Politechnika Łódzka

SUPERVISOR _CANDIDATE **PROFILE**S
Grażyna BUDRYN

Professor, PhD, DSc, Eng. Grażyna Budryn
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Director of the Institute of Food Technology and Analysis at the Faculty of Biotechnology and Food Sciences of the Lodz University of Technology, Head of the Scientific Discipline Food and Nutrition Technology, Member of the Polish Society of Food Technologists and the Polish Society of Calorimetry and Thermal Analysis.

RESEARCH INTERESTS

foods used in the prevention of civilization diseases, as well as the elimination of artificial preservatives and plastics used to store food. Research includes isolation and identification of health-promoting food ingredients, determination of the biological activity of nutraceuticals, application of bioactive ingredients in health-promoting foods and increasing their content in raw materials and stability during food processing and storage. Her work is used as innovative solutions in the production of functional foods with health-promoting characteristics, especially for the elderly.

*Co-author of **70** publications (128 SCI papers; h-factor=**23**; **1400**+ citations)*, ***11** patents and Principal Investigator / team member of **15**+ R&D projects, valued over € 20 M.*

She has supervised **3 successfully completed doctoral dissertations**. Professor Budryn cooperates with foreign science centres in Canada and Spain.

Her research on packaging food with health-promoting features has been implemented in enterprises operating mainly in the Lodz region. She has completed 2 industrial placements and 1 science internship in Germany.

RESEARCH PROJECT_ABSTRACT

As part of the post-doc project, preparations obtained from e.g. ginger, green coffee, white mulberry will be obtained and characterized, having a stabilizing effect on food ingredients, antimicrobial, antioxidant, inhibiting the activity of hydrolytic enzymes, etc.

The group of bioactive compounds that has the greatest impact on such properties are polyphenols, terpenes, organic acids, etc.

These compounds may be attached to other ingredients, e.g. proteins, hemicelluloses, sugars, which may require additional operations before obtaining the extracts.

Extracts and preparations in the form of encapsulates will be obtained. For this purpose, several extraction methods will be used (traditional and more advanced- e.g. aided by microwaves or ultrasound) and several encapsulation methods (e.g. formation of inclusion complexes, alginate-chitosan capsules, etc.). Extracts and encapsulates will be characterized in detail in terms of morphology, short- and long-term stability, chemical composition (FTIR, HPLC methods), antioxidant properties (e.g. DPPH, FRAP methods), antimicrobial activity (plate tests), release of active substances using modern methods and techniques (e.g. HPLC/MS, GC/MS, scan electron microscopy, laser particle size meter , etc.). The obtained preparations will be applied to biodegradable food packaging materials, mainly films, e.g. based on starch or polylactic acid. The stability and food protection activity of preparations in the form of extracts and encapsulates after application to packaging films will be tested.

CANDIDATE PROFILE

Discipline - Life-science or technical science
Experienced in the chemical or biochemical laboratory work, significant number of publications (approx. 10 publications in Q1 journals in the scientific field).