

Edyta Zdunek-Zastocka, Ph.D.
Position: Assistant Professor
Telephon number: +48 22 59 32 577
Email: edyta_zdunek_zastocka@sggw.pl

Research interests:

The metabolism of abscisic acid, proteolysis, plant response to stress factors, germination

Academic education:

- Ph.D.: Department of Biochemistry, Faculty of Agriculture and Biology, Warsaw University of Life Sciences - SGGW, Warsaw, 2002
- M.Sc.: Department of Biochemistry, Faculty of Biology and Earth Sciences, Maria Curie-Skłodowska University, Lublin, 1996

Employment:

- 2002 - present, assistant professor, Department of Biochemistry, Faculty of Agriculture and Biology, Warsaw University of Life Sciences - SGGW, Warsaw
- 1996 - 2002, research assistant, Department of Biochemistry, Faculty of Agriculture and Biology, Warsaw University of Life Sciences - SGGW, Warsaw

Scientific experience:

- Israel, Biostress Research Laboratory, Ben-Gurion University of the Negev, January- March 2001
- Japan, Laboratory of Cellular Mechanism, Hormonal, Tokyo Metropolitan University, October - December 2000
- Israel, Biostress Research Laboratory, Ben-Gurion University of the Negev, March 1998- September 2001
- Poland, Gdańsk University of Technology, a course in molecular biology, February 1998

Past and current research projects:

- Grant of Ministry of Science and Higher Education, 2012/07/B/NZ9/01765 "The role of 9-*cis*-epoxycarotenoid dioxygenase and ABA 8'-hydroxylase in regulation of dormancy of triticale seeds", leader of the project, 2013-2017
- Grant of Ministry of Science and Higher Education, 2011/01/B/NZ9/04555 "Characteristics and significance of bacteria *Stenotrophomonas maltophilia* hydrolases in biological crop protection", main contractor of the project, 2011-2014
- Grant of Ministry of Science and Higher Education, P06A 022 30 "Molecular characterization and subcellular and tissue localization of aldehyde oxidase AO-3 - isoform oxidizing abscisic aldehyde to ABA in pea (*Pisum sativum*)", leader of the project, 2006-2009
- Grant of Warsaw University of Life Sciences-SGGW "Expression of the gene or genes of aldehyde oxidase in leaves and roots of pea (*Pisum sativum*) under salinity and in the presence of ammonium ions as a nitrogen source", main contractor of the project, 2001-2002

Most important scientific prizes and awards:

- Individual distinction of the Rector of Warsaw University of Life Sciences - SGGW for the scientific and teaching achievements, 2017
- Award of Rector of Warsaw University of Life Sciences-SGGW, III degree, for teaching achievements, Warsaw, 2015
- Award of Rector of Warsaw University of Life Sciences-SGGW, III degree, for achievements in the field of scientific research, Warsaw, 2012
- Award of Rector of Warsaw University of Life Sciences-SGGW, III degree, for achievements in the field of scientific research, Warsaw, 2009

- Award of Rector of Warsaw University of Life Sciences-SGGW, II degree, for achievements in the field of scientific research, Warsaw, 2003

Membership of scientific associations:

- Polish Biochemical Society

Publications:

- **Zdunek-Zastocka E**, Grabowska A (2019) The interplay of PsABAUGT1 with other abscisic acid metabolic genes in the regulation of ABA homeostasis during the development of pea seeds and germination in the presence of H₂O₂. *Plant Science* 285, 79-90
- Fidler J, Gietler M, **Zdunek-Zastocka E** (2018) Metabolizm ABA w siewkach pszenżyta poddanych suszy. W: „Rolnictwo XXI wieku – problemy i wyzwania 2018” pod redakcją Dety Łuczyckiej. Wydawnictwo Idea Knowledge Future, Wrocław, 80-90, ISBN 978-83-945311-9-5
- Fidler J, Grabowska A, Prabucka B, Więsyk A, Góra-Sochacka A, Bielawski W, Pojmaj M, **Zdunek-Zastocka E** (2018) The varied ability of grains to synthesize and catabolize ABA is one of the factors affecting dormancy and its release by after-ripening in imbibed triticale grains of cultivars with different pre-harvest sprouting susceptibilities. *Journal of Plant Physiology* 226, 48-55
- Grabowska A., **Zdunek-Zastocka E.**, Kutryn E., Kwinta J. 2017. Molecular cloning and functional analysis of the second gene encoding glutamate dehydrogenase in triticale. *Acta Physiologiae Plantarum* 39, 24
- **Zdunek-Zastocka E**, Grabowska A, Branicki T, Michniewska B (2017) Biochemical characterization of the triticale *TsPAPI*, a new type of plant prolyl aminopeptidase, and its impact on proline content and flowering time in transgenic Arabidopsis plants. *Plant Physiology and Biochemistry* 116, 18-26
- Fidler J., **Zdunek-Zastocka E**, Prabucka B, Bielawski W. 2016. Abscisic acid content and the expression of genes related to its metabolism during maturation of triticale grains of cultivars differing in pre-harvest sprouting susceptibility. *Journal of Plant Physiology* 207, 1–9.
- **Zdunek-Zastocka E.**, Fidler J., Prabucka B., Pojmaj M. (2016) Wrażliwość na kwas abscysynowy zarodków pszenżyta odmian różniących się podatnością na porastanie. W: „Rolnictwo XXI wieku – problemy i wyzwania” pod redakcją Dety Łuczyckiej. Wydawnictwo Idea Knowledge Future, Wrocław, 367-377, ISBN 978-83-945311-0-2.
- Fidler J., **Zdunek-Zastocka E.**, Bielawski W. 2015 Regulation of abscisic acid metabolism in relation to the dormancy and germination of cereal grains. *Acta Societatis Botanicorum Poloniae* 84, 3-11.
- **Zdunek-Zastocka E.**, Sobczak M. (2013) Expression of *Pisum sativum* *PsAO3* gene, which encodes an aldehyde oxidase utilizing abscisic aldehyde, is induced under progressively but not rapidly imposed drought stress. *Plant Physiology and Biochemistry* 71, 57–66.
- Szawłowska U., Grabowska A., **Zdunek-Zastocka E.**, Bielawski W. (2012) *TsPAPI* encodes a novel plant prolyl aminopeptidase whose expression is induced in response to suboptimal growth conditions. *Biochemical and Biophysical Research Communications* 419, 104-109.
- Szewińska J., **Zdunek-Zastocka E.**, Pojmaj M., Bielawski W. (2012) Molecular cloning and expression analysis of triticale phytocystatins during development and germination of seeds. *Plant Molecular Biology Reporter* 30, 867–877.
- Szawłowska U., **Zdunek-Zastocka E.**, Bielawski W. (2011) Biochemical characterisation of prolyl aminopeptidase from shoots of triticale seedlings and its activity changes in response to suboptimal growth conditions. *Plant Physiology and Biochemistry* 49, 1342-1349.
- Pyrzyna M., Szawłowska U., Bielawski W., **Zdunek-Zastocka E.** (2011) Purification, biochemical characterisation, and mass spectrometry analysis of phenylalanine aminopeptidase from the shoots of pea plants. *Acta Physiologiae Plantarum* 33, 609–617.
- **Zdunek-Zastocka E.** (2010) The activity pattern and gene expression profile of aldehyde oxidase during the development of *Pisum sativum* seeds. *Plant Science* 179, 543-548.
- **Zdunek-Zastocka E.** (2008) Molecular cloning, characterization and expression analysis of three aldehyde oxidase genes from *Pisum sativum* L. *Plant Physiology and Biochemistry* 46, 2008, 19-28.

