

Abdur Rashid, Ph.D.

Agriculture Research Scientist & Graduate Faculty Member

Dept. of Entomology, Plant Pathology and Weed Science

New Mexico State University

Las Cruces, NM

Tel. 575-646-4110

arashid@nmsu.edu

PUBLICATIONS

Review article:

Rashid, A. (2016). Defense responses of plant cell wall non-catalytic proteins against pathogens. *Physiol. Mol. Plant Pathol.* 94, 38-46.

Book publication:

Rashid, A. (2012) Development of transgenic plants through application of reverse genetics. pp 232; ISBN-13: 978-3-8465-4625-3; LAP LAMBERT Academic Publishing GmbH & Co. KG; Heinrich-Böcking-Str. 6-8, 66121, Saarbrücken, Germany.

AGRI-FACTS publication:

Rashid, A. et al., (2001). Plant bioassay techniques for detecting and identifying herbicide residues in soil. Agri-Facts: Practical information for Alberta's Agriculture Industry. Agdex # 609-1, Edmonton, Alberta, Canada.

Journal articles:

Rashid A., and Schutte, B. A simple and inexpensive colorimetric assay for detecting weed seed mortality. Manuscript in preparation.

Gines, M., Baldwin, T., **Rashid, A.**, Bregitzer, P., Maughan, P.J., Jellen, EN., Esvelt Klos, K. (2018). Selection of expression reference genes with demonstrated stability in barley among a diverse set of tissues and cultivars. *Crop Sci.* 58,332–341.

Rashid, A. et al., (2017). A high-throughput RNA extraction for sprouted single-seed barley (*Hordeum vulgare* L.) rich in polysaccharides. *Plants*, 6, 1-6.

Rashid, A. (2017). Comparison of a kanamycin versus hygromycin resistance gene in transgenic plant selection of *Arabidopsis thaliana* L. *Adv. Cell Sci. Tiss. Cult.* 1, 1-3

Rashid, A. and Deyholos MK (2015). Phylogenetic relationship and *in silico* expression profile of PELPK1 of *Arabidopsis thaliana* (L.) Heynh. *Intern'l. J. Biosci.* 6, 93-99.

Rashid, A. (2014). Sub-cellular localization of PELPK1 in *Arabidopsis thaliana* as determined by translational fusion with green fluorescent protein reporter. *Mol. Biol.* 48, 258-262.

Rashid, A. et al., (2013). A genomic region upstream of *Arabidopsis thaliana* PELPK1 promotes transcription in aleurone tissues and in response to *Pseudomonas syringae* or *Pythium irregulare*. *Plant Mol. Biol. Rep.* 31, 1025-1030.

Rashid, A. et al., (2013). Proteomic profiling of the aleurone layer of mature *Arabidopsis thaliana* seed. *Plant Mol. Biol. Rep.* 31, 464-469

Rashid, A. et al., (2013). Effects of soil-borne *Rhizoctonia solani* on canola seedlings after application of glyphosate herbicide. *Canadian J. Plant Sci.* 93, 97-107.

Rashid, A. et al., (2013). Effects of root exudates and pH on *Plasmodiophora brassicae* (Woronin) resting spore germination and infection of canola (*Brassica napus* L.) root-hairs. *Crop Protection* 48, 16-23.

Hwang, S-F, Ahmed, H., Zhou, Q., **Rashid, A.**, Strelkov, S., Gossen, B., Peng, G. and Turnbull, G. (2013). Effect of susceptible and resistant canola plants on *Plasmodiophora brassicae* resting spore populations in the soil. *Plant Pathol.* 62, 404-412.

Rashid, A. and Deyholos, M.K. (2011). PELPK1 contains a unique pentapeptide repeat and is a positive regulator of germination in *Arabidopsis thaliana*. *Plant Cell Rep.* 30, 1735-1745.

