



External Evaluation Report of a Doctoral Study Domain *ENGINEERING OF FOOD PRODUCTS*

*Banat's University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania” from Timișoara (IOSUD-USAMVBT).
Doctoral School – Engineering of Plant and Animal Resources (SD-IRVA), field of Engineering of Food Products (IPA)*

Report to Doctoral Domain Team Leader, Prof.univ.dr. Gabriela BHRIM

by

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Independent external foreign expert evaluation of the doctoral domain Engineering of Food Products (IPA) of the Banat's University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania” from Timișoara (IOSUD-USAMVBT) was organized by ARACIS. After acceptance of a formal invitation to participate, Prof. Dr. Gaspar Ros has reviewed available documents in English and, with the assistance of google translator, reviewed further documents and annexes that were originally prepared in Romain language. Documents were made available by ARACIS via e-mail, via password-protected online access to a cloud server and also send by WeTransfer. The evaluation was conducted in a hybrid format, with multiple online meetings via ARACIS and USAMVBT zoom platforms, with available simultaneous translation from Romain to English and *vice versa*.

The evaluation was conducted in a hybrid format from the 11th to the 15th October 2021, with multiple online meetings organized for the entire evaluation group and for the doctoral domain evaluators group. Prof. Dr. Gabriela BHRIM was the head of the doctoral domain IPA external evaluator team, with Prof. Dr. Gaspar Ros as foreign evaluator member and Ms. Adriana Sebastiană MUSCA as doctoral student member. In addition to the online meetings with the Banat's University (BU) representatives, the in person visit to review the infrastructure and available facilities was performed by Prof. BHRIM accessed by the information available in the webpage of BU, information provided by the heads of the laboratories and by the video sent by BU.

After the completion of the accreditation visit, Prof. Gaspar Ros reviewed noted collected during the meetings, inclusive of comments, questions and answers of the colleagues participating in the meetings. He also reviewed the documents provided by BU after the visits that provided clarifications to some raised issues. The report presented below is based on the



information collected during the above listed activities, and is organized in the format following the List of Critical Indicators for the Doctoral Studies Domains as advised by the ARACIS visit coordinator.

Performance Indicator A.2.1.1.

Thorough review and evaluation were conducted during the preparation and visit to the BU of the following: available self-report (Internal evaluation report) of the IPA DD, as well as applicable annexes, meetings with respective University and Domain contact personnel, and University webpage and images from research laboratories and facilities. The opinion of the 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 the international debases, etc). The research infrastructure and provision of research services are presented to the public through a specific platform (online description of the research centres). The research centres are used in multidisciplinary environment, and by multiple doctoral study domains, the doctoral students from IPA domain have access to the equipment and infrastructure in the research centres, and are adequately trained and monitors during their activities in the respective laboratories/facilities/pilot plant. Prof. Gaspar Ros through the online meetings with the respective of the above-mentioned infrastructures and facilities as well as with exchange of opinions with Prof. Gabriela BAHHRIM obtained the needed information about the different laboratories, pilot plants, and other facilities for food engineering research. The research infrastructures are updated according to the current research requirements and provides excellent environment for the doctoral students to develop and conclude their research in the different topics and doctoral domain in food engineering.

During systematic review of the documentation made available by the reviewed BU, as well as interviews and images from research laboratories, we can conclude that the Banat's University has in the period from 2015- 2020 excellent conditions for the research since the research infrastructure described was successfully purchased and developed within the past 5 years.

Students of the *IPA* doctoral program appear fully integrated in the work of the research centres and respective laboratories and in experimental pilot plants (when was the case). The availability of venues and the material equipment is well provided, 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 also with adequate training in the laboratory safety, hygiene and operation of the equipment.

The indicator is fulfilled.

Performance Indicator A.3.1.1.

The evaluation and review of the provided documents, annexes, web pages, and information collected during the online meetings strongly supports the fulfilment of the critical indicators applicable to the domain of IPA doctoral studies. Doctoral thesis advisors within IPA domain are 8 (listed in the Annexes A.3.1.1-a, b and c). 87.5% 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.

The indicator is fulfilled.

Performance Indicator A.3.1.2.

All PhD supervisors in the field of IPA are 5 full-time teachers at BU with an employment contract for an indefinite period with extensive experience in the research addressed a rea and 3 are affiliated to the BU. (Annex A.3.1.2). The fulfilment of these requirements for the teachers of this doctoral domain (stability and qualification) are an advantage and credibility for the doctoral study in IPA domain.

The indicator is fulfilled.

Performance Indicator A.3.1.3.

The common disciplines of the doctoral training program are taught by specialized teachers with expertise in the field and the specialized disciplines are taught by the supervisors (Annexes A.3.1.3 a to g).

The indicator is fulfilled.

Performance Indicator *A.3.1.4.

Regarding the 8 doctoral supervisors in the domain of IPA none coordinates more than 8 doctoral students during their doctoral studies. In the online meeting the PhD students



reported a high level of satisfaction with their supervisors. All evidences indicate that fulfil the requirements and the ratio is also adequate.

