology", "Virusology" and "Microbiology with Virology". He is scientific supervision of 9 graduates to obtain a master's degree and 4 to obtain a "bachelor's" degree.

The submitted documents, as well as my personal impressions of the candidate, prove his successful professional development with significant contributions in the scientific, teaching and expert fields. It is worth the consistent upward development of professional skills and

knowledge, as well as the desire to pass them on to younger colleagues. Chief assistant A. Hinkov is an established university teacher and researcher with lasting interests in virology.

CONCLUSION:

The high qualitative and quantitative assessment of the scientometric and teaching indicators required by the Law of the Development of the Academic Staff and the regulations of the the terms and conditions for acquiring scientific degrees and Holding academic positions in Bulgaria, as well as in the Recommendations of SU"St. Kliment Ohridski", **allows me to confidently support Chief assistant A. Hinkov, for occupying the academic position of "ASSOCIATE PROFESSOR"** in the field of higher education in a professional direction 4.3 Biological sciences (Virology - molecular virology), announced in State Gazette (SG) No. 86/ 13.10.2023.

09.02.2024 y.

Sofia

Prof. Dr. Zlatko Kalvachev D.M.S.