Вх. № 489-НО-05/14.05.2024

# STATEMENT

## Assoc. Prof. Dr. Ina Yosifova Aneva,

Associate Professor at the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Scientific Secretary of the division "Biodiversity, Bioresources, and Ecology" BULGARIAN ACADEMY OF SCIENCES, Appointed member of the scientific jury by Order N 35/11.04.2024 of the Director of IBER - BAS, Regarding the doctoral dissertation for the award of the educational and scientific degree "Doctor" in the scientific specialty 01.06.03. Botany, On the topic: **"Biotechnological approach to the cultivation of** *Tanacetum cinerariifolium* **(Trevir.) Sch.Bip. (Asteraceae)"** Doctoral candidate: **Vladimir Metodiev Ilinkin,** Scientific supervisor: Prof. Dr. Marina Stanilova Scientific consultant: Prof. Dr. Strahil Berkov

The dissertation fully complies with the Scientific Research and Academic Staff Regulation (SRASR) and the regulations for acquiring scientific degrees and holding academic positions at IBER - BAS. The development of methods for the effective and sustainable cultivation of *Tanacetum cinerariifolium* is a crucial step towards innovations in agriculture, ensuring the biological production of natural insecticides. The topic is both current and of high scientific value and has significant practical importance.

### **Brief Biographical Data of the Doctoral Candidate**

Land. Arch. Vladimir Ilinkin is an expert in agritechnologies, soil science, and biotechnologies. Currently, he holds the position of Chief Expert at the Institute of Soil Science, Agritechnologies, and Plant Protection "Nikola Puskarov", SSC, where he focuses on the analysis of micro and macro elements in plant and soil samples. He graduated with a master's degree in landscape architecture from the University of Forestry, Sofia, where he later taught, training students in the disciplines of forest soil science and landscape architecture. Land. Arch. Ilinkin has taught both undergraduate and graduate courses, and his teachings include theoretical and practical exercises, especially in the area of soil analysis and fertilization.

Over the years of his academic and professional career, Land. Arch. Ilinkin has held various positions, including a technical associate at the National Science Fund – Ministry of Education and Science of Bulgaria. He has also gained significant experience as a technical associate at the construction company ASMATEH Ltd and a consultant at ASPIDA 1 Ltd.

Vladimir Ilinkin has led the central university laboratory on ecology and environmental protection at the University of Forestry, where he coordinated various research activities. His leadership and participation in significant projects, including the project for obtaining and phytochemical assessment of in vitro clones of pyrethrum, demonstrate his commitment to scientific research and contribute to the development of sustainable solutions for the agricultural sector.

#### **General Characteristics of the Dissertation**

The dissertation includes the following 4 publications with summaries and conclusions:

- Ilinkin V. 2019. Germination of Tanacetum cinerariifolium seeds on different soil types. Ecological Engineering and Environment Protection, 2: 67-74.
- Ilinkin V., Yankova-Tsvetkova E., Stanilova M. 2020. Germination and viability of seeds of Tanacetum cinerariifolium (Asteraceae), Comptes rendus de l'Academie bulgare des Sciences, 73(7): 965-970.
- Ilinkin V., Traykova B., Stanilova M. 2022. In vitro clonal propagation of Tanacetum cinerariifolium and establishment of an ex situ collection of selected clones. BioRisk 20: 97–114.
- Ilinkin V., Nikolova M., Stanilova M., Berkov S. 2023. Pyrethrins profiles and contents in seedlings, in vitro cultures, and acclimatized plants of Tanacetum cinerariifolium clones (Asteraceae), Comptes rendus de l'Academie bulgare des Sciences, 76 (7).

The presented documents meet the regulatory requirements, with three of the publications being published in journals with IF and SJR (Q2: 2; Q3: 1).

The objective is clearly formulated, and the set six tasks provide a solid basis for structuring the work and achieving the results.

A total of 197 literary sources are cited, evidencing the doctoral candidate's thorough preparation and in-depth engagement with the subject matter. The literature review presents a comprehensive overview of previous studies. A broad array of methods has been employed, significantly enhancing the doctoral candidate's qualifications and expanding the possibilities for conducting versatile research. The investigation into the viability and germination of Tanacetum cinerariifolium seeds includes various methods for detailed analysis of these indicators. The seeds used in the experiments are sourced from an ex situ collection in village Bogdan and include freshly collected mature seeds and those stored for various periods. They have been soaked in water, then cultivated in vivo on filter paper and in vitro on MS medium enriched with sucrose and agar. Viability was checked with a tetrazolium test. Soil characteristics such as density, porosity, composition, and acidity were also studied using established ISO methods. Statistical analyses were performed using programs such as SPSS, Numbers, and Excel. Additionally, in vitro propagation and acclimatization of plants were conducted through a series of culturing and sub-culturing procedures on various nutrient media, followed by adaptation under controlled conditions and analyses of the phytochemical composition of the plants.

#### **Conclusion:**

The presented doctoral dissertation constitutes a comprehensive completed study that leaves behind significant scientific and practical contributions. The dissertation fully meets all the requirements of the SRASR and its applicable regulations. All this gives me a solid basis to vote positively and recommend to the Scientific Jury to support the award of the educational and scientific degree "Doctor" to Vladimir Metodiev Ilinkin in the professional field 4.3. Biological Sciences, scientific specialty "Botany" (code 01.06.03).

Sofia, 13.05.2024

Assoc. Prof. Ina Yosifova Aneva