- **Zdunek-Zastocka E.**, Omarov R.T., Koshiba T., Lips S.H. (2004) Activity and protein level of AO isoforms in pea plants (*Pisum sativum* L.) during vegetative development and in response to stress growth conditions. *Journal of Experimental Botany* 55, 1361-1369.
- **Zdunek-Zastocka E.**, Lips S.H. (2003) Is xanthine dehydrogenase involved in response of pea plants (*Pisum sativum* L.) to salinity or ammonium treatment? *Acta Physiologiae Plantarum* 25, 395-401.
- **Zdunek-Zastocka E.**, Lips S.H. (2003) Plant molybdoenzymes and their response to stress. *Acta Physiologiae Plantarum* 25, 437-452.
- Lips S. H., Omarov R.T., **Zdunek E.**, Sagi M. (2002) The role of inorganic N ions on plant growth adaptation to changing environmental conditions. In: *Avances en el metabolismo del nitrógeno: de la biología molecular a la agronomía*. P. A. Tejo (ed.). Universidad Pública de Navarra, Hiszpania, 401-409.
- **Zdunek E.**, Lips S.H. (2001) Transport and accumulation rates of abscisic acid and aldehyde oxidase activity in *Pisum sativum* L. in response to suboptimal growth conditions. *Journal of Experimental Botany* 52, 1269-1276.
- **Zdunek E.**, Falik O., Fölöp K., Gersani M., Lips S.H. (2000) Interchange of shoot and root signals during competition and limiting nitrogen. In: *Nitrogen in a sustainable ecosystem: from the cell to the plant*. M. A. Martins- Loucao and S. H. Lips (eds.). Backhuys Publishers, Leiden, Holandia, 205-210
- Staszczak M., **Zdunek E.**, Leonowicz A. (2000) Studies on the role of proteases in the white-rot fungus *Trametes versicolor*: Effect of PMSF and chloroquine on ligninolytic enzymes activity. *Journal of Basic Microbiology* 40, 51-63.
- Staszczak M., **Zdunek E.**, Leonowicz A. 1999. Intracellular proteolysis. *Postępy Biochemii* 45, 32-41.

Conferences:

- **Zdunek-Zastocka E.**, Michniewska B, Grabowska A (2019) Overexpression of triticale proline aminopeptidase gene (*TsPAPI*) enhances the tolerance of *Arabidopsis* transgenic plants to abiotic stress factors. 9th Conference of the Polish Society of Experimental Plant Biology, 9–12 September, Toruń, Abstract book p. 135.
- Grabowska A, Kutryn E, **Zdunek-Zastocka E** (2019) New insight into possible role of *TsGSI* from triticale. 9th Conference of the Polish Society of Experimental Plant Biology, 9–12 September, Toruń, Abstract book p. 155.
- Fidler J, Gietler M, **Zdunek-Zastocka E** (2018) Metabolizm ABA w siewkach pszenżyta poddanych suszy. III Konferencja naukowa „Rolnictwo XXI wieku – problemy i wyzwania 2018”, 30-31 March, Krzyżowa, Poland.
- Fidler J, Góra-Sochacka A, Grabowska A, Prabucka B, Więsyk A, **Zdunek-Zastocka E** (2017) Effect of after-ripening on abscisic acid content and its biosynthesis in triticale grains. 8th Conference of the Polish Society for Experimental Plant Biology, 12-16 September, Białystok, Poland, Abstract book p. 78.
- Grabowska A, **Zdunek-Zastocka E** (2017) Role of triticale glutamate dehydrogenase under salt stress. 8th Conference of the Polish Society for Experimental Plant Biology, 12-16 September, Białystok, Poland, Abstract book p. 119.
- **Zdunek-Zastocka E.**, Grabowska A (2017) Abscisic acid metabolism in the response to cadmium stress in pea plants. 8th Conference of the Polish Society for Experimental Plant Biology, 12-16 September, Białystok, Poland, Abstract book p. 168.
- **Zdunek-Zastocka E.**, Fidler J., Prabucka B., Pojmaj M. (2016) . Sensitivity to abscisic acid during maturation and after-ripening of triticale grains of cultivars differing in sprouting susceptibility. I Konferencja naukowa „Rolnictwo XXI-wieku”, referat, March 30-31, Krzyżowa, Poland.
- Fidler J., **Zdunek-Zastocka E.**, Bielawski W. (2015) The abscisic acid content and expression of its metabolic genes during maturation of triticale grains. Joint 7th Conference of Polish Society for Experimental Plant Biology and the Intercollegiate Faculty of Biotechnology UG & MUG, September 8th-11th, Gdańsk, Poland, Abstract book, p. 93.

