

Supervisor's opinion on the PhD. thesis
"Preparation and characterization of carbon dots for versatile applications"
written by
R. Blessy Pricilla
submitted to the
Tomas Bata University in Zlin

R. Blessy Pricilla, M.Sc. studied Ph.D. programme 'Nanotechnology and Advanced Materials' at Tomas Bata University in Zlín, Czech Republic. During her studies, she has fulfilled all duties connected with the study programme and successfully passed the state doctoral exam in 2021. Her dissertation work is focused on the preparation of carbon nanodots, or so-called carbon dots, from abundant renewable and sustainable sources. Moreover, she investigated productive methods of carbon dot synthesis with the aim of obtaining reasonable high synthesis yield and potentially scalable procedures. Besides a thoroughly performed characterization, she elucidated the mechanism of photoluminescence and phosphorescence of obtained carbon dots. A plethora of possible applications was demonstrated to show the potential contribution of her research to praxis. The core of the dissertation was embodied in two publications in impacted journals and a third one, which is still in the state of a manuscript, where Blessy contributed as the first and main author. The first paper on casein-based carbon dots is in RSC Advances, the second paper on biomass-derived carbon dots in *Biomass Conversion and Biorefinery*, and the third one is based on the 8th chapter of the thesis dealing with self-matrix room temperature phosphorescence carbon dots. Besides these core publications from CPS, Blessy is an author of three other and a co-author of one other paper already visible in WoS.

R. Blessy Pricilla actively presented her results at several international conferences with one full-text contribution to proceedings indexed on WoS. Blessy also spent three and one-half months at Bar Ilan University in Israel under the supervision of Prof. Aharon Gedanken in 2022.

As mentioned above, the dissertation thesis is based on two published original full-length articles and another manuscript to be submitted to an impacted journal. All the journals are relevant to the field of study and are impacted and indexed by Thomson Reuters ISI Web of Science. Blessy is the first author of all the papers, and her contribution to these publications was the most significant. Therefore, the body of the Thesis consists of parts potentially indicated by similarity analysis in anti-plagiarism text-checking systems. It must be emphasized that all these scores account for the three papers with Blessy's works and results. All these paragraphs are appropriately cited. The three papers are auto-referred by [BP X] codes, where X stands for the main paper numbers 1 or 2, to simplify the reading of the Thesis. Moreover, the study regulation requires that substantial parts of the Thesis be published, making matching the Thesis with the published works inevitable.

To summarize, during her study at the TBU in Zlín, R. Blessy Pricilla has demonstrated sufficient diligence, knowledge and effort necessary for the successful fulfilment of the studied PhD. programme. With regard to these facts and according to my opinion, the submitted dissertation work is well conceived, and I recommend it to be defended and, upon successful defence, R. Blessy Pricilla will be awarded the Doctor of Philosophy (Ph.D.) degree.

Zlín 19th December 2023

Prof. Ing. et Ing. Ivo Kuřitka, Ph.D. et Ph.D.
Supervisor