

Plant Science Publications between January 1 2016 and December 31 2016

List of all academic staff members (status as of Dec 31, 2016):

Emerita Professor: Buszard, D.J.

Professors: Dutilleul, P.; Geitmann, A. (Dean); Smith, D.L.; Watson, A.K.

Associate Professors: Bede, J.C.; de Blois, S.; Charron, J.B.; Donnelly, D.J.; Jabaji, S.; Kushalappa, A.C.; Seguin, P.; Singh, J.; Strömvik, M.V. (Chair)

Assistant Professors: Gravel, V.; Wilkins, O.

Faculty Lecturers: Begg, C.B.; Wees, D.

Retired professor: Waterway, M.J.

Adjunct Professors: Bertrand, A.

BEDE, J.C.

Paudel, J.R., Amirizian, A., Kross, S., Giddings, G., Ismail, S.A.A., Xia, J., Gloer, J.B., van Dam, N.M. and **Bede, J.C.** 2016. Effect of atmospheric carbon dioxide levels and nitrogen fertilization on glucosinolate biosynthesis in mechanically damaged *Arabidopsis* plants. *BMC Plant Biology*. 16:68.

Prado, A., Rubio-Mendez, G., Yanez-Espinosa, L. and **Bede, J.C.** 2016. Ontogenic changes in azoxyglycoside levels in the leaves of *Dioon Edule* Lindl. *Journal of Chemical Ecology*. 11:1142-1150.

Prado, A., Cervantes-Diaz, F., Perez-Zavalla, F.G., Gonzalez-Astorga, J., **Bede, J.C.** and Cibrian-Jaramillo, A. 2016. Transcriptome-derived microsatellites for *Dioon* (Zamiaceae) Cycad Species. *Applications in Plant Sciences*. 4:1500087.

CHARRON, J.B.

Aubin, M.P., Seguin, P., Vanasse, A., Lalonde, O., Tremblay, G.F., Mustafa, A.F. and **Charron, J.B.** 2016. Evaluation of Eleven Industrial Hemp Cultivars Grown in Eastern Canada. *Agronomy Journal*. 108:1972–1980.

De BLOIS, S.

Beauregard, F. and **de Blois, S.** 2016. Rapid latitudinal range expansion at cold limits unlikely for temperate understory forest plants. *Ecosphere*. 7:e01549.

Périé, C. and **de Blois, S.** 2016. Dominant forest tree species are potentially vulnerable to climate change over large portions of their range even at high latitudes. *PeerJ*. 4:e2218.

Casajus, N., Périé, C., Logan, T., Lambert, M.-C., **de Blois, S.** and Berteaux, D. 2016. An objective approach to select climate scenarios when projecting species distributions under climate change. *PLoS ONE*. 11:e0152495.

DONNELLY, D.J.

Bamberg, J.B., Martin, M.W., Abad, J., Jenderek, M.M., Tanner, J., **Donnelly, D.J.**, Nassar, A.M.K., Velleux, R.E. and Novy, R.G. 2016. *In vitro* technology at the US Potato Genebank. *In Vitro Cellular & Developmental Biology – Plant*. 52:213-225.

Sadeghi Ekbatan, S., Sleno, L., Sabally, K., Khairallah, J., Azadi, B., Rodes, L., Prakash, S., **Donnelly, D.J.** and Kubow, S. 2016. Biotransformation of polyphenols in a dynamic multistage gastrointestinal model. *Food Chemistry*. 1:453-462.

DUTILLEUL, P.

Beaulieu, J., Han, L. and **Dutilleul, P.** 2016. Using computed tomography scanning technology to extract virtual wood cores, derive wood density radial patterns, and test hypotheses about direction, core size, and year of growth. *Wood and Fiber Science*. 48:171-182.

Dutilleul, P. and Pelletier, B. 2016. A valid parametric test of significance for the average R2 in redundancy analysis with spatial data. *Spatial Statistics*. 19:21-41

Schwinghamer, T., Souleimanov, A., **Dutilleul, P.** and Smith, D. L. 2016. A micromolar concentration of lipo-chitooligosaccharide (Nod Bj V [C18:1, MeFuc]) regulates the emergence and seed productivity of rapid cycling canola (*Brassica napus* [L.] plants). *Plant Signaling & Behavior*. 11:11.