- Fidler J., **Zdunek-Zastocka E.**, Bielawski W. (2014) Molecular cloning and expression analysis of selected ABA biosynthetic genes during maturation and germination of triticale seeds. 49th Meeting of the Polish Biochemical Society (as a part of the 1st Congress of the Polish Biochemistry, Cell Biology, Biophysics and Bioinformatics), September 9th -12th, Warsaw, Poland, Acta Biochimica Polonica vol. 61 (supplement 1/2014), p. 199.
- Fidler J., **Zdunek-Zastocka E.**, Bielawski W. (2013) Molecular cloning and expression analysis of *ABA 8'-hydroxylase* genes during germination of triticale (*X Triticosecale* Wittm.) seeds. 6th Conference of the Polish Society of Experimental Plant Biology, Łódź, Poland, Journal of Biotechnology, Computational Biology and Bionanotechnology vol. 94, p. 347-348.
- **Zdunek-Zastocka E.**, Sobczak M., Dudkiewicz M. (2012) Molecular characteristics, subcellular and tissue localization of PsAO γ - an aldehyde oxidase isoform oxidizing abscisic aldehyde to ABA in pea. 47th Congress of the Polish Biochemical Society, Poznań, Poland, Acta Biochimica Polonica vol. 59 (supplement 3/2012), p. 174.
- **Zdunek-Zastocka E.** (2009) Activity and transcript level of aldehyde oxidase during embryo development and seed maturation of *Pisum sativum*. 4th Conference of Polish Society of Experimental Plant Biology, Cracow, Poland, Acta Biologica Cracoviensia 51 (supplement 2), p. 25
- Głos J., **Zdunek-Zastocka E.**, Bielawski W. (2008) Expression of chosen *Triticale* cystatin cDNAs in developing seeds. 45th Annual Meeting of the Polish Biochemical Society, Olsztyn, Poland, Acta Biochimica Polonica 55/3 (supplement), p.158
- **Zdunek-Zastocka E.** (2007) Molecular cloning, characterization and expression analysis of three aldehyde oxidase cDNAs from *Pisum sativum*. 3rd Conference of Polish Society of Experimental Plant Biology, Warsaw, Poland, p. 80.
- Głos J., **Zdunek-Zastocka E.**, Bielawski W. (2007) Molecular cloning and expression analysis of *Triticale* cystatin cDNAs in developing seeds. 3rd Conference of Polish Society of Experimental Plant Biology, Warsaw, Poland, p. 74.
- **Zdunek E.**, Omarov R.T., Koshiha T., Lips S.H. (2001) Aldehyde oxidase isoforms in leaves and roots of pea plants (*Pisum sativum* L.) as affected by salinity and ammonium. Gordon Research Conference: Molybdenum and Tungsten Enzymes, Oxford, England.
- **Zdunek E.**, Lips S.H. (2000) Possible sites of synthesis, transport and accumulation rates of abscisic acid in *Pisum sativum* L. in response to suboptimal growth conditions. 12th Congress of the Federation of European Societies of Plant Physiology, Budapest, Hungary, Plant Physiology and Biochemistry 38 (supplement), p.195.
- **Zdunek E.**, Falik O., Fölöp K., Lips H. (1998) Shoot and root signals in response to limiting nitrogen. Book of Abstracts, 5th International Symposium on Inorganic Nitrogen Assimilation, 3rd Fosh Biostress Symposium, Luso, Portugal, p.83.
- Bielawski W., **Zdunek E.** (1998) Aminopeptidases and carboxypeptidases of germinating *Triticale* seeds. Book of Abstracts, 25th Silver Jubilee FEBS Meeting, Copenhagen, Denmark, p.75.
- Staszczak M., Warchol A., **Zdunek E.**, Leonowicz A. (1996) Effect of PMSF and chloroquine on electrophoresis profiles of intracellular proteinases from *Trametes versicolor* under conditions of starvation. 32nd Congress of the Polish Biochemical Society, Cracow, Poland.