

# Prospective supervisor's form

Name of the supervisor: Kusznierevicz Barbara

Academic title: Ph.D., D. Sc., Eng., GUT professor

Orcid ID number: <https://orcid.org/0000-0001-8138-3872>

Gdańsk University of Technology Faculty of Chemistry

Department of Food Chemistry, Technology and Biotechnology

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Discipline: chemical sciences [NCh] none

Optional

Key words (obligatory four key words describing research interests / expertise):

# phytochemicals

# metabolomics

# chromatography

# mass spectrometry

## Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 45/42

2. Citations excluding self-citations WoS 533 Scopus 579

3. Hirsch index WoS 14 Scopus 14

1. The number of PhD students who have graduated under your supervision: 2 as auxiliary supervisor

2. The number of PhD students currently supervised:

a. within the current doctoral school 0

b. within doctoral studies (previous system) 0

3. Are you currently accepting new PhD students:

a. Polish Yes/No Yes

b. Foreign Yes/No Yes

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### Research interests or topics offered for PhD research (no more than 2000 characters)<sup>ii</sup>

Metabolic profiling in combination with advanced analytical techniques and chemometric methods allows for a variety of food testing. Since the proposal and development of the concept of metabolite profiling, the instrumental capabilities have undergone tremendous changes, both at the level of separation of complex substance mixtures (chromatographic systems) and identification of individual components of these mixtures, through the use of different methods of detection of sample components. One of the methods of detecting as many metabolites as possible is the use of high-resolution mass spectrometry. Recently, thanks to receiving funding from the Ministry of Science and Higher Education, a tandem mass spectrometer equipped with a quadrupole mass analyzer was purchased for the Department of Food Chemistry, Technology and Biotechnology. My future research plans are therefore related to the use of metabolomics studies using both untargeted and targeted analysis of phytochemicals. Depending on the types of projects that will receive funding our future research will be related with:

- characteristics of agricultural crops in order to select optimal growing conditions (way of fertilization and protection against pathogens, harvesting period, location of the crop) ensuring their high nutritional and health quality;
- metabolite profiling in plants treated with pathogens, chemical stress or exposure to elicitors;
- assessment of the pro-health potential of various raw materials of plant origin on the basis of the results of nutrigenomic research;
- monitoring of vegetable metabolome during processing and preservation of food;
- designing functional and personalized food for a given group of people / patients, e.g. elderly people or oncological patients.

### Funding or special equipment needed to carry out a PhD project<sup>iii</sup>:

1. Is funding available for experimental work: *Yes/No/not needed*

No

2. Is the equipment needed to complete a PhD project

available in your lab/department: *Yes/No/not needed*

Yes

### Most important publications – no more than 5 published after 1.01.2018

No	Authors/title/journal	Number of points according to the current list of the Ministry of Science and Higher Education	Publication year
1.	Baranowska M., Suliborska K., Todorovic V., Kusznierevicz B., Chrzanowski W., Sobaji S., Bartoszek A. / Interactions between bioactive components determine antioxidant, cytotoxic and nutrigenomic activity of cocoa powder extract / Free Radical Biology and Medicine	140	2020
2.	Kusznierevicz B., Staroszczyk H., Malinowska-Pańczyk E., Parchem K., Bartoszek A. / Novel ABTS-dot-blot method for the assessment of antioxidant properties of food packaging / Food Packaging and Shelf Life	100	2020

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3.	Staroszczyk H., Sinkiewicz I., Kuszniereicz B., Gottfried K., Kołodziejska I., Malinowska-Pańczyk E. / Fish gelatin films containing aqueous extracts from phenolic-rich fruit pomace / LWT-Food Sciences and Technology	100	2020
4.	Koss-Mikołajczyk I., Kuszniereicz B., Wiczowski W., Płatosz N., Bartoszek A. / The comparison of bioactive phytochemical composition and chosen biological activities for differently pigmented cabbage ( <i>Brassica oleracea</i> var. capitata) and cauliflower ( <i>Brassica oleracea</i> var. botrytis) varieties / Journal of the Science of Food and	100	2019
5.	Baranowska M., Chrzanowski W., Kuszniereicz B., Namieśnik J. Suliborska K., Bartoszek A. / The relationship between standard reduction potentials of catechins and biological activities involved in redox control / Redox Biology	140	2018

