# Prof. dr hab. Magdalena Frąc Institute of Agrophysics, Polish Academy of Sciences (IA PAS), Lublin, Poland Head of Department of Soil and Plant System Supervisor of Laboratory of Molecular and Environmental Microbiology

## ACADEMIC AND RESEARCH CAREER

- Master/ENG of Environmental Protection, **10.06.2003**, Agricultural University in Lublin, the Department of Agricultural Microbiology.
- Doctor degree of agricultural sciences in agronomy environmental microbiology, **27.06.2007**, the Agricultural Faculty Council of Agricultural University in Lublin.
- Degree of habilitated doctor of agricultural sciences in agronomy, **10.05.2013**, the Scientific Council of Bohdan Dobrzański Institute of Agrophysics Polish Academy of Sciences in Lublin.
- Scientific title of profesor in agricultural sciences, 23.09.2017, President of the Republic of Poland.

## MAJOR RESEARCH PROJECTS

- Characterization of fungal community in organic waste and evaluation of their application in waste degradation. 2010-2011, PI, MNSW.
- Diversity of microorganisms and biochemical activity of the rhizosphere of selected plants under dairy sewage sludge agricultural utilization. 2010-2013, PI, MNSW.
- The study of an innovative biopreparation for the optimization of the organic waste methane fermentation process. **2011-2014**, PI, NCBR.
- Risk and benefits of application of exogenous organic matter to soil. 2012-2015, PI (IA PAS), POWTRC-RP.
- Occurrence, detection and molecular and metabolic characterization of toxigenic heat-resistant fungi (*Neosartorya fischeri* and *Byssochlamys fulva*). 2013-2016, PI, NCN.
- Interactive Soil Quality Assessment in Europe and China for Agricultural Productivity and Environmental Resilience (iSQAPER), PI of microbiological analyses (IA PAS), **2015-2021**, H2020, European Commission.
- Soil Care for profitable and sustainable crop production in Europe (SOILCARE), PI of microbiological analyses (IA PAS), **2016-2021**, H2020, European Commission.
- Spatial distribution of enzyme activities and rhizodeposits for phosphorus acquisition from deficient soils. 2018-2019, PI (IA PAS), DAAD.
- Harnessing the potato microbiome interactions for development of sustainable breeding and production strategies. **2019-2022**, PI (IA PAS), ERA-NET SusCrop H2020/NCBR.
- Development of a technology of innovative microbiologically enriched mineral fertilizers. **2018-2022**, WP2 leader, NCBR.
- New biotechnological solutions for diagnostics, control and monitoring of key fungal pathogens in organic cultivation of soft fruits. **2018-2023**, PI, NCBR.

### **RESEARCH VISITS**

Florence University, Universita degli Studi, Dipartimento di Scienza del Suolo e Nutrizione della Pianta, Italy (2008, 2012), CRA – Centro per lo Studio delle Relazioni tra Pianta e Suolo, Gorizia, IT (2012), Central Institute for Supervising and Testing in Agriculture National Reference Laboratory, Brno, CZ (2013), Medical Mycological Research Centre, Chiba University, JP (2014), Fraunhofer Institute MOEZ, Leipzig, Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, D (2014), IBM, T.J Watson Research Centre, Yorktown Heights, Somers, USA (2014), University of Göttingen, D (2018), University of Groningen, NL (2019), Pau Université, F (2020).

### **PUBLICATION (5 MAJOR PUBLICATIONS, LAST 5 YEARS)**

- Pertile, G., Lamorski, K., Bieganowski, A., Boguta P., Brzezińska M., Polakowski C., Skic K., Sokołowska Z., Baranowski P., Gackiewicz B., Rutkowska A., Sas-Paszt, L., **Frąc, M., 2021**, Immediate effects of the application of various fungal strains with urea fertiliser on microbiome structure and functions and their relationships with the physicochemical parameters of two different soil types, App Soil Ecol, 2021, 163, 103972. DOI: 10.1016/j.apsoil.2021.103972
- Oszust, K., Pylak, M., **Frac, M.**, **2021**, Trichoderma-based biopreparation with prebiotics supplementation for the naturalization of raspberry plant rhizosphere, Int J Mol Sci, 2021, 22(12), 6356. DOI: 10.3390/ijms22126356
- Mącik, M., Gryta, A., Sas-Paszt, L., **Frąc, M., 2020**, The status of soil microbiome as affected by the application of phosphorus biofertilizer: Fertilizer enriched with beneficial bacterial strains, Int J Mol Sci, 2020, 21(21), 1–36, 8003. DOI: 10.3390/ijms21218003
- Pylak, M., Oszust, K., **Frąc**, **M.**, **2019**, Review report on the role of bioproducts, biopreparations, biostimulants and microbial inoculants in organic production of fruit, Rev Environ Sci Biot, 2019, 18(3), 597–616. DOI: 10.1007/s11157-019-09500-5
- Frac, M., Hannula, S.E., Belka, M., Jędryczka, M., 2018, Fungal biodiversity and their role in soil health. Front Microbiol, 2018, 9, 707. DOI: 10.3389/fmicb.2018.00707