Schwinghamer, T.D., Souleimanov, A., **Dutilleul, P.** and Smith, D. L. 2016. The response of canola cultivars to lipo-chitooligosaccharide (Nod Bj V [C18:1, MeFuc]) and thuricin 17. *Plant Growth & Regulation*. 78:421-434.

Schwinghamer, T. D., Souleimanov, A., **Dutilleul, P.** and Smith, D. L. 2016. Supplementation with solutions of lipo-chitooligosaccharide Nod Bj V (C18:1, MeFuc) and thuricin 17 regulates leaf arrangement, biomass, and root development of canola (*Brassica napus* [L.]). *Plant Growth & Regulation*. 78:31-41.

Dutilleul, P. and Lafond, J.A. 2016. Branching and Rooting Out with a CT Scanner: The Why, the How, and the Outcomes, Present and Possibly Future. *Frontiers in Plant Science*. 7:41

GEITMANN, A.

Geitmann, A. 2016. Actuators acting without actin. *Cell*. 166:15-17.

Agudelo, C., Packirisamy, M. and **Geitmann, A.** 2016. Influence of electric fields and conductivity on pollen tube growth assessed via Electrical Lab-on-Chip. *Nature Scientific Reports*. 6:e19812.

Bidhendi, A.J. and **Geitmann, A.** 2016. Relating the mechanics of the primary plant cell wall to morphogenesis. *Journal of Experimental Botany*. 67:449-461.

GRAVEL, V.

Naznin, M.T., Lefsrud, M., **Gravel, V.** and Hao, X. 2016. Different ratios of red and blue LED light effects on coriander productivity and antioxidant properties. *VIII International Symposium on Light in Horticulture, Acta Horticulturea*. 1134:223-230.

Naznin, M.T., Lefsrud, M., **Gravel, V.** and Hao, X. 2016. Using different ratios of red and blue LEDs to improve the growth of strawberry plants. *VIII International Symposium on Light in Horticulture, Acta Horticulturae*. 1134:125-130.

JABAJI, S.

Gagné-Bourque, F., Bertrand, A., Claessens, A., Aliferis, K.A. and **Jabaji, S.** 2016. Alleviation of Drought stress and metabolic changes in timothy colonized with *Bacillus subtilis* B26. *Frontiers in Plant Science*. 7:584. (Voted the best article by Plant Science)

Samsatly, J., Chamoun, R., Glück-Thaler, E. and **Jabaji, S.** 2016. Genes of the *de novo* and salvage biosynthesis pathways of vitamin B6 are regulated under oxidative stress in the plant pathogen *Rhizoctonia solani*. *Frontiers in Microbiology*. 6:1429.

KUSHALAPPA, A.C.

Kage, U., Karre, S., **Kushalappa, A.C.** and McCartney, C. 2016. Identification and characterization of a fusarium head blight resistance gene *TaACT* in wheat QTL-2DL. *Plant Biotechnology Journal*. 15:447-457

Pineros-Nino, C., Narváez-Cuenca, C., **Kushalappa, A.C.** and Mosquera-Vásquez, T. 2016. Hydroxycinnamic acids in cooked potato tubers from *Solanum tuberosum* group Phureja. *Food Science and Nutrition*.

Kushalappa, A.C., Yogendra, K.N., Sarkar, K., Kage, U. and Karre, S. 2016. Gene discovery and genome editing to develop cisgenic crops with improved resistance against pathogen stress. *Canadian Journal of Plant Pathology*. 38:279-295

Dhokane, D., Karre, S., **Kushalappa, A.C.** and McCartney, C. 2016. Integrated Metabolo-transcriptomics reveals fusarium head blight resistance genes in wheat QTL-Fhb2. *PLoS ONE*. 11: e0155851.

Duarte-D., D., Núñez-L., C.E., Narváez-C., C.E., Restrepo-S., L.P., Melos, S.E., **Kushalappa, A.C.** and Mosquera-V., T. 2016. Natural variation of sucrose, glucose, and fructose contents in Colombian genotypes of *Solanum tuberosum* Group Phureja at harvest. *Journal of the Science of Food and Agriculture*. 96:4288-4294

Yogendra, K.N. and **Kushalappa, A.C.** 2016. Integrated transcriptomics and metabolomics reveal induction of hierarchies of resistance genes in potato against late blight. *Functional Plant Biology*. 43:766-782

Kumar, A., Yogendra, K.N., Karre, S., **Kushalappa, A.C.**, Dion, Y. and Choo, T.M. 2016. WAX INDUCER1 (HvWIN1) transcription factor regulates free fatty acid biosynthetic genes to enforce cuticle to resist fusarium head blight in barley spikelets. *Journal of Experimental Botany*. 67:4127-4139.