- Rashid, A. et al.**, (2005). Inhibition of seed germination and seedling growth by hound's-tongue (*C.officinale*) seed leachate. *Weed Biol. & Mgmt.* 5, 143-149.
- Rashid, A. et al.**, (2003). Spiny annual sowthistle (*Sonchus asper*) resistance to acetolactate synthase (ALS) inhibiting herbicides in Alberta. *Weed Res.*, 43, 214-220.
- Shah, S., Rashid, A., Burd, G., Dixon, D. and B. Glick.** (2002). Phyto-remediation of Arsenate contaminated soil by transgenic canola and plant growth promoting bacterium, *Enterobacter cloacae* CAL2. *Plant Physiol. Biochem.* 40, 355-361.
- Rashid, A. et al.**, (1998) A possible involvement of gibberellin in the mechanism of wild oat resistance to *triallate* and cross-resistance to *difenzoquat*. *Weed Res.* 38, 461-466
- Rashid, A. et al.**, (1997) Effects of *triallate* and *difenzoquat* on fatty acid composition in young shoots of susceptible and resistant *Avena fatua* populations. *Pestic. Biochem. Physiol.* 57, 79-85.
- Rashid, A. et al.**, (1997) Response of *triallate*-resistant and -susceptible wild oat populations to *difenzoquat* and *EPTC* in a seedling bioassay. *Weed Technol.* 11, 527-531.
- O'Donovan, J.T., Rashid, A., Nguyen, H.V., Newmann, J.C., Khan, A.A., Johnson, C.I., Blackshaw, R.E., and Harker, K.N.** (1996) A seedling bioassay for assessing the response of wild oat populations to *triallate*. *Weed Technol.* 10, 931-935.
- Eastman, P.A.K., Rashid, A., and Camm, E.L.** (1997) Changes of the photosystem II activity and thylakoid proteins in spruce seedlings during water stress. *Photosyn.* 34, 201-210.
- Rashid, A. and Popovic, R.** (1995) Electron donation to photosystem II by DPC is inhibited by both the endogenous Mn-complex and by exogenous Mn ions. *Biochem. Cell Biol.* 73, 241-245.
- Rashid, A. and Camm, E.L.** (1995) Activities and stability of native and Triton X-100-fractionated thylakoid membranes from white spruce and spinach. *Photosyn.* 31, 389-398.
- Rashid, A. et al.**, (1994) Molecular mechanism of action of Pb^{++} and Zn^{++} on water oxidizing complex of photosystem II. *FEBS Lett.* 350, 296-298.
- Friesen, L., Morrison, I.N., Rashid, A. and Devine, M.D.** (1993) Response of a chlorsulfuron-resistant biotype of *Kochia scoparia* to sulfonylurea and alternative herbicide. *Weed Sci.*, 41, 100-106.
- Devine, M.D. and Rashid, A.** (1993) Antagonism of tralkoxidim activity in wildoat (*Avena fatua* L.) by metsulfuron methyl. *Weed Res.* 33, 97-104.
- Rashid, A. and Homann, P.H.** (1992) Properties of iodide- activated photosynthetic water-oxidizing complexes. *Biochim. Biophys. Acta.* 1101, 303-310.
- Rashid, A. and Popovic, R.** (1992) Requirement of manganese for the photooxidation of hydroxylamine by photosystem II. *J. Photochem. Photobiol.* 13, 323-326.
- Rashid, A. et al.**, (1991) Interaction of zinc with the donor side of photosystem II. *Photosynth. Res.* 30, 123-130.
- Rashid, A. and Carpentier, R.** (1991) Ca^{++} stimulation of the inhibitory action of Carbonyl Cyanide p-Trifluoromethoxyphenylhydrazone (FCCP) in photosystem II. *Photosyn.* 25, 441-446.
- Rashid, A. and Popovic, R.** (1990) Protective role of $CaCl_2$ against Pb^{++} inhibition in photosystem II. *FEBS Lett.* 271, 181-184.
- Rashid, A. and Carpentier, R.** (1990) Atrazine inhibition of photosystem II is modulated by specific inorganic cofactors involved in oxygen evolution. *Curr. Res. Photosynth.* Baltscheffsky, M. ed., Vol. 1, 595-598, Kluwer Acad. Pub., Massachusetts, USA.
- Rashid, A. and Carpentier, R.** (1990) The 16 and 23 kDa extrinsic polypeptides and the associated Ca^{++} and Cl^- modify atrazine interaction with photosystem II core complex. *Photosynth. Res.* 24, 221-227.
- Rashid, A. and Carpentier, R.** (1989) $CaCl_2$ inhibition of H_2O_2 electron donation to PS II in submembrane preparations depleted in extrinsic polypeptides. *FEBS Lett.* 258, 331-334.

