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dr hab. Kinga Topolska, prof. URK  
Department of Plant Product Technology  
and Nutrition Hygiene  
Faculty of Food Technology  
University of Agriculture in Kraków

**REVIEW  
OF THE DOCTORAL THESIS  
of MSc. SURYA SASIKUMAR NAIR**

entitled: '*Food Safety Management and Sustainability Approaches in Selected Stakeholders*'  
prepared under the scientific supervision of prof. dr hab. Joanna Trafiałek

**I. BASIS OF THE REVIEW**

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This review has been prepared based on the Letter No. BON.5100.19.2026 from the Chair of the Food and Nutrition Technology Discipline Council of the Warsaw University of Life Sciences - SGGW, Prof. Dr. Hab. Ewa Jakubczyk, dated April 17, 2026. The Letter informed me that the Council entrusted me with this task under Resolution No. 63/TZiŻ-2025/2026.

Legal basis: The Act of 20 July 2018 – The Law on Higher Education and Science (Journal of Laws of 2024, item 1571, as amended).

**II. FORMAL EVALUATION**

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The doctoral thesis submitted by Ms. Surya Sasikumar Nair is a collection of thematically related articles, with a sum of 320 ministerial points and total *Impact Factor* 7.5. According to the *List of Publications and Supplementary Investigations included in the Hybrid Doctoral Thesis* (page 10), dissertation consists of four published papers:

P1: Nair, S.S.; Czarnecka-Skubina, E.; Jakubowska-Gawlik, K.; Trafiałek, J. American Foreign Supplier Verification Program (FSVP)-Requirements, Benefits or Burdens for Indian Food Companies, and Difficulties in the Implementation. *Technological Progress in Food Processing* 2022, 32 (2), 176–183;

P2: Sasikumar Nair, S.; Mazurek-Kusiak, A. K.; Trafiałek, J.; Kolanowski, W. Assessing Food Safety Compliance in a Small-Scale Indian Food Manufacturer: Before and after Certification of the Food Safety Management System and Foreign Supplier Verification Program. *Applied Sciences* 2023, 13 (22), 12190;

P3: Sasikumar Nair, S.; Varghese, A.; Trząskowska, M.; Kolanowski, W.; Mazurek-Kusiak, A. K.; Trafiałek, J. Post-Certification Quality Analysis of Traditional Indian Fried Snacks. *Applied Sciences* 2025, 15 (13), 7404;

P4: Nair, S. S.; Murali, A. P.; Kolanowski, W.; He, S.; Trafialek, J. Food Safety Management System Compliance of Food Retail Shops: A Comparative Study Between Mazovia and Kerala. *Applied Sciences* 2026, 16 (7);

and one unpublished research:

P5: Sasikumar Nair, S.; Murali, A. P.; Atuna, R. A.; Akabanda, F.; Kolanowski, W.; He, S.; & Trafialek, J. Prevailing Food Safety and Sustainability Practices in Grocerants: A Cross-Sectional Study in Three Countries. *International Journal of Food Science* 2026. (Manuscript ID:9949256).

According to the information provided in the dissertation, this unpublished manuscript (P5) is currently under review by the *International Journal of Food Science*, following the authors' responses to the 'minor revision'. This is why - in my understanding - the dissertation is described as a 'hybrid doctoral thesis'. In my opinion, using separate designations for published articles and supplementary investigations would have been more transparent and clear.

While reviewing the individual contribution to the papers forming the basis of the dissertation, I note that the Ms. Surya Sasikumar Nair was the first author of each one of those publications. The Candidate's contributions – according to the attached declarations – consisted of: conceptualization (P1, P2, P3, P4), methodology (P1, P2, P3, P4), validation (P3), software (P1, P4), investigation (P1, P2, P3, P4), resources/data (P1), data curation (P2, P3, P4), formal analysis (P4), visualization (P2, P3), writing – original draft preparation (P1, P2, P3, P4), writing – review and editing (P1, P3, P4), as well as supervision (P3). The above list, prepared by me for the purpose of this review, clearly shows that the role of the Candidate in the creation of publications P1-P4 was, in each case, a leading one. Nonetheless, I would like to request further clarification regarding:

- the declaration corresponding to the paper P2: apart from the tasks referenced above, the Candidate wrote that her responsibilities covered also some involvement in the resources and formal analysis. In my opinion, these activities should have been mentioned in the content of the article (Contribution);
- why is there no information about the contribution to the paper P5? I understand that this article has an 'unpublished' status, however on this stage the authors' contributions to the publication had already been established.

