OPINION

by

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regarding

the dissertation of **Blagovesta Dimitrova Todorova**,

on the topic:

ANTI-INFLAMMATORY EFFECT OF CROCUS SATIVUS EXTRACT AND ASTAXANTHIN IN A MOUSE MODEL OF COLLAGENASE-INDUCED OSTEOARTHRITIS

for the awarding of the educational and scientific degree **"Doctor"**,

Field of Higher Education 4.3. Biological Sciences, Doctoral Program "Immunology"

General information

Ms. Blagovesta Todorova holds a Master's degree from the Faculty of Biology at Sofia University "St. Kliment Ohridski," specializing in Molecular Biology, in the Master's program in Biochemistry with a focus on Molecular Immunology. She completed a two-year internship at the Department of Immunology at the "Stefan Angelov" Institute of Microbiology, Bulgarian Academy of Sciences.

In her doctoral training, she has earned 478 credits and successfully passed all required doctoral examinations. She has published two articles with impact factor on the topic, cited 13 times. The doctoral candidate has participated in nine scientific conferences and congresses. The minimum national academic requirements have been met.

Thesis

The dissertation submitted for my review follows a classical structure and begins with a concise and well-constructed introduction to the topic.

The literature review logically and sequentially explores the chosen problem, focusing on the immunological basis of age-related diseases—particularly osteoarthritis—animal models, and existing data on astaxanthin and *Crocus sativus*. The review is well-written, convincing, and demonstrates the depth of understanding the doctoral candidate has attained in the studied subject.

The aims and objectives are clearly, briefly, and purposefully formulated.

The "Materials and Methods" section precisely and sequentially describes the experimental design, the groups involved, and the approaches taken. The methods employed are modern, diverse, and complementary in terms of acquiring scientific data.

In my opinion, the "Results" chapter is the strongest part of the dissertation. The findings are described clearly and specifically, and are well illustrated with figures and tables. The presentation starts from the foundation (the characteristics of the experimental osteoarthritis) upon which the effects of the studied compounds are examined.

The "Discussion" section offers an analysis of the obtained results, interpreting their significance and comparing them with the findings of other research teams. Questions are posed in a logical and chronological manner, followed by answers that naturally lead to new questions.

I have only one general remark regarding the entire dissertation, and it concerns the consistency of language use. Some figures are presented in English, while in the "Materials and Methods" section the term "Б- lymphocytes" appears with the Bulgarian letter "Б."

In conclusion, the dissertation submitted for review clearly enriches our knowledge and understanding of the therapeutic potential of the studied natural products in osteoarthritis. The work is based on well-planned and properly executed experiments. The results are both interesting and well-analysed and discussed.

Based on the above, I recommend that the esteemed academic committee vote in favour of awarding the educational and scientific degree **"Doctor"** to Ms. Blagovesta Todorova—a recommendation I make with full confidence.

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Sofia

/Prof. Dobroslav Kyurkchiev, MD, DSc