- Rashid, A. and van Rensen, J.J.S.** (1987) Uncoupling and photoinhibition in chloroplasts from a triazine-resistant and a susceptible *Chenopodium album* biotype. *Pestic. Biochem. Physiol.* 28, 325-332.
- Rashid, A. and Demeter, S.** (1986) Triazine resistance in *Erigeron canadensis* L. IV. Investigated by thermoluminescence measurements. *Ind. J. Plant Physiol.* 29, 335-344
- Rashid, A. and Demeter, S.** (1986) Triazine resistance in *Erigeron canadensis* L. II. Investigated by fluorescence induction transient analysis. *Bang. J. Bot.* 15, 207-210.
- Rashid, A. and Demeter, S.** (1985) Triazine resistance in *Erigeron canadensis* L. I. Investigated by oxygen evolution measurements. *Bang. J. Bot.* 14, 133-139.
- Rashid, A. and Demeter, S.** (1985) Triazine resistance in *Erigeron canadensis* L. III. Investigated by flash induced 515 nm absorbance change measurements. *Bang. Nuc. Sci. Appl.* 16, 60-66.
- Rashid, A. and Demeter, S.** (1985) Differences in the oscillatory pattern of thermoluminescence in chloroplasts from a triazine-resistant and a -susceptible biotype of *Erigeron canadensis* L. *Chitt. Univ. Stud.* 9, 79-83.
- Rashid, A. and Bhadra, S.K.** (1982) Assessment of radiosensitivity of three varieties of *Solanum melongena* L. *Bang. Nuc. Sci. Appl.* 13, 61-66.
- Rashid, A. and Bhadra, S.K.** (1981) Effect of gamma radiation on agronomic characters of egg plant (*Solanum melongena* L.) *Chitt. Univ. Stud.* 5, 123-127.
- Rashid, A. and Bhadra, S.K.** (1981) Studies on the effect of gamma rays on yield and some ancillary characters of *Solanum melongena* L. *Bang. Nuc. Sci. Appl.* 11, 36-42.
- Rashid, A. and Bhadra, S.K.** (1980) M₁ morphological abnormalities and M₂ mutation studies in gamma ray treated population of *Solanum melongena* L. *Chitt. Univ. Stud.* 4, 27-32

CLIENT REPORTS

- Rashid, A., Davies, M., Barrett, M., Palli, R.** (2013). "Keeping the Genie in the Bottle": placing transgenic agronomic traits under the control of 'gene switch' technology to facilitate phenotype containment. KTRDC Annual Report, Univ. of Kentucky, Lexington, Kentucky, USA.
- Rashid, A.** and O'Donovan, J.T. (2001). Defining Climatic factors that reduce crop tolerance and weed control with herbicides. AARI Final Report; Project # 98M218,
- Rashid, A.** (2001). Effects of cold temperatures on crop tolerance to the herbicides, *sulfosulfuron* and *glyphosate*. Final Report, Monsanto Canada Inc.
- Rashid, A.** (1996-2001). Herbicide damage diagnostic, and herbicide residue and resistance detection services. >100 reports provided to Producers, and Alberta Environmental Protection, Edmonton, Alberta, Canada.
- Rashid, A.** (2000). Development of a bioassay for Pursuit® (*imazethapyr*) residues in soil, and investigation of Pursuit® carryover injury to sensitive rotational crops. Report to Westco Fertilizers Ltd., Canada.
- O'Donovan, J.T., Pharris, R.P., Zhang, R., Rashid, A., and Harker, K.N.** (1998). Role of plant hormone gibberellins in wild oat resistance to herbicides. AARI Final Report, Project # 97M164, Alberta, Canada
- O'Donovan, J.T., Harker, K.N., Blackshaw, R.E., Rashid, A., Sharma, M.P., Khan, AA., and Maurice, D.** (1997). Investigation of herbicide resistant wild oat populations in Alberta. AARI Final Report. Project # 920037, Alberta, Canada.

