

KStyp(NCN)-1(II)/23

Lublin, 11.07.2023

INSTITUTE OF AGROPHYSICS,  
POLISH ACADEMY OF SCIENCES IN LUBLIN  
IS SEARCHING FOR HIGHLY MOTIVATED CANDIDATES INTERESTED IN SCIENTIFIC WORK  
FOR:

**PhD FELLOWSHIP (f/m) in the Project:**

**„Interactions of microgreens and microbiomes as functional regulators of its quality, resistance and shelf-life – a case study for selected herbs (coriander, basil) and vegetables (radish, beet) in response to climate changes” no. 2022/45/B/NZ9/04254, financed by National Science Centre within the funding scheme OPUS-23**

**1. Requirements:**

- a) Master's degree in biotechnology, biology, environmental protection or related sciences
- b) experience and knowledge in the field of microbiology or molecular biology;
- c) documented experience in laboratory works as a result of student internship, graduate internship, or other laboratory practice;
- d) good command of the English language;
- e) good communication skills and ability to work as a part of a team;
- f) availability to field trip and/or measurements;
- g) substantive knowledge of microbiological techniques used in the study of the activity and biodiversity of microorganisms as well as molecular biology methods – are welcomed.

**2. Job description:**

The Institute of Agrophysics, Polish Academy of Sciences, [Department of Soil and Plant System](#) is looking for **PhD student** in the Interdisciplinary Doctoral School of Agricultural Sciences.

**PhD thesis proposal:**

**Interactions of microgreens and microbiomes as functional regulators of its quality, resistance and shelf-life**

- The PhD studies will take place for 48 months (from 01.10.2023) at the Department of Soil and Plant System, Institute of Agrophysics, Polish Academy of Sciences, Lublin, Poland under scientific supervision of prof. dr hab. Magdalena Frąć ([m.frac@ipan.lublin.pl](mailto:m.frac@ipan.lublin.pl), [www](http://www)) and the laboratory auxiliary supervision - dr inż. Jacek Panek ([j.panek@ipan.lublin.pl](mailto:j.panek@ipan.lublin.pl), [www](http://www)).
- The doctoral scholarship is co-financed by the National Science Centre, Poland – OPUS-23 project and a subsidy from the Minister of Education and Science. The scholarship is guaranteed for a period of 48 months.
- Language of PhD course and thesis: English or Polish.
- **The condition for the Candidate's involvement and payment of the scholarship in the OPUS-23 project under the conditions set out in the Act on Higher Education and Science of 20 July 2018 (Journal of Laws 2022 item 574 as amended) is his/her admission to the Interdisciplinary Doctoral School of Agricultural Sciences. Details (documents, procedures, deadlines) are available on [the website](#).**



**Microgreens are edible seedlings that are usually harvested 7–20 days after germination when they have two fully developed cotyledon leaves.** One major limitation to the growth of the *microgreen* agroindustry is the fast quality deterioration occurring soon after harvest, which restricts commerce to local sales and keeps prices high. After harvested, microgreens quickly dehydrate, wilt, decay and rapidly lose some nutrients. Available literature research has explored pre- and post-harvest interventions, such as light and temperature control, modified atmosphere packaging, and calcium treatments to maintain quality, increase nutritional value, and extend shelf-life. **However, more work is required to optimize both production and storage conditions to improve the quality, safety, resistance and finally shelf-life of *microgreens*, especially fundamental research on interactions and mechanisms between microgreens and microbiomes are missing and needed.**

The overall goal of the project is to support effective increase of microgreens quality in sustainable cultivation including control of microgreens quality, safety, resistance and shelf-life and maintenance of beneficial microbiome of microgreens, by understanding the interactions between microbiomes and *microgreens*.

