

The External Foreign Evaluator Report of a Doctoral Domain (DD) Biotechnology for Institution Organizing Doctoral Study Programs (IOSUD) – Dunarea de Jos University of Galati

Report to Doctoral Domain Team Leader, Prof. Dr Camelia SAVA

by

Univ. Prof. Dr Dušan Palić, Chair for Fish Diseases and Fisheries Biology, Faculty of
Veterinary Medicine, Ludwig-Maximilians-University Munich, Germany

Independent external foreign expert evaluation of the doctoral domain biotechnology of the University of Galati (UG) was organized by ARACIS. After acceptance of a formal invitation to participate, Prof. Dr Palić has reviewed available documents in English and, with help of google translator, reviewed further documents and annexes that were originally prepared in Romanian language. Documents were made available by ARACIS via e-mail and via password-protected online access to a cloud server. The evaluation was conducted in a hybrid format, with multiple online meetings via ARACIS and UG zoom platforms, with available simultaneous translation from Romanian to English and *vice versa*.

During period from 12-16.07.2021. a series of online meetings were organized for the entire evaluators group and for the doctoral domain evaluators group. Prof. Dr Camelia Sava was the head of the doctoral domain biotechnology external evaluator team, with Prof. Dr Palić as foreign evaluator member and Mr Orasan Sergiu as doctoral student member. In addition to the online meetings with the UG representatives, the in person visit to review the infrastructure and available facilities was performed by Prof. Sava, and Prof. Palić participated via video-link.

After the completion of the accreditation visit, Prof. Palić reviewed notes collected during the meetings, inclusive of comments, questions and answers of the colleagues participating in the meetings. He also reviewed the documents provided by the UG after the visit that provided clarifications to some raised issues. The report presented below is based on the information collected during above listed activities, and is organized in the format following the List of Critical Indicators for Doctoral Study Domains as advised by the ARACIS visit coordinator.

INDICATOR A.2.1.1

Thorough review and evaluation was conducted during preparation and visit to the University of Galati of the following: available self-report (Internal evaluation report) of the DD Biotechnology, as well as applicable annexes, meetings with respective University and Domain contact personnel, and video calls from remote visits. The opinion of external evaluator is that the venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision

of research services are presented to the public through a specific platform (online descriptions of the research centers, also supported by the brief information videos). The research centers specifically reviewed during this visit are used in multidisciplinary environment, and by multiple doctoral study domains. The doctoral students from the biotechnology domain have access to the equipment and infrastructure in the research centers, and are adequately trained and monitored during their activities in the respective laboratories/facilities. Prof. Palić has specifically been involved in the remote video conference calls and provided with information about food technology and production laboratories (meat, milk, and beer production; plant extracts production; aquaculture and hydroponics). The research infrastructure described above, was purchased and developed within the past 5 years, is in very good condition and use, and provides excellent environment for doctoral students to participate in larger scale experiments that mimic industrial scale production.

During systematic review of the documentation made available by the reviewed institution (University of Galati), as well as interviews and remote site visits, we have determined the following. The University of Galati has in period from 2015-2020 successfully established and operated several research laboratories as part of the respective research centers, that are translational (in between laboratory and full industry scale; http://www.bioaliment.ugal.ro/programe_en.html).

Students of the biotechnology doctoral program appear fully integrated in the work of the research centers and respective laboratories. The availability of venues and the material equipment is satisfactory, and students appear to use these facilities actively in the course of their respective PhD studies, of course, depending on their research topic. They are provided with adequate training in the laboratory safety, hygiene and operation of the equipment. Training is documented and certificates are available in respective student dossiers at School of Doctoral Studies.

The indicator is fulfilled.