Kushalappa, A.C., Yogendra, K.N. and Karee, S. 2016. Plant innate immune response: qualitative and quantitative resistance. *Critical Reviews in Plant Science*. 35:38–55.

Ji, L., Yogendra, K.N., Mosa, K., **Kushalappa, A.C.**, Pineros, C., Mosquera, T. and Narvaez, C. 2016. Hydroxycinnamic acid functional ingredients and their biosynthetic genes in tubers of *Solanum tuberosum* Group Phureja. *Cogent Food & Agriculture*. 2:1138595.

SEGUIN, P.

Carrera, C.S. and **Seguin, P.** 2016. Factors affecting tocopherol concentrations in soybean seeds. *Journal of Agricultural and Food Chemistry*. 64:9465–9474.

Delaquis, E., **Seguin, P.**, Mustafa, A.F., Samson, R. and Martel, H. 2016. Effects of soil characteristics on spring-harvested switchgrass biomass composition. *Communications in Soil Science and Plant Analysis*. 47:1782-1791.

Aubin, M.-P., **Seguin, P.**, Vanasse, A., Lalonde, O., Tremblay, G.F., Mustafa, A.F. and Charron, J.-B. 2016. Evaluation of eleven industrial hemp cultivars grown in Eastern Canada. *Agronomy Journal*. 108:1972-1980.

Backer, R.G.M., Schwinghammer, T.D., Whalen, J.K., **Seguin, P.** and Smith, D.L. 2016. Biochar application increases soil organic carbon under switchgrass and corn grain yields under temperate field conditions. *Journal of Plant Nutrition and Soil Science*. 179:399-408.

Wees, D., **Seguin, P.** and Boisclair, J. 2016. Sweet potato production in a short-season area utilizing black plastic mulch: effects of cultivar, in-row plant spacing, and harvest date on yield parameters. *Canadian Journal of Plant Science*. 96:150–159.

Dos Passos Bernardes, A., Tremblay, G.F., Bélanger, G., Brégar, A., **Seguin, P.** and Vanasse, A. 2016. Bagasse silage from sweet pearl millet and sweet sorghum as influenced by harvest dates and delays between biomass chopping and pressing. *Bioenergy Research*. 9:88-97.

Thivierge, M.-N., Angers, D.A., Chantigny, M.H., **Seguin, P.** and Vanasse, A. 2016. Root traits and carbon input in field-grown sweet pearl millet, sweet sorghum, and grain corn. *Agronomy Journal*. 108:459–471.

SINGH, J.

Kaur, S., Dhugga, K. S., Gill, K. S. and **Singh, J.** 2016. Novel structural and functional motifs in *cellulose synthase (CesA)* genes of bread wheat (*Triticum aestivum*, L.). *PLoS ONE*. 11:e0147046.

Cardinal, M.-J., Kaur, R. and **Singh, J.** 2016. Genetic transformation of *Hordeum vulgare* ssp. *spontaneum* for the development of a transposon-based insertional mutagenesis system. *Molecular Biotechnology*. 58:672-683.

Singh, S. and **Singh, J.** 2016. Sequence-based genetic mapping of *Ds*-tagged insertions to characterize malting-related traits in barley. *The Crop Journal*. 5:11-20.

Daishu, Y., Schwinghamer, T., Dalpé, Y., El-Sayed, A.-A., **Singh, J.**, Wang, X. and Khanizadeh, S. 2016. Comparison of total phenolic content and antioxidant capacity of mycorrhizal-colonized spring wheat (*Triticum aestivum* L.) genotypes. *Journal of Food, Agriculture & Environment*. 14:59-64.

Tinker, N.A., Jackson, E. W., Snyder, S., Tiede, T., Azar, C., Babiker, E., Beuch, S., Bjørnstad, Å., Ceplitis, A., Chao, S., Cowan, S., Dumlupinar, Z., Esvelt Klos, K., Fetch, T., Harrison, S., Howarth, C., Hu, G., Huang, Y-F., Sanchez, J.I., Jellen, R., Kolb, F., Langdon, T., Ma, B., Maughan, J., McCartney, C., McMullen, M., Miller, S., Fetch, J.M., Paczos-Grzęda, E., Peng, Y., Prats, E., Ren, C., **Singh, J.**, Sorrells, M.E., Tumino, G., Vallenback, P., Wight, C.P., Winkler, L. and Zwer, P. 2016. Achievements and impact of the Collaborative Oat Research Enterprise (CORE). *The Oat Newsletter*. 53:1-26.

