

dr inż. Małgorzata Nykiel

position: assistant professor

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Scientific interests:

Metabolic plant adaptations that determine plant resistance to water stress.

Teaching:

Lecturing on the subject:

· Biochemistry, full-time studies, direction: Faculty of Agriculture and Biology, Faculty of Food Sciences;

· Ecological biochemistry, full-time studies, direction: Faculty of Agriculture and Biology;

Conducting biochemistry exercises in the direction of study: ecological engineering, agriculture, nutrition and food technology

Scientific career development

Education:

PhD - PhD in agricultural sciences in the specialization of agronomy; Plant Breeding and Acclimatization Institute in Radzików. Diploma 2007;

MSc degree Gardener - Warsaw University of Life Sciences, Faculty of Horticulture - specialization: Medicinal plants, Master's degree - full-time engineering. Diploma 1996;

Scientific workflow:

10/08 - today the Warsaw University of Life Sciences, Faculty of Agriculture and Biology; Department of Biochemistry and Microbiology, position of assistant professor

06/07 - 09/08 Institute of Plant Breeding and Acclimatization, Department of Plant Biochemistry and Physiology, assistant professor

04/01 - 06/07 Institute of Plant Breeding and Acclimatization, Department of Plant Biochemistry and Physiology, assistant position

11/97 - 04/01 Institute of Plant Breeding and Acclimatization, Department of Genetics, assistant position

02/97 - 11/97 Institute of Plant Breeding and Acclimatization, Department of Genetics, position engineer – intern

Research projects carried out:

MNiSzW Grant No. 2PO6A 010 29; contractor 2005 – 2006

MNiSzW Grant N N310 079839; head 2010-2013

Ministry of Science and Higher Education grant NN 310 038338; contractor 2010-2013

MNiSzW Grant NN304 098640; contractor 2011-2014

Prizes and awards:

- Award of the rector of the Warsaw University of Life Sciences. Team Degree II for scientific achievements. 2012.
- Award of the rector of the Warsaw University of Life Sciences. Individual III for scientific achievements. , 2011.
- Award of the rector of the Warsaw University of Life Sciences. Team Grade I for scientific achievements. 2010

Publications:

1. **Nykiel M.**, Lisik P., Dębski J., Florea B., Rybka K. 2019. Chl a fluorescence and proteomics reveal protection of the photosynthetic apparatus to dehydration in tolerant but not in susceptible wheat cultivars *Biologia Plantarum* 63: 287-297 DOI: 10.32615/bp.2019.033
2. Gietler M., **Nykiel M.**, Orzechowski S., Fettke J., Zagdańska B. 2017 Protein carbonylation linked to wheat seedling tolerance to water deficiency. *Environmental and Experimental Botany* 137C: 84-95 DOI 10.1016/j.envexpbot.2017.02.004
3. Miazek A., **Nykiel M.**, Rybka K. 2017 Drought tolerance depends on the age of the spring wheat seedlings and differentiates patterns of proteinases. *Russian Journal of Plant Physiology* 64, (3): 333–340 DOI: 10.1134/S1021443717030098
4. Dworak A., **Nykiel M.** , Walczak B., Miazek A., Szworst-Łupina D., Zagdańska B., Kiełkiewicz M. 2016 Maize proteomic responses to separate or overlapping soil drought and two-spotted spider mite stresses *Planta* 244(4): 939-960 DOI: 10.1007/s00425-016-2559-6
5. Gietler M., **Nykiel M.**, Orzechowski S., Fettke J., Zagdańska B. 2016 Proteomic analysis of S-nitrosylated and S-glutathionylated proteins in wheat seedlings with different dehydration tolerances. *Plant Physiology and Biochemistry* 108:507-518 DOI: 10.1016/j.plaphy.2016.08.017
6. Gietler M, **Nykiel M**, Zagdańska B 2016 Changes in the reduction state of ascorbate and glutathione, protein oxidation and hydrolysis leading to the development of dehydration intolerance in *Triticum aestivum* L. seedlings. *Plant Growth Regulation* 79: 287–297
7. Gietler M., **Nykiel M.**, Zagdańska B. 2016 S-glutathionylacja i S-nitrozylacja białek w aklimatyzacji roślin do abiotycznych i biotycznych czynników środowiska. *Postępy Biologii Komórki* 43(1): 119-140
8. Chojnacka M.; Szewińska J.; Mielecki M.; **Nykiel M.**; Imai R.; Bielawski W.; Orzechowski S. 2015 A triticale water-deficit-inducible phytocystatin inhibits endogenous cysteine proteinases in vitro. *Journal of Plant Physiology* 174:161-165 DOI:10.1016/j.jplph.2014.09.014
9. **Grudkowska M**, Lisik P., Rybka K. 2013. Two-dimensional zymography in detection of proteolytic enzymes in wheat leaves. *Acta Physiologiae Plantarum* doi: 10.1007/s11738-013-1371-1.
10. Boguszewska D., **Grudkowska M.**, Zagdańska B. 2010. Drought-responsive antioxidant enzymes in potato (*Solanum tuberosum* L.). *Potato Research* 53:373-382
11. **Grudkowska M.**, Zagdańska B. 2010. Acclimation to frost alters proteolytic response of wheat seedlings to drought. *J. Plant Physiol.* 167:1321-1327
12. Boguszewska D, **Grudkowska M**, Zagdańska B. 2009. *Plant Biochemistry*. S.S.Narwal (Series Editor), R. Bogatek, B. Zagdańska, D.A. Sampietro, M. A. Vattuone (co-editors), Studium Press, LLC. ISBN 1-933699-43-4, str. 69-98.
13. **Grudkowska M**, Zagdańska B. 2004. Multifunctional role of plant cysteine proteinases. *Acta Biochimica Polonica* 51, 609-624.
14. **Grudkowska M**, Zagdańska B, Rybka B. 2003. Odporność pszenicy jarej na suszę glebową w fazie kłoszenia. *Biuletyn IHAR* 228, 51-59
15. **Grudkowska M**, Zagdańska B. 2002. Roślinne Endoproteinazy cysteinowe i ich różnorodne funkcje fizjologiczne. *Biuletyn IHAR* 223/224, 33-43.
16. **Grudkowska M**, Wiśniewski K., Zagdańska B. 2002. Aktywność endoproteinaz cysteinowych wskaźnikiem odporności pszenicy na mróz i suszę. *Biuletyn IHAR* 223/224, 45-8-55.

Chapters in SGGW scripts:

"Biochemistry Exercise Guide" edited by W. Bielawski and B. Zagdańska, Publisher SGGW (2018):
M. Nykiel. Spectrophotometric method for determining peroxidase activity. Spectrophotometric method for the determination of carbonyl groups. Determination of superoxide dismutase and catalase on polyacrylamide gel.