INDICATOR A.3.1.1

The evaluation and review of the provided documents, annexes, web pages, and information collected during the online meetings and remote visits strongly supports the fulfillment of the critical indicators applicable to the domain of biotechnology doctoral studies. Doctoral thesis advisors within biotechnology domain (total of 4 listed <https://admitere.ugal.ro/doctorat/conducatori-de-doctorat>) are listed. At least three of the listed advisors meet the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) in force at the time when the evaluation is carried out, which standards are required and mandatory for obtaining the enabling certification (Annex A.3.1.1._1_Evaluation Sheets_IRVA). There is one remark that in the self-report (Table 1, page 10) only three doctoral supervisors are listed for the doctoral domain, while on the web pages Prof Lorena DEDIU is added as the fourth advisor (NOTE: Clarified by the UG – Prof. DEDIU has only been added in 2021, therefore not a subject of evaluation for period 2015-2020). Therefore, it appears that UG does a very good job in updating and keeping the online information current.

The indicator is fulfilled

INDICATOR A.3.2.1

Prof. Palić has conducted the review of the Annexes A.3.2.1_1_List of ISI publications doctoral supervisors, and Annex A.3.2.1_2_ISI publications doctoral supervisors, as well as online search via Google Scholar for the respective doctoral study supervisors in the domain Biotechnology. After the review, visit and meetings, Prof. Palić confirms that all supervisors listed in the internal report (3/3 or 100% for period of 2015-2020) have satisfied the requirements of at least 5 Web of Science - or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for the domain of biotechnology. The listed achievements of the doctoral advisors also include international-level contributions that indicate progress in scientific research, development and innovation in the field of biotechnology. The review of Annex A.3.2.1_3_International visibility has provided evidence about international awareness of the listed doctoral advisors/supervisors in the area of biotechnology within the past five years.

The indicator is fulfilled

INDICATOR B.2.1.5.

After review of the internal (self-report) and Annex_B.2.1.5_Report doctoral students-supervisors) a discrepancy between the numbers of doctoral students and available supervisors has been found. Under the indicator A.3.1.1. and A.3.2.1. total of 3 doctoral supervisors for the domain biotechnology were identified (Table 1. Internal report, and online under <https://admitere.ugal.ro/doctorat/conducatori-de-doctorat>). However, in the same internal report (pages 39-40), and in the Annex_B.2.1.5., total of 13 doctoral advisors is listed (Annex) and mentioned (report). After request for clarification, the UG has provided the following explanation:

“According to the Romanian system, in addition to the doctoral supervisor, each doctoral student is guided by a team of three members consisting of teachers and/or researchers. Criterion B.2.1.5 refers to the ratio between the number of doctoral students and the number of teachers and/or researchers who provide guidance to the doctoral students. There are 13 teaching staff and/or researchers who guided the 10 doctoral students, as mentioned in the Annex B.2.1.5. Therefore, the ratio between the number of doctoral students and the number of teachers and/or researchers who provide guidance is $10/13 = 0.77 / 1$.”

This explanation is satisfactory and therefore Prof. Palić agrees that

The indicator is fulfilled

INDICATOR B.3.1.1.

Prof. Palić has randomly selected and reviewed the following publications as provided in the annexes B.3.1.1_2 and B.3.1.1_3 and concluded that at least four published papers in previous 5 years in the domain biotechnology have provided significant contributions to the field.

Turturica, M. et al 2016 Effect of thermal treatment on phenolic compounds from plum (*prunus domestica*) extracts -A kinetic study. Journal of Food Engineering, 171, 200-207

Bolea C.A. et al 2019 , Process-Structure-Function in Association with the Main Bioactive of Black Rice Flour Sieving Fractions, Foods, 8(4), 131

Carmen Bolea, et al 2016, Thermal degradation kinetics of bioactive compounds from black rice flour (*Oryza sativa* L.) extracts, *Journal of Cereal Science*, 71, Pages: 160-166
Apetrei, RM, et al, 2019, Cell-assisted synthesis of conducting polymer -polypyrrole -for the improvement of electric charge transfer through fungal cell wall. *Colloids and surfaces B-Biointerfaces*, 175, 671-679

The indicator is fulfilled

INDICATOR C.2.1.1.