This project includes interdisciplinary research activities, structured with a well-balanced division between various research fields contributing to the achievement of sustainable *microgreens* cropping by integrating biological, chemical, genetic, bioinformatical and environmental dimensions while addressing smart breeding strategies, sustainable production and climate challenges. The overall approach of the project is based on transdisciplinary, integrative and innovative research methodology. In order to achieve the aim of the project including increasing the *microgreens* quality by new approaches and assays, that requires basic research concerning explanations of microbiome-*microgreens* interactions, metataxonomic, biochemical, chemical and microbiological analyses and transcriptomic approach to assess expression of the genes involved in the microgreens resistance to environmental abiotic stresses. Planned research for understanding mechanisms, functionality and interactions of *microgreens* and microbiome will be performed in order to improve quality, protection, production and resilience of microgreens.

Do not hesitate to contact with prof. dr hab. Magdalena Frąc ([m.frac@ipan.lublin.pl](mailto:m.frac@ipan.lublin.pl)) with any question related to the PhD project.

3. **Funding scheme:** OPUS-23
4. **NSC panel name (Research field):** NZ9
5. **Deadline for submitting applications:** till 6<sup>th</sup> September 2023, 3:00 p.m. UTC+2
6. **How to apply:** in electronic form via our Recruitment System:  
<https://career.ipan.lublin.pl/en/announcements/> and additionally in person or by traditional mail or by e-mail in accordance with the rules presented on [the website](#).
7. **Interview:** 18<sup>th</sup> September 2023 – 19<sup>th</sup> September 2023, with the stipulation the deadline can be changed.
8. **Results will be announced by:** 29<sup>th</sup> September 2023, with the stipulation the deadline can be changed.
9. **Terms of employment:**
10. The successful candidate will receive scholarship for 48 months, under the rules of Act on Higher Education and Science of 20 July 2018 (Journal of Laws of 2022 item 574 as amended) in the amount of PLN 5,000.00 per month, reduced by ZUS due contributions on the side of the scholarship holder and the Institute up to the month of a mid-term evaluation and in the amount of PLN 5,000.00 monthly, reduced by ZUS due contributions on the side of the scholarship holder and the Institute after a positive mid-term evaluation result. **Please be informed the amount stated above also include contributions and benefits payable by the Institute (total scholarship cost), therefore the gross amount of**



**scholarship will be calculated as the above values being reduced accordingly.**

**11. Additional information:**

- a) The recruitment process is organized as an open competition pursuant to the terms and conditions stated in The Act on Higher Education and Science of 20 July 2018 (Journal of Laws of 2022 item 574 as amended).
- b) After the deadline for submitting applications will expire, the Committee may conduct interviews with candidates. In this case, each candidate will be informed individually about the first stage results, as well as the date of the interview.
- c) The Institute reserves the right to award the fellowship to the candidate ranked 2nd, only if the chosen candidate resigns before signing the fellowship agreement.

**12. Required documents:**

- 1) letter of application addressed to the Chairperson of the Committee – prof. dr hab. Magdalena Frąc
- 2) Curriculum Vitae with an information about possessed competences, a summary of scientific accomplishments and awards (including in particular: published scientific papers, conference speeches, participation in research projects, internships, training courses as well as other research achievements and scientific distinctions)
- 3) copy of MSc diploma
- 4) recommendation letter issued by the research supervisor
- 5) declaration of availability to work in the Project with the indication of the starting date 1<sup>st</sup> October 2023
- 6) declaration of consent to the processing of personal data contained in the fellowship offer for the needs of the recruitment process in accordance with the example below:

*„I allow my personal data stated in the abovementioned applications to be processed for the purpose of the recruitment by the Institute of Agrophysics of the Polish Academy of Sciences (20-290 Lublin, ul. Doświadczalna 4), in accordance with the General Data Protection Regulation (EU) 2016/679.”\**

\*) Information clause on personal data is available on the following website:

<http://www.ipan.lublin.pl/wp-content/uploads/2019/02/information-clause-IA-PAS.pdf>

**If you are interested in this position please send your application via our Recruitment System by 6<sup>th</sup> September 2023, 3:00 p.m. UTC+2: <https://career.ipan.lublin.pl/en/announcements/>**

**In addition, the Candidate should submit an application to Interdisciplinary Doctoral School of Agricultural Sciences according to information on [the website](#).**

We kindly inform that we contact only chosen candidates and also applications that are incomplete, submitted after the deadline or in the different form than required will not be processed.