SMITH, D.L.

Shanta, N., Schwinghamer, T., Backer, R., Allaire, S.E., Teshler, I., Vanasse, A., Whalen, J., Baril, B., Lange, S., MacKay, J., Zhou, X. and **Smith, D.L.** 2016. Biochar and plant growth promoting rhizobacteria effects on switchgrass (*Panicum virgatum* cv. Cave-in-Rock) for biomass production in southern Québec depend on soil type and location. *Biomass & Bioenergy*. 95:167-173.

Mustafa, G., Ali, M.A., **Smith, D.L.**, Schwinghamer, T., Ahmed, N., Arshad, M. and Lamont, J. 2016. Guar, jantar, wheat straw, and rice hull composts as replacements for peat in muskmelon transplant production. *International Journal of Recycling of Organic Waste in Agriculture*. 5:323-332.

Gautam, K., Schwinghamer, T. and **Smith, D.L.** 2016. The response of soybean to nod factors and a bacteriocin. *Plant Signaling & Behavior*. 10:e1241934.

Schwinghamer, T., Souleimanov, A., Dutilleul, P. and **Smith, D.L.** 2016. A micromolar concentration of lipochitooligosaccharide (Nod Bj V [C18:1, MeFuc]) regulates the emergence and seed productivity of rapid cycling canola (*Brassica napus* [L.] plants. *Plant Signaling & Behavior*. 78:31-41.

Subramanian, S., Souleimanov, A., Ricci, E. and **Smith, D.L.** 2016. A proteomic approach to lipochitooligosaccharide and thuricin 17 effects on soybean germination unstressed and salt stress. *PLoS One*. 11:e0160660.

Subramanian, S., Souleimanov, A. and **Smith, D.L.** 2016. Proteomic studies on the effects of lipochitooligosaccharide and thuricin 17 under unstressed and salt stressed conditions in *Arabidopsis thaliana*. *Frontiers in Plant Science*. 7:1314.

Prudent, M., Salon, C., **Smith, D.L.** and Emery, R.J.N. 2016. Nod factor supply under water stress conditions modulates cytokinin biosynthesis and enhances nodule formation and N nutrition in soybean. *Plant Signaling and Behavior*. 9:e1212799.

Backer, R.T.C., Schwinghamer, T.D., Whalen, J.K., Seguin, P. and **Smith, D.L.** 2016. Crop yield and SOC responses to biochar application were dependent on soil texture and crop type in southern Quebec, Canada. *Journal of Plant Nutrition and Soil Science*. 179:399-408.

Gladowska, M., Schwinghamer, T., Husk, B. and **Smith, D.L.** 2016. Biochar is a growth promoting alternative to peat moss for the inoculation of corn with a pseudomonad. *Agronomy for Sustainable Development*. 36:21.

STROMVIK, M.V.

Galvez, J.H., Tai, H., Zebarth, B., Lagüe, M. and **Strömviik, M.V.** 2016. The nitrogen responsive transcriptome in potato (*Solanum tuberosum* L.) reveals significant gene regulatory motifs. *Scientific Reports*. 6:26090.

Goordial, J., Raymond-Bouchard, I., Zolotarov, Y., de Bethencourt, L., Ronholm, J., Shapiro, N., Woyke, T., **Strömviik, M.**, Greer, C., Bakermans, C. and Whyte, L. 2016. Cold adaptive traits revealed by comparative genomic analysis of eurypsychrophile *Rhodococcus* sp. JG3 isolated from high elevation McMurdo Dry Valley permafrost, Antarctica. *FEMS Microbiology Ecology*. 92:fiv154.

De Almeida, M.R. and **Strömviik, M.V.** 2016. Chapter 11: Laser capture microdissection: Avoiding bias in analysis by selecting just what matters. In "*Biotechnology of Plant Secondary Metabolism*" Ed.: A.G Fett-Neto. Humana Press, Springer Protocols, Methods in Molecular Biology 1405

WATERWAY, M.J.

