

## OPINION

for the procedure for defence of PhD thesis  
for obtaining the educational and scientific degree “Doctor”  
on **topic** “Changes in the Quality and Economic Indicators in Wine Production  
when Using Enzyme Preparations”  
in Higher Education Field: 3. Social, Economic and Legal Sciences,  
Professional Area: 3.8. Economics,  
Doctoral Program “Economics and Management (industry)”

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### 1. General description of the procedure and the PhD candidate

This opinion has been prepared according to order No. RD-21-1116/25.05.2023 of the Rector of Plovdiv University Paisii Hilendarski, Prof. Dr. Rumen Mladenov, based on a decision (Protocol No. 178/19.05.2023) of the Faculty Council of the Faculty of Economics and Social (FESS) and a report by Prof. Dr. Stanimir Ivanov Kabaivanov, dean of the FESS, in accordance with Art. 4. of ZRASRB, Art. 2. (2), Art. 30. (3) of the Regulations for the Application of the RSARB and Art. 37. (1) of the Regulations for the Development of the Academic Staff of Plovdiv University Paisii Hilendarski (PRASPU). In the above-mentioned order, I have been appointed as a member of the scientific jury to ensure a procedure for the defence of a dissertation entitled “Changes in the Quality and Economic Indicators in Wine Production when Using Enzyme Preparations” for obtaining the educational and scientific degree “Doctor” in higher education field 3. Social, economic and legal sciences, professional area 3. 8. Economics, doctoral program “Economics and Management (industry)”. The scientific supervisor is Associate Professor Dr. Tania Pertova Yankova-Lilova.

Stefan Deyanov Georgiev graduated as a Master of Engineering in “Wine and Beer Technologies” at University of Food Technology. Subsequently, he obtained a master’s degree in “Financial Management” at Plovdiv University “Paisiy Hilendarski”. He is fluent in Russian and English.

### 2. Relevance of the topic and expediency of the set goals and objectives

The economic globalization creates significant pressure from emerging wine-producing countries to the local viticulture sector. To maintain their competitiveness in the European and global markets, wine producers must embrace product and production innovations. One such innovation is the use of enzymes, which not only improves grape aroma and preserves wine color but also accelerates must fermentation, increases production yields and delivers high-quality end products. Precise quantitative identification of enzyme application during the vinification process is crucial, as

it minimizes environmental impact, reduces resource expenses and simultaneously enhances winemaking efficiency. According to the information above, it can be concluded that the topic of the dissertation is significant and relevant.

The dissertation is focused on the study of the theoretical basis and practical application of enzyme preparations (EP) in winemaking during the process of transformation of grapes into wine. The doctoral research encompasses seven tasks.

### **3. Knowledge of the problem**

Stefan Georgiev has researched numerous literary sources relevant to the dissertation topic. He knows the key aspects of wine production technology design (production, engineering and development) as well as the characteristics of business processes in winemaking industry.

### **4. Research methodology**

In order to accomplish the objectives of the dissertation, the doctoral student employs the following scheme: 1) research and analysis of specialized literature related to the subject of investigation; 2) development of a conceptual model for researching the impact of EPs and the selected technology on the economic parameters of wine production enterprises; 3) presentation of experiments with different EPs and 4) comparative analysis of the obtained results.

The methodology applied by Stefan Georgiev is appropriate and effectively addresses the tasks and goals of the doctoral research.

### **5. Characteristics and evaluation of the PhD thesis and its contributions and significance**

The thesis comprises of a total of 292 pages. It is organized into an introduction, three chapters, a conclusion and a bibliography. The main body of the thesis is 131 pages long. Additionally, there are eight appendices, which include questionnaires, tables and charts visualizing experimental data, and they are 151 pages long. The list of references contains 113 titles, of which 78 are in Bulgarian and 34 are in English and 1 is in French.

In the first chapter, a study was made on the types of economic efficiency and investments, the technological aspects of wine production, the types of EPs and their purpose. A conceptual model for evaluating quality and economic indicators in winemaking is developed and an algorithm for its practical application is described in detail. In the second chapter, an experimental study of the use of industrial EPs in red grape vinification is presented. The third chapter analyzes and compares the activity of two wine enterprises working according to traditional (without enzymes) and innovative

(with enzymes) wine production technology based on the model presented in Chapter 1. In the Conclusion, the obtained results from Task 1 – Task 7 are summarized and systematized, indicating the main contributions of the dissertation work. Prospects for the future development of the dissertation topic are formulated.

The obtained results confirm the hypothesis of the dissertation. They are significant and represent a contribution to the development of technological innovations with substantial economic effect.

The main contributions of the PhD student are scientific, scientific-applied and applied. The scientific contributions of the dissertation research are as follows: a conceptual model is developed for the study of changes in the quality and economic indicators with the use of enzyme preparations in wine production. The main indicators determining the quality of red wines are identified, and a multi-criteria system is proposed for a unified quantitative assessment of quality in wine production. The scientific-applied contributions are as follows: a new system is created for evaluating the price of red wines according to their quality, and the effect of industrial enzyme preparations on the quality of red wines and on the economic indicators of production are studied. The applied contributions of the dissertation research are as follows: an analysis of the opinions of experts on the weights of the indicators determining the quality of red wines is conducted and an experiment on the effect of enzyme preparations on the quality of red wines, applying a uniform evaluation is carried out.

## **6. Evaluation of the scientific publications**

In this procedure, the doctoral student has presented 3 publications. Two of them are in English and one publication is in Bulgarian. Only one publication is co-authored with Stefan Georgiev as the first author. One of the publications is a journal article and the other two are published in conference proceedings. One of the publications is indexed in the international bibliometric database Web of Science.

## **7. Abstract**

The presented abstract meets the requirements of the law and relevant regulations, presenting the achieved research results and contributions.

## **8. Recommendations for future use of thesis contributions and results**

I would recommend that Stefan Georgiev continue the future research he declared.

## **CONCLUSION**

From the above it can be seen that Stefan Deyanov Georgiev is a highly qualified expert in the field of economics and management with accumulated experience and proven achievements in

this field. He has knowledge and skills for scientific research. This gives me reason to conclude that, in addition to meeting the minimum national requirements, the dissertation, the abstract and the presented scientific production satisfy the requirements of the ZRASRB, the Regulations for its implementation, as well as the Regulations of the PU Paisii Hilendarski and the specific requirements of the Faculty of Economics and Social Sciences at the PU for the development of the academic staff, required for candidates to obtain the educational and scientific degree “Doctor”.

Due to the above, I give my **positive assessment** of the conducted research, presented by the above-reviewed dissertation thesis, abstract, achieved results and contributions, and I invite highly respectable Scientific Jury to award the educational and scientific degree “Doctor” to Stefan Deyanov Georgiev in the higher education field 3. Social, economic and legal sciences, professional area 3.8. Economics, doctoral program “Economics and Management (industry)”.

15.06.2023 г.

**Opinion prepared by:** .....

Plovdiv

(Prof. Galina Ilieva)