Лесотехнически университет
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OPINION

on dissertation for obtaining the educational and scientific degree "Doctor" in: field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.1. „Plant growing", scientific specialty "Viticulture"

Author of dissertation: Narjes Jamal Aldin, part-time PhD student at the Department of Agronomy, University of Forestry – Sofia

Dissertation Topic: POTENTIAL OF NANO-FERTILIZATION ON ENHANCING THE PRODUCTIVITY OF TRADITIONAL LEBANESE TABLE GRAPE VARIETY TFIEFIHI

Reviewer: Assoc. Prof. Simeon Dimitrov Krumov, PhD, Institute of Agriculture – Kyustendil, Agricultural Academy, Bulgaria; Field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.1. „Plant growing", scientific specialty "Plant breeding and seed production by cultivated plants", appointed as a member of the scientific jury by Order № ZPS-153/17.04.2026 of the Rector of the University of Forestry.

1. Relevance of the problem.

The topic of the dissertation is relevant and of clear scientific and practical significance. In modern agriculture, characterized by the need for sustainable resource management and reduced environmental impact, the search for efficient and environmentally friendly technologies is of paramount importance.

The application of nanotechnologies in crop production represents an innovative direction with potential to enhance nutrient use efficiency and optimize plant physiological processes. In this context, the study of nano-fertilization effects in grapevine is timely and promising.

An additional scientific value is the selection of the traditional grape variety Tfiefihi, combining modern technological approaches with the preservation and improvement of valuable genetic resources.

2. Degree of knowledge of the state of the problem and creative interpretation of the literature review.

The literature review demonstrates a good understanding of the current state of research. Key scientific publications related to grapevine nutrition and nanotechnology applications in agriculture are considered.

The doctoral candidate shows the ability to analyze and synthesize scientific information.

3. Aim, objectives, hypotheses and research methods. Relevance of the chosen research methodology to the stated aim and objectives of the dissertation.

The main objective of the dissertation is clearly defined and focused on evaluating the effect of different forms and concentrations of nano-fertilizers on growth, productivity and quality of the Tfiefihi grape variety.

The tasks are logically linked to the objective and ensure its achievement.

The experimental work was conducted under field conditions with a clearly defined control variant and treatments with different nano-fertilizer concentrations. The applied methods are appropriate and in line with established scientific practices in viticulture.

The statistical approaches used (analysis of variance, LSD test, regression analysis) ensure the reliability of the results and their correct interpretation.

4. Visualization and presentation of the results.

The dissertation is structured in accordance with formal requirements and includes all necessary sections. The volume is appropriate (123 pages), and the experimental data are well illustrated by 34 tables 16 figures and 14 appendices.

The tables present data on the main studied parameters, including phenological observations, vegetative growth, nutritional status, yield components, and quality characteristics. Statistical analyses are included, contributing to the objectivity of the comparisons. The figures complement the analysis by illustrating the effects of different nano-fertilization treatments and allowing easier comparison between treatments and years.

5. Discussion of results and literature used.

The results are analyzed and interpreted in a logical and consistent manner. In many cases, statistically significant differences between control and treated variants are demonstrated, confirming the effectiveness of the applied approaches.

The discussion is conducted in the context of existing scientific research, highlighting similarities and differences with findings from other authors.

Special attention is given to the influence of nano-fertilization on key agrobiological parameters such as growth, yield, and quality characteristics, with conclusions consistent with the experimental data.

The literature used is relevant and includes key scientific sources in viticulture and nanotechnology applications in agriculture.

6. Contributions of the thesis.

A total of 7 contributions of scientific and applied nature are identified.

The most significant include:

- Establishing the effect of nano-fertilization on growth, productivity, and quality parameters of the Tfiefihi grape variety;
- Demonstrating the positive influence of specific nano-fertilizer concentrations on yield and its structural components;
- Providing experimental data that enrich existing knowledge on nanotechnology applications in viticulture;
- Outlining possibilities for practical application of nano-fertilization.

The contributions are scientifically substantiated and have both theoretical and practical value.

7. Assessment of the extent of the dissertator's personal involvement in the contributions.

The dissertation represents an independent research work. The doctoral candidate has a substantial contribution in conducting experiments, analyzing results, and formulating conclusions.

8. Critical comments and questions.

Despite the overall positive evaluation, the following remarks can be made:

The contributions lack sufficiently specific practical recommendations, particularly regarding optimal doses and application conditions;

The mechanisms of nano-fertilizer action on plant physiological processes are insufficiently discussed.

9. Published articles and citations.

The abstract reflects the structure and content of the dissertation and includes three scientific publications related to the topic, published in *Acta Horticulturae*, indexed in Scopus.

In all publications, Narjes Jamal Aldin is the leading author, meeting the minimum scientometric requirements for obtaining the PhD degree.

10. Assessment of the publications on the dissertation: number, nature of the publications in which they are printed. Reflections in science - use and citation by other authors.

In all three submitted publications, Narjes Jamal Aldin is the leading author. According to this indicator, she meets the minimum scientometric requirements for obtaining the educational and scientific degree "Doctor" (PhD).

CONCLUSION:

On the basis of the different research methods learned and applied by the PhD student, the correctly derived experiments, the made generalizations and conclusions, I consider that the presented dissertation meets the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulations of the University of Forestry for its application, which gives me the reason to evaluate it as **POSITIVE.**

I take the liberty of suggesting that the Honourable Scientific Jury also vote in the affirmative and award the Narjes Jamal Aldin the educational and scientific degree "Doctor" in field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.1. „Plant growing", scientific specialty "Viticulture"

Date: 11.05.2026
Sofia

PREPARED THE OPINION: Assoc. P.
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