### III. SUBSTANTIAL EVALUATION

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Consumer food safety is undoubtedly one of the most important dimensions of safety. Its global importance is emphasized by the motto of this year's World Food Safety Day: 'from burden to solutions – safe food everywhere'.

In my opinion, the doctoral dissertation of Ms. Surya Sasikumar Nair fits perfectly into this context. The choice of topic should therefore be considered justified, and relevant. The originality of the solution to a scientific problem was demonstrated through the specific methodological approach taken to achieve the main purpose set out by the Candidate: *to assess the implementation and functioning of food safety management practices across selected food system stakeholders and to examine the association of food safety objectives with sustainability-oriented practices* (page 19).

Research, which this thesis consists of, was completed in four phases:

- Phase I: Assessment of the effectiveness of the food safety management against food safety standards and regulatory requirements;
- Phase II: Evaluation of post-certification food quality;
- Phase III: Assessment of the degree of compliance with the food safety management requirements in food retail shops;
- Phase IV: Assessment of the degree of compliance with the requirements of food safety and sustainability practices in grocerants.

Ms. Surya Sasikumar Nair made efforts to thoroughly analyze the issues of the American Foreign Supplier Verification Program in the context of the requirements, benefits and difficulties for Indian food companies (paper P1). Then the Author conducted the research in four subsequent phases. The Candidate's broad perspective and consistency are worth mentioning here. Ms. Surya Sasikumar Nair considered various stakeholders in the food chain (a small-scale food manufacturing company, food retail shops, stakeholders operating hybrid outlets that combine grocery retail and food service activities – grocerants), and various methods/data sources (structured audit, laboratory analysis of final product quality, observational checklists).

It should be added that, in the case of food retail shops, the Candidate compared the results obtained in India with those obtained in Poland (500 shops in each country). In the case of grocerants, the comparison included Poland, India and Ghana (50 stakeholders in each country).

Abovementioned arguments, in conjunction with papers that have been created (P1-P5) as a result of the realisation of subsequent phases of research within the dissertation, serve as a confirmation of the originality of the solution to the scientific problem by the Candidate.

Another essential requirement for a doctoral thesis is that it demonstrates the candidate's general theoretical knowledge in the discipline as well as the ability to independently conduct research. I would like to emphasize that the aforementioned requirement is evidenced by the specific contribution of the Ms. Surya Sasikumar Nair to each of the publications. This proves that the Candidate has mastered the researcher's craft, from conceptualizing the study to preparing the manuscript.

Regarding the presentation of general theoretical knowledge, I would like to comment on the systematic organization of the 'Review of literature' chapter. This section of the dissertation provides a synthetic overview of the following topics: 'Food Safety Management System (FSMS),' 'Food quality under a certified environment,' 'Food safety at the interface between producers and consumers,' and 'Sustainable Food Safety Management System.' Each subsection is written in a concise and substantive manner.

In terms of editorial consistency, I would like to point out several issues concerning the term Food Safety Management System and its abbreviation: (1) the full name and the abbreviation are frequently used together, which is redundant; (2) the capitalization of the full name is inconsistent, appearing in both lowercase and uppercase; (3) the same abbreviation is used for both the singular ('system') and plural ('systems') forms.

Another aspect worth pointing out, is the selection of literature. In Chapter 7 'References', the Author includes a list of 108 cited sources. These have been carefully selected, consisting primarily of scientific papers. However, the inclusion of a software manufacturer as a source raises some doubts—was this intended to refer to a specific manual?

The Candidate's theoretical preparation is reflected in the quality of the practical part of the thesis. Having noted that the papers forming the basis of the dissertation have already undergone peer review in scientific journals, my comments in this section will generally refer to selected points in their description within the doctoral thesis.