After review of the internal self-report, and available online information, Prof. Palić concluded the following about the published data:

- (a) the Doctoral School regulation (present online, in Romanian)
- (b) the admission regulation; (not present via internal report provided links)
- (c) the doctoral studies contract; (present online, in Romanian)
- (d) the study completion regulation including the procedure for the public presentation of the thesis; (present online, in Romanian)
- (e) the content of training program based on advanced academic studies; (present online, in Romanian)
- (f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data; (present online, in Romanian)
- (g) the list of doctoral students within the domain with necessary information (year of registration; advisor); (present online, in Romanian)
- (h) information on the standards for developing the doctoral thesis; (present online, in Romanian)
- (i) links to the doctoral theses' summaries to be publicly presented and the date, time, place where they will be presented; this information will be communicated at least twenty days before the presentation. (present online, in Romanian)

The indicator is fulfilled

COMMENTS AND RECOMMENDATIONS:

After careful review of different information sources (self-evaluation reports, applicable annexes, meetings, video calls, web pages, and further clarifications) about the Doctoral study Domain Biotechnology of the University of Galati, the foreign evaluator Prof. Dušan Palić offers following comments and recommendations:

The overall organization of the evaluation by ARACIS and UG was excellent. Specifically the participation in the online meetings was exceptional, and very useful for international evaluators was availability of simultaneous translation. While there are some components of in-person visit that make evaluators job easier, having video conferences is a viable alternative. Along the same lines, review of the research facilities and infrastructure is always better to be conducted in person, as video calls via mobile phone can only get you so far. The ARACIS staff did a very good job to coordinate meetings with UG representatives. I am satisfied with the evaluation process, and hope that future evaluations will have more in-person opportunities.



The colleagues representing the University of Galati have been very cooperative and trying to accommodate our questions within the limitations of the remote/video communication. I am very satisfied with their attitude and praise their openness and patience during the meetings.

Regarding the overall evaluation of the Biotechnology doctoral domain, I am impressed by the infrastructure and facilities that are at student's disposal for practical and experimental parts of their doctoral work. I am also satisfied with the quality of doctoral work performed in previous 5 years, as the number of Q1/2 peer reviewed publications produced by the comparatively low number of doctoral students is very good.

It is understood that number of doctoral students strongly depends on availability of funding, and it is especially important that UG appears to have mechanisms of supporting doctoral students in different areas and providing finances for promoting student visibility and international connectivity. It was also noted that there is somewhat low number of doctoral students in the area of biotechnology (approximately 3 students per cohort of three years). Considering available research center infrastructure and equipment, it appears that the material base for doctoral training is under-utilized. Therefore, my general recommendation is that UG, possibly through coordination with the local or state government, increases effort toward expanding funding opportunities for doctoral students from Romania, and explore opportunities for recruitment of international doctoral students who would add to the diversity of the doctoral programs. Possible future venues for increasing doctoral student resources at national level are participation of the Romanian government in the program of EU Partnerships (https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/european-partnerships-horizon-europe/candidates-food-security_en)

Specific comments and recommendations for improvement were related to discrepancy (or misunderstanding) of the number of available doctoral supervisors/advisors in the domain of biotechnology. In various documents, different numbers are listed. Therefore, it was requested that UG colleagues provide clarification and support their statements in the internal evaluation (self-report) about the indicator B.2.1.5. and C.2.1.1. 1. The UG has provided clarification and assured Prof. Palić that all critical indicators were fulfilled. This final report was discussed with the Head of the DD team, Prof. Dr Camelia SAVA, and was unanimously accepted.

Dear ARACIS colleagues, Dear UG colleagues, I was very pleased to have an opportunity to participate in this evaluation, and I was impressed with the quality and consistency of the good work that you are presenting in the doctoral study domain of Biotechnology, and moreover, in the whole institutional environment. I wish you all the best, and I am certain that you will continue to improve the University of Galati in many areas.

Munich, 26.07.2021