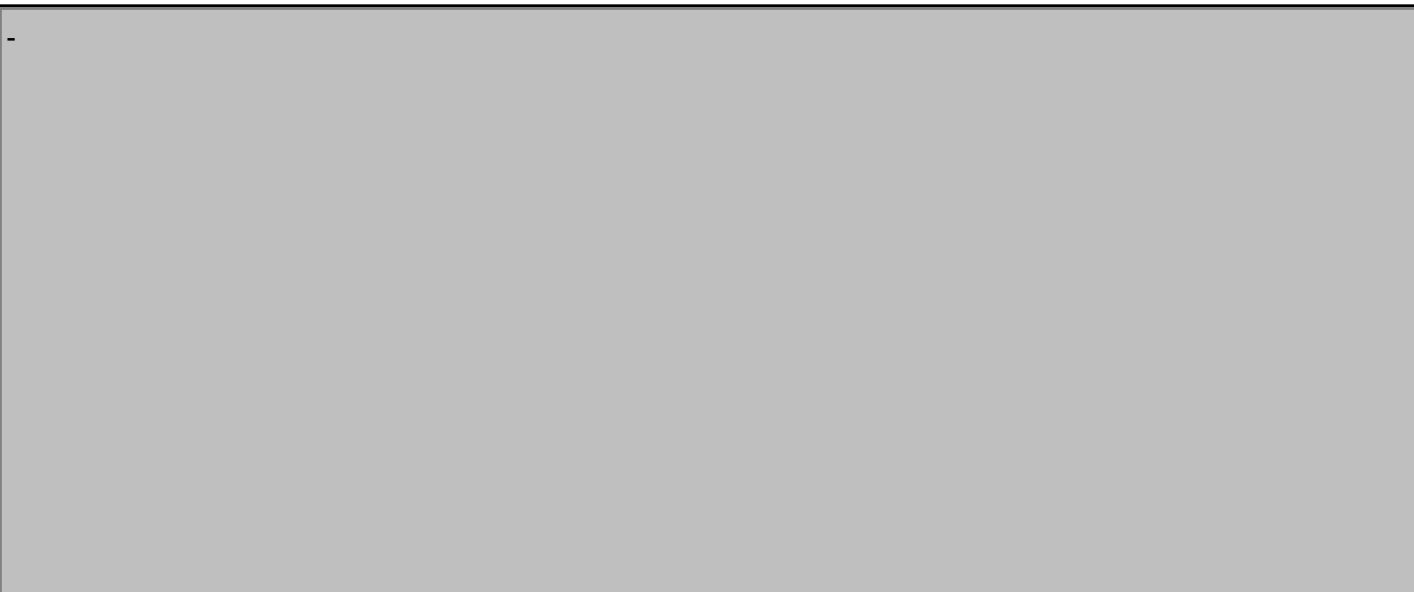
#### Most recent externally funded projects you were involved in – no more than 3

No	Project title, the name of the Principal Investigator (PI) and the institution the project was carried out	Years	Role in the project <sup>iv</sup>
1.	Antioxidant Power Series as a tool for rational design and assessment of health-promoting properties of functional food based on antioxidant phytochemicals, NCN (2014/14/A/ST4/00640 MA), Jacek Namieśnik (PI), GUT.	2015-2020	R
2.	Sustainable food production through quality optimised raw material production and processing technologies for premium quality vegetable products and generated by-products, Sunniva NCBR (FP7 ERA-NET SUSFOOD), Agnieszka Bartoszek-Pączkowska (PI), GUT	2014-2017	R
3.	The use of microwave technology in fruit and vegetable processing in order to obtain food products of high health quality, NCBR (LIDER/029/605/L4/12/NCBR/2013), Barbara Kuszniereicz (PI)	2013-2017	PI

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Additional relevant information – (no more than 1600 characters)<sup>v</sup>

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<sup>i</sup> You may select up to two disciplines out of 12 disciplines represented in the Doctoral School

<sup>ii</sup> Observe the limit of not more than 2000 characters

<sup>iii</sup> Leave only one answer

<sup>iv</sup> Select the role in the project: PI stands for principal investigator (refers to the holder of an independent grant and the lead researcher for the grant project), Co-I for co-investigator (Co-I assists the principal investigator in the management and leadership of the research project), R for researcher

<sup>v</sup> Add any other relevant information e.g. awards for PhD students whom you supervised (no more than 1600 characters)