The indicator is fulfilled.

Performance Indicator A.3.2.1.

The review of Annexes A.3.2.1 a and confirms that all supervisors listed in the internal report (for the period of 2015-2020) have satisfied the requirements of at least 50% of the doctoral supervisors in the field subject to evaluation present at least 5 publications indexed to the Web of Science - or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for the domain of IPA. 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 IPA. The review of the Annexes A.3.2.1-b to g) provided also evidence about international awareness of the listed doctoral advisors/supervisors in the area of IPA within the past five years. All evidences indicate that fulfil the requirements and the ratio is also adequate.

The indicator is fulfilled.

Performance Indicator *A.3.2.2.

The review of Annex A.3.2.2. showed that all PhD supervisors (100%) for the doctoral Engineering of Food meet the required indicator, exceeding the percentage of 25% of the minimum score required by CNATDCU (420 points) in force at the date of the evaluation, necessary and mandatory to obtain the certificate of qualification, based on scientific results from the last five years. All evidences indicate that fulfil the requirements and the ratio is also adequate.

The indicator is fulfilled.

Performance Indicator *B.1.1.1.

After review of the internal evaluation report, and AnnexB.1.1.1.and the additional AnnexB.1.1.1revised, out of a total of 34 doctoral students of the doctoral field of Food Engineering, 7 are paid, 10 are budgeted with scholarship, 2 scholarship holders of the Romanian state and 15 budgeted without scholarship, and the ratio between the number of graduates at master's level other higher education institutions (within the Food Engineering field there are 8 doctoral students from other institutions) in the country who have entered



the competition for admission to doctoral studies in the last five years (2015-2020) and the number of places funded from the state budget put up for competition within the doctoral school is $8/34 = 0.23$ (the ARACIS requirement is at least 0.2). All evidences indicate that fulfil the requirements and the ratio is also adequate.

The indicator fulfilled.

Performance Indicator *B.1.2.1.

After review of the internal evaluation report and Annex B.1.2.1. the dropout rate of doctoral students 2 years after admission is 0%, none out of the 33 students of the last 5 years, far away from the minimum requirements of ARACIS does not exceed 30%. All evidences indicate that fulfil the requirements and the ratio is also adequate.

The indicator is fulfilled.

Performance Indicator B.2.1.5.

After review of the internal evaluation report, and Annex B.2.1.4. it can be seen that the ratio between the number of doctoral students and the number of teachers in the steering commissions is 2.06 (lower than the standard 3:1). Also, the teaching commissions in the field of IPA are made up with teachers from the faculty of IPA and from other faculties of the BU which demonstrate the interdisciplinarity support to the doctoral students training. All evidences indicate that fulfil the requirements and the ratio is also adequate.

The indicator is fulfilled.

Performance Indicator B.3.1.1.

The random selection and reviewed the publications provided in the annex B.3.1.2 c and concluded that the selected published papers in previous 5 years in the domain of IPA reached the threshold 3 or 4. Considering the duration of the PhD (three academic years) the publications seems technically and scientific adequate.

References of the selected publications:

1. *Food Chemistry* 2017, 236, 49-58, doi: 10.1016/j.foodchem.2017.03.093, (Q1, IF: 4.529)
2. *Beilstein Journal of Organic Chemistry* 2016, 12, 179–191, doi:10.3762/bjoc.12.20, (Q2, IF: 2.337)



3. *Food Chemistry* 2020, 303, art. 125419, ISSN 0308-8146, <https://doi.org/10.1016/j.foodchem.2019.125419>, WOS: 000487761700043 (Q1, IF 6.306).
4. *PLoS ONE* 2019, 14(11), e0225474, <https://doi.org/10.1371/journal.pone.0225474>, WOS: 000522250000001 (Q2, IF 2.740)
5. *Foods* 2021, 10(2), 242; <https://doi.org/10.3390/foods10020242> (Q2, IF 4.350)

Recommendations: PhD students can be encouraging to publish also revision papers about the subject of their Thesis, and to take first option scientific journal from Q1 and Q2.

The indicator is fulfilled.

Performance Indicator *B.3.1.2.

After review of the internal evaluation report, and Annexes B.3.1.1 a and b, it was observed that *each* doctoral student who obtained the title of doctor in the field of IPA participated in national/international events. The number of papers presented indicated in the SER is 59 articles (11 articles at WOS indexed and 48 articles indexed at BDI). 3.66 is the ratio between the number of presentations of doctoral students in the field of IPA, oral and poster communications (total 44, 7 ISI- Proceedings Conferences and 37 - national and international scientific events) and the number of doctoral students who have completed their doctoral studies. All evidences indicate that fulfil the requirements and the ratio is also adequate.

The indicator is fulfilled.

Performance Indicator *B.3.2.1.

According to the Annex B.3.2.1., one referent from the IPA, doctoral studies participated in 3 commissions for public defence of doctoral theses (other than the evaluated IOSUD-USAMVBT) in 2017, exceeding the 2 requested by ARACIS, but it can be considered an exception and that all specialists fulfilled the requirement.