ABSTRACTS AND PRESENTATIONS

- Rashid, A.** (2017). *Keeping the genie in the bottle*: a concept of containing herbicide-tolerant traits in crop plants by using a genetic switch. Seminar presentation at the Dept. of

- Entomology, Plant Pathology, and Weed Science, New Mexico State University, Las Cruces, NM; November 29, 2017.
- Rashid, A. et al.**, (2017). Genetic improvement of barley through chemical mutagenesis and cross-breeding techniques. Presented at the USDA-ARS PWA, Aberdeen, Idaho; June 13th 2017.
- Rashid, A. et al.**, (2016). Fast high-quality single-seed RNA extraction from sprouted malting barley rich in polysaccharides Presented at the 12th International Barley Genetic Symposium, Minneapolis, MN; June 26-30, 2016; Abstract #155.
- Rashid, A.** (2014). Management of imidazolinone herbicide tolerance trait in crop plants: Application of an externally regulated genetic switch. Presented at the KTRDC, Univ. of Kentucky, Lexington, KY; February 12th, 2014.
- Deyholos, M.K., Rashid, A. et al.** (2013). The intrinsically disordered Pan-Proteome, and characterization of growth promoting IDPs. Abstract #78, ASPB meeting (Western Section) April 12-13, 2013; University of California, Davis.
- Rashid, A.** (2012). Constitutive expression of putative blackleg resistance genes of *Arabidopsis thaliana* in an elite canola cultivar for resistance against blackleg disease: A project proposal presented to the Dept. of Agriculture, Food and Nutritional Sciences, Univ. of Alberta/Alberta Agriculture, Edmonton, Alberta, Canada; November 30th 2012.
- Rashid A. et al.** (2011). Effect of a wide range of pH values on resting spore germination and clubroot (*Plasmodiophora brassicae*) severity on canola. Abstract # 8; presented at the 32nd Annual Meeting of the Plant Pathology Society of Alberta, Univ. of Alberta, Edmonton, AB. Canada. November 7-9, 201.
- Rashid, A.** (2011). Bioinformatics and mutational analysis of *PELPK1* in *Arabidopsis thaliana*. Presented at the Dale Bumpers National Rice Research Center, USDA-ARS, East Stuttgart, Arkansas.
- Rashid, A.** (2006). Development of Golden Rice through plant genetic engineering. Botany 600 presentation. Dept. of Biol. Sciences, Univ. of Alberta, Edmonton, Alberta, Canada.
- Rashid, A.** (2005). How herbicides work: classification, mode of action and resistance. Botany 600 presentation. Dept. of Biol. Sciences, Univ. of Alberta, Edmonton, Alberta, Canada.
- Rashid, A.** (2003). Factors affecting glyphosate performance. Presented at the producers meeting, Lakeland Agricultural Research Association (LARA), Bonnyville, Alberta, Canada.
- Rashid, A.** (2003). Recognizing herbicide action and injury. Presented at the Annual General Meeting, Lakeland Agricultural Research Association, Ashmont, Alberta, Canada.
- Rashid, A.** (2002). Herbicide damage diagnostic clinic at the Alberta Research Council in Vegreville. Presented at the ARC-Connect Conference, Leduc, Alberta, Canada.
- Rashid, A., et al.**, (2001). Sulfonylurea resistant spiny annual sowthistle populations can be managed with alternative herbicides. Abstract #5; Proc. Expert Comm. Weeds, Quebec City, Canada
- Rashid, A. et al.**, (2001). Climatic factors affecting herbicide performance. Abstract #6, Proc. Expert Comm. Weeds, Quebec City, Canada.
- Rashid, A.** (2001) Herbicide related issues in Alberta: an overview. Presented at the Regional Agricultural Crop Specialists and Fieldmen, ARC, Vegreville, Alberta, Canada.
- Rashid, A. and Checkel, S.** (2001). Factors affecting barley tolerance to graminicides. Presented at the Board of Directors, Alberta Barley commission, Alberta, Canada
- Rashid, A and Checkel, S.** (2001). Plant bioassay techniques for detecting Pursuit® (*imazethapyr*) residues in soil. On Farm Demo., Parkland Conservation Farm, Alberta, Canada.
- Rashid, A. and Checkel, S.** (2001). A barley bioassay for detecting Everest® (*flucarbazone-sodium*) residues in various soil types of Alberta. Demonstrated at the Board of Directors meeting, Alberta Barley commission, Alberta, Canada.

