

OPINION

on a dissertation work for obtaining the educational and scientific degree "doctor" in:
field of higher education 6. Agricultural sciences and veterinary medicine; professional
direction 6.1 Plant breeding, scientific specialty "Genetics"

Author of the dissertation: Todorka Angelova Srebcheva, full-time doctoral student at
the Department of "Plant Physiology, Biochemistry and Genetics" at the Agricultural
University, Plovdiv

Dissertation topic: Analysis of genes responsible for capsaicin synthesis in pepper
(genus *Capsicum*)

Prepared by: dr. Malgozhata Yan Moetska-Berova, professor, Agricultural University,
Plovdiv, area of higher education: 4. Natural sciences, mathematics and informatics;
professional field: 4.3 Biological sciences; scientific specialty: Physiology of plants,
appointed as a member of the scientific jury by order No. RD16/948/27.09.2022 by the
Rector of AU.

1. Relevance of the problem

Pepper (genus *Capsicum*) is one of the main vegetable crops cultivated in Bulgaria.
Its mass distribution is due to its excellent taste and nutritional qualities, both fresh and
processed.

Capsicum plants synthesize capsaicinoids (mainly capsaicin), which give a hot taste
to the fruits. These alkaloids are the valuable raw material for various pharmaceutical and
cosmetic products. Hot fruits are also increasingly preferred for consumption. Studying
the genes responsible for capsaicin production is useful for identifying pepper forms with
different contents or lack of this alkaloid.

Given the above, I believe that the study carried out is relevant and provides new and
useful information both in scientific and applied aspects.

2. Purpose, tasks, hypotheses and research methods

The purpose of the study stems from the thorough literature review presented at the
beginning of the thesis. It is to determine the allelic status of Bulgarian pepper forms
concerning loci that determine capsaicin alkaloid levels and to identify the presence of
known and/or new loci modifying capsaicin synthesis in them. Five main tasks are set,
which are logically formulated. The methodological approach is correct. Plants are
analyzed using various classical and modern research methods (morphological,
organoleptic, molecular-biological). They are interrelated, which undoubtedly ensures the
complex nature of the study.

3. Visualization and presentation of the obtained results

As a result of the study, rich experimental material is obtained and summarized in well-formed tables (11) and figures (47).

The level of statistical analysis is very good. Modern software products are used for this purpose.

4. Discussion of the results and references

The discussion of the results is thorough, and logical relationships are established between the indicators studied. It is supported by an analysis of current scientific information on the developed issue, including 266 literary sources (all in English). The formulated eight conclusions reflect the correctly presented results.

5. Contributions of the dissertation work

As a result of the conducted research, results are obtained, some of which represent important contributions both for science and for practice. The doctoral student formulated nine contributions, of which five are scientific and four have a scientific and applied nature. They demonstrate the importance of the obtained results, which can be used in future pepper breeding programs.

6. Critical notes and questions

The research is executed at a current level, and the presented thesis is precisely aesthetically designed. I have no critical remarks or recommendations about the doctoral thesis.

7. Published articles and citations

The Ph.D. student meets the scientometric criteria for obtaining the Ph.D. degree. Four articles have been published in connection with the dissertation in which she is the first author.

No citation information is provided.

The presented Abstract objectively reflects the structure and content of the thesis (main results, achievements, contributions). It is prepared in Bulgarian and English.

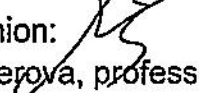
CONCLUSIONS:

Basis on the various research methods learned and applied by the Ph.D. student, the correctly performed experiments, and the conclusions made, I consider that the presented dissertation meets the requirements of the "The Law on the Development of the Academic Staff in the Republic of Bulgaria" and the "Agricultural University Regulations for its application", which gives me a reason to evaluate it **POSITIVE**.

I would recommend to the honorable Scientific Jury to also vote positively and award Todorka Angelova Srebcheva the educational and scientific degree "**doctor**" in the field

of higher education 6. Agricultural sciences and veterinary medicine; professional field
6.1 Plant breeding, scientific specialty "Genetics".

Date: 04.11.2022
Plovdiv

Prepared the opinion: 
dr. Malgozhata Berova, professor