The indicator is fulfilled.

Performance Indicator *B.3.2.2.

According to the Annex B.3.2.2. during the period 2015-2020, 12 doctoral theses have been defended at the IPA doctoral domain, and the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the



defence on the doctoral Thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school ratio is 0.66., exceeding ARACIS standard for this indicator they should not be higher than 0.3.

Recommendations: it is not easy to recommend a clear strategy to ARACIS indicators for this particular one. To participate from another higher education institution than the one in which the doctoral thesis is organized and their defence, depends on experience and network with other Institutions and researchers. The internationalization strategy and the connection or partnership with key strategic allied may improve this indicator.

The indicator is partially fulfilled.

Performance Indicator *C.1.1.2.

After review of the internal evaluation report, and Annex C.1.1.2. and also, after the online meetings with the doctoral students and with the Commission for Quality Evaluation and Assurance (CEAC) members / Quality Assurance Department, it was observed that there are collecting mechanisms to evaluate the feedback of the doctoral students. It was observed also, a high level of satisfaction of the doctoral students regarding all the aspects about the doctoral study in IPA.

The indicator is fulfilled.

Performance Indicator *C.3.1.1.

After review of the internal evaluation report, and Annex C.3.1.1-01, C.3.1.1-02 and also, the online meetings with the doctoral students it was observed that for the evaluation period there were 65 bilateral Erasmus agreements with higher education institutions from 39 EU countries and 26 non-EU countries. From the internal evaluation report 35% of PhD students have completed an internship abroad or other form of mobility. Although the indicator is fulfilled the doctoral students should be encourage to undertaken any international mobility (e.g., ERASMUS) to improve their skills in their study domain.

The indicator is fulfilled.

COMMENTS AND RECOMMENDATIONS

The overall organization of the evaluation by ARACIS and USAMVBT was excellent, with a well-planned agenda for only the online meetings, with simultaneous translation that made



it possible to clarify several issues about the evaluation itself and about the internal evaluation report. The willingness to provide complete information on all aspects of the evaluation process in the meetings with the USAMVBT representatives and the open and honest discussion that occurred highlights the high commitment of the University staff for the continuous improvement of the University performance in teaching and researching.

Regarding the overall evaluation of the IPA doctoral domain and in addition to the aforementioned, I would like to highlight the long tradition of the BU in the field of the IPA teaching and researching and also the stability and quality indicators of the academics that participates in this doctoral domain. Something really underlined by PhD students and doctoral graduates is the quality, up-date and accessibility to the research infrastructures (laboratories, pilot plant,...) to carry out their PhD Thesis. The existence of an internal internet service for PhD students as well as the implementation of the similarity report for the PhD publications and thesis are also positive quality standards of the BU. The efforts of the BU in supporting founding of the PhD students in the different aspects of their training program (research, publishing, mobility, accommodation, etc.) denotes the commitment of the BU in provide all the conditions for the PhD students' success. This aspect was also observed by the high level of satisfaction of the PhD students and of the doctoral graduates and also by the high number and level of scientific publications. Employers also highly valued the training of graduate doctors from the IPA program, and their relationship with the doctoral advisors of IPA program. So, employability is a very positive aspects of IPA also reflected in the adherence of the PhD students to the program with no dropout.

Beside the above-mentioned strengths, some aspects of the doctoral study in IPA domain that can/may be consider for improvement.

- IPA doctoral domain is well established program and with a high potential for further development. Compared with other doctoral domains the number of doctoral supervisors is reduced and might be increases with the incorporation of qualified academic staff, encouraging to all of them to keep an increasing of the visibility of their scientific activities.
- The time frame of 3 years to carry out the full program with the publication of at least one scientific paper it seems to be in a representative number of cases, insufficient and PhD students need an extension. It is an aspect to reflect on. In addition, publishing revision manuscripts, may improve the impact factor of the journals published by the doctoral students, and also increase the international visibility of the research work done, suggested at the end of the first academic year.
- The internationalization can be achieved either by increasing the foreigner students, teachers/expertise doing seminars or in dual tutoring PhD thesis or increasing the



mobility of the students involved in research visits to foreigner universities or research centres. I suggest also that the BU consider to implement the necessary procedures to give the title of "European" PhD. This should add more value for the internationalization of the BU. Internationalization will also be helpful to increase the significant number of external scientific references in the commissions for public defence of doctoral theses. The internationalization strategy and the connection or partnership with key strategic allied may improve this indicator

- The implication of the graduate's doctors from IPA program has a high employability, but employers do not orient their work to Research, Development and Innovation (R+D+i). This is a capacity that can be put to value by both, PhD graduates from IPA doctoral domain as well as by the PhD advisors, with joint research projects with food companies, or with active information to employers about this competence of PhD graduates from this doctoral program.

Finally, it was a pleasure for me to work with the ARACIS and with the BU colleagues and meet the excellent work you have done in teaching and researching in the field of IPA, and I would like to wish to the doctoral program and BU all great success for the upcoming years.