Dr Arkadiusz Kosmala

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Specialisation:

molecular biology, proteomics, cytogenetics;

Research area:

Lolium-Festuca complex, abiotic stress (drought, frost) resistance, 2-D electrophoresis, mass spectrometry, GISH, FISH;

Main scientific fellowships:

- UK, Institute of Grassland and Environmental Research (IGER), Aberystwyth, 2001 (3 months);
- France, Institut National de la Recherche Agronomique (INRA), Lusignan, 2002 (3 weeks);
- UK, Institute of Grassland and Environmental Research (IGER), Aberystwyth, 2002 (2 months);
- Norway**,** the Norwegian University of Life Sciences, Ås, 2005 (3 months);
- UK, Institute of Grassland and Environmental Research (IGER), Aberystwyth, 2005 (2 months);

List of significant publications:

ZWIERZYKOWSKI Z., ZWIERZYKOWSKA E., TACIAK M., **KOSMALA A.,** JONES N., ZWIERZYKOWSKI W., KSIĄŻCZYK T., KRAJEWSKI P. (2011). Genomic structure and fertility in advanced generations of breeding populations derived from the allotetraploid *Festuca pratensis* × *Lolium perenne*. Plant Breed. DOI: 10.1111/j.1439-0523.2010.01839.x.

SANDVE S.R., **KOSMALA A.,** RUDI H., FJELLHEIM S., RAPACZ M., YAMADA T., ROGNLI O.A. (2011). Molecular mechanisms underlying frost tolerance in perennial grasses adapted to cold climates. Plant Sci. 180: 69-77.

ARASIMOWICZ-JELONEK M., FLORYSZAK-WIECZOREK J., **KOSMALA A**. (2011). Are nitric oxide donors a valuable tool to study the functional role of nitric oxide in plant metabolism? Plant Biol. DOI: 10.1111/j.1438-8677.2010.00430.x.

BOCIAN A., **KOSMALA A.**, RAPACZ M., JURCZYK B., MARCZAK Ł., ZWIERZYKOWSKI Z. (2011). Differences in leaf proteome response to cold acclimation between *Lolium perenne* plants with distinct levels of frost tolerance. J. Plant Physiol. DOI: 10.1016/j.jplph.2011.01.029.

KOSMALA A., BOCIAN A., RAPACZ M., JURCZYK B., ZWIERZYKOWSKI Z. (2009). Identification of leaf proteins differentially accumulated during cold acclimation between *Festuca pratensis* plants with distinct levels of frost tolerance. *J. Exp. Bot*. 60: 3595-3609.

WINIARCZYK K., **KOSMALA A.** (2009). Development of the female gametophyte in the sterile ecotype of the bolting *Allium sativum* L. *Sci. Hortic.* 121: 353-360.

KOSMALA A. (2009). Molekularne podstawy aklimatyzacji roślin do niskich temperatur. *Post. Nauk Roln.* 1: 11-23.

ZWIERZYKOWSKI Z., ZWIERZYKOWSKA E., TACIAK M., JONES N., **KOSMALA A.,** KRAJEWSKI P. (2008). Chromosome pairing in allotetraploid hybrids of Festuca pratensis × Lolium perenne revealed by genomic *in situ* hybridization (GISH). *Chromosome Res.* 16 (4): 575-585.

KALINOWSKI A., BOCIAN A., **KOSMALA A.,** WINIARCZYK K. (2007). Two-dimensional patterns of soluble proteins including three hydrolytic enzymes of mature pollen of tristylous *Lythrum salicaria*. *Sex. Plant Reprod.* 20: 51-62.

RAPACZ M., GĄSIOR D., **KOSMALA A**., ZWIERZYKOWSKI Z., HUMPHREYS M.W. (2007). The role of photosynthetic apparatus in cold acclimation of *Lolium multiflorum*. Characteristics of novel genotypes low-sensitive to PSII over-reduction. *Acta Physiol. Plant.* 29: 309-316.

KOSMALA A., ZWIERZYKOWSKI Z., ZWIERZYKOWSKA E., ŁUCZAK M., RAPACZ M., GĄSIOR D., HUMPHREYS M. W. (2007). Introgression mapping of genes for winter hardiness and frost tolerance transferred from *Festuca arundinacea* into *Lolium multiflorum*. *J. Hered.* 98: 311-316.

ZWIERZYKOWSKI Z., **KOSMALA A.,** ZWIERZYKOWSKA E., JONES N., JOKŚ W., BOCIANOWSKI J. (2006). Genome balance in six successive generations of the allotetraploid *Festuca pratensis* × *Lolium perenne* hybrids. *Theor. Appl. Genet.* 113: 539-547.

KOSMALA A., ZWIERZYKOWSKI Z., GĄSIOR D., RAPACZ M., ZWIERZYKOWSKA E., HUMPHREYS MW. (2006). GISH/FISH mapping of genes for freezing tolerance transferred from *Festuca pratensis* to *Lolium multiflorum*. *Heredity* 96: 243-251.

KOSMALA A., ZWIERZYKOWSKA E., ZWIERZYKOWSKI Z. (2006). Chromosome pairing in triploid intergeneric hybrids of *Festuca pratensis* with *Lolium multiflorum*, revealed by GISH. *J. Appl. Genet.* 47: 215-220.

SKIBIŃSKA M., **KOSMALA A**., HUMPHREYS M., ZWIERZYKOWSKI Z. (2002). Application of GISH and AFLP techniques for identification of *Lolium-Festuca* introgressions. *Cell. Mol. Biol. Lett.* 7 (2A): 493-498.

EU projects and national projects funded by Ministry of Science and Higher Education:

- Funded by the European Union under the Fifth Framework Programme 1. Quality of Life and Management of Living Resources, Key Action 5.1.1. Sustainable agriculture: "**Sustainable Grasslands withstanding Environmental Stresses"** (acronym SAGES) No. QLRT-1999-30764, 2001-2003;
- Project of the Scientific Research State Committee (no. 3 PO6A 015 24): **„Cytogenetic and molecular analysis of the introgression forms of Italian ryegrass (*Lolium multiflorum* Lam.) with genes of meadow fescue (*Festuca pratensis* Huds.)"**, 2003-2004;
- Project of Ministry of Science and Higher Education (no. 2 P06A 044 30): **„Analysis of *Festuca pratensis* Huds. proteome at different time points of cold acclimation"**, 2006-2009, project coordinator;
- Project of Ministry of Science and Higher Education (no. PBZ-MNiSW-2/3/2006/21): **„Identification of genes associated with cold acclimation and frost tolerance in perennial ryegrass (*Lolium perenne* L.)"**, 2007-2010;
- Project of Ministry of Science and Higher Education (no. NN303 340735): **„Contribution of nitric oxide (NO) in the mechanism of molecular stress recording in a plant – in a model configuration potato / *Phytophthora infestans*"**, 2008-2011;
- Project of Ministry of Science and Higher Education (no. NN303 313437): „**Contribution of H2A.Z histone in the plant response to drought stress: determination of the dependence between presence of H2A.Z in promoter regions and transcriptional gene activities"**, 2009-2012;
- Project of Ministry of Science and Higher Education (no. N N303 807640): „**Analysis of aquaporin gene expression changes during dehydrative stress in the selected *Festuca* species"**, 2011-2014.