

To Chief of Scientific Jury
Order No. ПД-38-264/11.06.2021
Rector of Sofia University "St.
Kliment Ohridski"

OPINION

By assoc. prof Rositsa Hristova,
National Centre of Radiobiology and Radiation Protection

I. CANDIDATE'S BIOGRAPHY AND CAREER PROFILE

Ch. Assistant Professor Dr. Margarita Kouzmanova graduated from high school in Targovishte and in 1981 graduated as a teacher of biology and chemistry at Faculty of Biology, Sofia University. Since 1987 he has been a specialist biologist, Department of Biophysics and Radiobiology, Faculty of Biology, Sofia University "St. Kl. Ohridski", after a competition he was a senior assistant in 1999 and since 2002 he has been a senior assistant at the same department. He defended his doctoral dissertation in 1997.

II. EVALUATION OF THE APPLICANT'S SCIENTIFIC WORKS AND SCIENTIFIC AND ACTIVITY

1. Contributions of the candidate's scientific production.

Ch. Assistant Professor Dr. Margarita Kouzmanova is the only candidate in the announced by Sofia University "St. Kliment Ohridski" competition for position of "associate professor" in professional field 4.3. Biological sciences (Biophysics). She participated in the competition with 19 scientific articles in peer-reviewed journals, of which 9 with impact factor, participated in the author's team of a book and 5 chapters of monographs. The scientific works of Chief Assistant Margarita Kouzmanova has over 350 citations.

The scientific works presented by Margarita Kouzmanova develop a definitely rich spectrum of area in biophysics, including the biological effects of magnetic and electromagnetic fields. Investigation of the biological action of the permanent magnetic field and high-frequency low-intensity electromagnetic fields are the main topics in the first six publications of the candidate. The effects of the magnetic field have been studied mainly on changes in the properties

and permeability of erythrocyte membranes in mammals. The modifying ability of millimeter waves with different frequencies on immune reactivity has been demonstrated by lowering ceruloplasmin levels and increasing histamine levels.

Of particular interest today are studies on the biological effects of electromagnetic fields created by various communication systems. The use of mobile devices, in particular phones, has increased significantly in recent years. This fact also raises public concerns about the impact of the electromagnetic field on human health. The candidate's research is on the study of free radical production induced by radiofrequency EMF of cell phones, which in turn leads to oxidative stress and DNA damage. The result of these studies is that 2W EMF increases the levels of reactive oxygen species, but there is no statistically significant increase in DNA damage in DNA.

Another area of interest of the candidate is related to the biophysics of photosynthesis (publications 9, 10, 11, 14, 16, 18, 19) and evaluation of the processes in the photosynthetic apparatus due to stressful and unfavorable environmental conditions. The influence of micro- and macro-elements, as well as moderately high temperatures have been studied in depth (publication 18). The influence of the electromagnetic field on plants has been thoroughly studied by evaluating the activity of a number of enzymes. By measuring the fast and delayed chlorophyll fluorescence (BF and ZF), as well as the modulated scattering of 820 nm light (MP), an artificial neural network capable of recognizing relative water content (ABC) in "unknown" samples between the calculated and gravimetric the determined values of the relative water content. This method is developed for the determination of OVS in detached leaves and can be used to quantify the stress of drought of cultivated plants in situ.

2. Scientific activity

Margarita Kouzmanova has participated in seven research projects, two of which she is the head of. Scientific supervisor of 6 diploma theses. She has participated in the organizing committee of three international scientific events.

III. TEACHING AND TEACHING ACTIVITY

From the presented reports it is evident that Ch. Assistant Professor Margarita Kouzmanova has an intensive study load with 2088 teaching hours / 1745 classroom employment for the last 5 years, of which 513 teaching hours for 2020-2021. In addition to the 6 successfully defended graduates, she is the supervisor of 116 term papers for students majoring in Molecular Biology.

CONCLUSION

Ch. Assistant Professor Margarita Kouzmanova is well known in the academic community in our country as an experienced specialist in biophysics and radiobiology. Participates in the competition with a significant number of scientific publications, 15% of which is the first author. The procedure requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation have been complied with. The candidate also meets all the additional requirements provided in the Regulations of Sofia University for the academic position of "Associate Professor", which gives me reason to strongly recommend to the Honored Scientific Jury to choose Ch. Assistant Professor Dr. Margarita Kouzmanova for position of "Associate Professor".

July 23, 2021

Sofia

Member of the scientific jury:

(Assoc. Prof. Dr. Rositsa Hristova)