- Rashid, A.** (2001). An overview of herbicide research at Alberta Research Council in Vegreville. Presentation at the ARC Connect Conference, Leduc, Alberta.
- O'Donovan, J.T., Rashid, A., Newman, J., Robinson, D., Maurice, D. and Poisson, D** (2001). Spiny annual sowthistle (*Sonchus asper*) resistance to acetolactate synthase (ALS) inhibiting herbicides in Alberta. Proc. Weed Sci. Soc. Am., Reno, Nevada. #91, WSSA Abstract, Vol. 42, pp 26-27.
- Rashid, A., and Checkel, S.** (2000). Herbicide residue carryover in Alberta soil. Presented at the Top Grower Meeting, Festival Place, Sherwood Park, Alberta, Canada.
- O'Donovan, J.T., Rashid, A., and Phraris, R.P.** (1999). Wild oat (*Avena fatua*) resistance to *trallate* and *difenzoquat* is linked to elevated levels of gibberellins. Proc. Weed Sci. Soc. of America, San Diego, CA, P.40-41.
- Rashid, A.** (1999). Effects of herbicides on weeds. Presented to the students of Environmental Toxicology, Lakeland College, Vermillion, Alberta.
- Rashid, A. and Sharma, M.P.** (1999). Herbicide carryover: Development of sensitive bioassay and Field investigation. Presented at the Westco ACES Agronomy Meeting, Edmonton, Alberta.
- O'Donovan, J.T., Rashid, A. and Khan, A.A.**(1997). Approaches to understanding *trallate/ difenzoquat* resistance in wild oats: is gibberellic acid involved? Proc. Western Soc. of Weed Sci. p. 81-82.
- Rashid, A. et al.** (1997). Herbicide damage diagnostic, advisory, and technology transfer services. Presented at PMB Inspector Meeting, Alberta Environmental Protection, Chemical Assessment and Mgmt Division, Oxbridge Place, Edmonton, Alberta, Canada.
- Rashid, A., et al.** (1997). Wild oat resistance to *trallate* and cross-resistance to *difenzoquat*. Presented at the 5th Annual Pseudo-Herbicide Resistant Weeds Workshop, Montana State University, Bozeman, Montana.
- O'Donovan, J.T., Rashid, A., Khan, A.A.**(1996). A relatively sensitive seedling bioassay for assessing wild oat resistance to *trallate* and cross-resistance to *difenzoquat*. Proc. WSSA, Norfolk, VA, p.57.
- Rashid, A.** (1995-2002). Updates on herbicide research at the Alberta Research Council in Vegreville, Alberta. Yearly reports presented at the Alberta Weed Advisory Committee (AWAC) meetings, Edmonton, Alberta, Canada.

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