



NICOLAUS COPERNICUS
UNIVERSITY
IN TORUŃ
Faculty of Chemistry

Analytical and Food Chemistry research team





Workers



- ☐ Prof. dr hab. Aleksandra Szydłowska-Czerniak, Professor
- ☐ Dr hab. Aneta Jastrzębska, Associate Professor
- ☐ Dr Marzanna Kurzawa, Didactic Professor
- ☐ Dr Eng. Dobrochna Rabiej-Kozioł, Assistant
- ☐ MSc Sylwia Kowalska, Engineering and Technical Worker

PhD Students



- ☐ MSc Eng. Alicja Tymczewska
- ☐ MSc Eng. Katarzyna Włodarczyk
- ☐ MSc Eng. Monika Momot
- ☐ MSc Eng. Szymon Poliński

Students



- ☐ Zuzanna Gralak
- ☐ Kamil Brzuzy

Scientific interests of research team



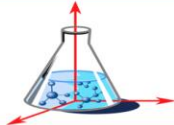
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Qualitative and quantitative analysis of compounds with antioxidant properties and other ingredients present in raw materials and food products (oilseeds and their products, confectionery, drinks, spices).



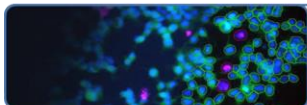
Development of new methods for the determination of bioactive compounds as well as hazardous substances present in raw materials and food products.



Application of statistical and chemometric methods to optimize the technological process of the production of vegetable oils, confectionery, beverages with maximum antioxidant activity without toxic compounds.



Synthesis of new amphiphilic antioxidants with antioxidant, antibacterial and anti-cancer properties.



In vitro cytotoxic and antibacterial activity analysis of selected natural extracts and new synthetic antioxidants.



Analysis of bioavailability and bioaccessibility of innovative food products using a modified artificial model of the gastrointestinal tract.



Food sensory analysis.



Preparation and physicochemical characterization of active films loaded with natural antioxidants from agro-waste for food packaging.

Spectroscopic methods

(MIR, NIR, multinuclear NMR, UV-VIS,
fluorescence spectroscopy)



Electrochemical methods
(galvanostatic stripping
chronopotentiometry,
voltammetry)

Chromatographic methods
(HPLC, GC, IC)



Imaging techniques
(SEM, AFM, TEM)



Thermal analysis
(DSC, TGA-IR, DTG, DTA, TG)

Scientific cooperation



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Research teams

Department of Dairy, Fat and
Cosmetics, University of Chemistry and
Technology, Prague, Czech Republic

Faculty of Food Science, Corvinus
University of Budapest, Hungary

Max Rubner-Institut, Federal Research
Institute of Nutrition and Food,
Working Group of Lipid Research,
Detmold, Germany

Faculty of Biotechnology and Food
Engineering, Hefei University of
Technology, China

Institute of Animal Reproduction and
Food Research of Polish Academy of
Sciences, Olsztyn, Poland

Warsaw University of Life Sciences,
Warsaw, Poland

Plant Breeding and Acclimatization
Institute (IHAR) - National Research
Institute Poznań, Poland

Economic sectors

oil and fat industry



confectionery industry



sugar industry



mayonnaise manufacturer



food industry



botanical extract manufacturer



Key publications



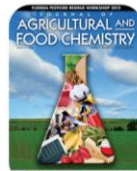
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materials



Food Chemistry



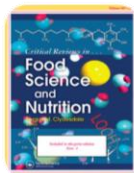
**Journal of Agricultural
and Food Chemistry**



**Process
Biochemistry**



**Industrial Crops
and Products**



**Critical Reviews
in Food Science
and Nutrition**



**LWT - Food Science
and Technology**



**Journal of the Science
of Food and Agriculture**



**Journal of Food
Composition and Analysis**



**Food and
Bioproducts Processing**



**Food Analytical
Methods**



Analyst



Talanta



Analytica Chimica Acta



**Food Packaging
and Shelf Life**

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