Waterway, M.J., Martins, K., Dabros, A., Prado, A. and Lechowicz, M.J. 2016. Ecological and evolutionary diversification within the genus *Carex* (Cyperaceae): consequences for community assembly in subarctic fens. *Systematic Botany*. 41:558-579.

Jiménez-Mejías, P., Luçeño, M., **Waterway, M.J.**, Wilson, K.L. and Roalson, E.H. 2016. Clarification of the use of the terms perigynium and utricle in *Carex* L. (Cyperaceae). *Systematic Botany*. 41:519-528.

Jiménez-Mejías, P., Hahn, M., Lueders, K., Starr, J.R., Brown, B.H., Chouinard, B.N., Chung, K.-S., Escudero, M., Ford, B.A., Ford, K.A., Gebauer, S., Gehrke, B., Hoffmann, M.H., Jin, X.-F., Jung, J, Kim, S., Luçeño, M., Maguilla, E., Martín-Bravo, S., Míguez, M., Molina, A., Naczi, R.F.C., Pender, J.E., Reznicek, A.A., Villaverde, T., **Waterway, M.J.**, Wilson, K.L., Yang, J.-C., Zhang, S., Hipp, A.L. and Roalson, E.H. 2016. Megaphylogenetic specimen-level approaches to the *Carex* (Cyperaceae) phylogeny using ITS, ETS, and *matK* sequences: implications for classification. *Systematic Botany*. 41:500-518.

Pham, K.K., Hahn, M., Lueders, K., Brown, B.H., Bruederle, L.P., Bruhl, J.J., Chung, K.-S., Derieg, N.J., Escudero, M., Ford, B.A., Gebauer, S., Gehrke, B., Hoffmann, M.H., Hoshino, T., Jiménez-Mejías, P., Jung, J, Kim, S., Luçeño, M., Maguilla, E., Martín-Bravo, S., Naczi, R.F.C., Reznicek, A.A., Roalson, E.H., Simpson, D.A., Starr, J.R., Villaverde, T., **Waterway, M.J.**, Wilson, K.L., Yano, O., Zhang, S. and Hipp, A.L. 2016. Specimens at the center: An informatics workflow and toolkit for specimen-level analysis of public DNA database data. *Systematic Botany*. 41:529-539.

Hipp, A.L., Jiménez-Mejías, P., **Waterway, M.J.**, Hahn, M. and Roalson, E.H. 2016. Proceedings Introduction: Phylogeny and Ecological Diversification in *Carex*. *Systematic Botany*. 41:498-499.

Jiménez-Mejías, P., Fabbroni, M., Donadío, S, Rodríguez-Palacios, G. E., Hilpold, A., Martín-Bravo, S., **Waterway, M.J.** and Roalson, E.H. 2016. Taxonomic and distribution notes on *Carex* (Cyperaceae) from the Neotropics. *Boletín de la Sociedad Argentina de Botánica*. 51:727-739.

Elliott, T.L., **Waterway, M.J.** and Davies, T.J. 2016. Contrasting lineage-specific patterns conceal community phylogenetic structure in larger clades. *Journal of Vegetation Science*. 27:69-79.

WATSON, A.K.

Bae, J., Benoit, D.L. and **Watson, A.K.** 2016. Effect of heavy metals on seed germination and seedling growth of common ragweed and roadside ground cover legumes. *Environmental Pollution*. 213:112–118.

WEES, D.

Wees, D., Seguin, P. and Boisclair, J. 2016. Sweet potato production in a short-season area utilizing black plastic mulch: effects of cultivar, in-row plant spacing, and harvest date on yield parameters. *Canadian Journal of Plant Science*. 96:139-147.

WILKINS, O.

Wilkins, O., Hafemeister, C., Plessis, A., Holloway-Phillips, M.-M., Pham, G.M., Nicotra, A.B., Gregorio, G.B., Jagadish, S.V.K., Septiningsih, E.M., Bonneau, R. and Purugganan, M.D. 2016. EGRINs (Environmental Gene Regulatory Influence Networks) in Rice That Function in the Response to Water Deficit, High Temperature, and Agricultural Environments. *Plant Cell*. 28:2365–2384.

Rest, J.S., **Wilkins, O.**, Yuan, W., Purugganan, M.D. and Gurevitch, J. 2016. Meta-analysis and meta-regression of transcriptomic responses to water stress in Arabidopsis. *The Plant Journal*. 85:548–560.