As the starting point, I will refer to the 'Materials and Methods' chapter. First of all, analyzing the scope of the research described in the doctoral thesis, it should be pointed out that it could only have been carried out by a researcher or a team demonstrating vast knowledge of the requirements and considerable practical experience. The preparation and execution of the audit activities themselves serve as a prime example. The Candidate's broad set of skills is evident throughout the papers, which provide comprehensive information about the expertise of the person conducting the research. I also consider the preparation and use of checklists containing questions about key areas of food safety to be of great value. These tools can serve as a valuable source of information for business owners, trainers, and personnel. Such works are undoubtedly needed.

My organizational concerns and suggestions regarding the need for greater clarity and readability of the description in this chapter refer to:

- clarification of the information in subchapter 4.1.2 'Research areas selected for the research'. It is necessary to clarify the statement: 'the study was conducted in three countries...', as this only occurred during phase IV. In my opinion, the current wording suggests that the entire research process was carried out across all 3 countries;
- the inclusion of a flowchart or additional information in Table 1 regarding the research sites (countries), the number of facilities involved in each phase, and - where appropriate - the number of samples.

Regarding the 'Results and Discussion' chapter, I would like to emphasize the thorough description of the results obtained in each phase of the research, as well as the interpretation provided by the Candidate. In each instance, the results are presented in a well-thought-out, and appropriately illustrated manner. Furthermore, the Candidate's proficiency in statistical tools enabled an in-depth analysis of the gathered data.

After reading this chapter, the following questions have occurred to me:

- Based on the results of paper P2, which indicate the effectiveness of the Food Safety Management System (i.e., a significant increase in compliance after certification - from 50.00% to 97.14%), I would like to ask about the causes of the remaining non-compliances (in the pest section);
- What factors determined the number of samples and the frequency of the analyses conducted for the selected traditional fried snack products described in paper P3?
- Were the owners of facilities or personnel interested in the results of the Candidate's research?

Achieving the dissertation's objectives across all research phases has allowed for the formulation of five logical conclusions. I note, however, that the last of these is, in my opinion, too general. It would also be valuable to address the limitations of the results obtained.

#### IV. SUMMARY AND FINAL RECOMMENDATION

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To summarize this review, I state that the hybrid dissertation of Ms. Surya Sasikumar Nair is based on a series of thematically coherent scientific papers and supplementary investigations in the area of food safety. The choice of topic, relevant and important, raises no doubts.

Demonstrating a very vast knowledge of the subject (both theoretical and practical), the Candidate presented Food Safety Management System aspects, with a keen awareness of the research gaps in this area. The Author highlighted also important issues related to the relationship between food safety objectives and sustainability practices in operational settings. All of the abovementioned contributes to the significance of the results presented in the doctoral thesis for the Food and Nutrition Technology Discipline. I would also like to emphasize that the detailed and thorough presentation of criteria, questions, and checklists is scientifically valuable and inspiring for other researchers, while also serving as a collection of valuable tools for relevant food system stakeholders.

In my opinion, all of the arguments pointed out in this review confirm compliance with the requirements set forth by the law regarding the originality of the scientific problem solution, as well as proving that this doctoral thesis authored by Ms. Surya Sasikumar Nair demonstrates general theoretical knowledge and the ability to conduct independent scientific work. The dissertation allows for a deeper insight into the areas of food safety that require close attention throughout the entire operation of a given facility, demonstrating that these activities should be treated as a process, with full awareness of their importance.

It should be noted that it is the reviewer's responsibility to point out any doubts, comments, or questions that arise while reading this dissertation. However, given their nature—usually explanatory or clarifying - they do not diminish the value of the work or my high appreciation of it.

I state that the dissertation submitted for review meets the requirements set out in the Act of 20 July 2018 – The Law on Higher Education and Science (Journal of Laws of 2024, item 1571, as amended) for the award of a doctoral degree.

**In light of the above assessment, I move for the Food and Nutrition Technology Discipline  
Council of the Warsaw University of Life Sciences - SGGW to admit  
Msc. Surya Sasikumar Nair  
to the further stages of the doctoral procedure.**



/Kinga Topolska/