

Plant Science Publications between January 1 2015 and December 31 2015

List of all academic staff members (status as of Dec 31, 2015):

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); Waterway, M.J.

Assistant Professors: Gravel, V.

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

Adjunct Professors: Bertrand, A.; Ma, B.L.

BEDE, J.C.

Paudel, J.R. and **Bede, J.C.** 2015. Ethylene signaling modulates herbivore-induced defense responses in the model legume *Medicago truncatula*. *Molecular Plant-Microbe Interactions* 28: 569-579.

BERTRAND, A.

Messerli, J., **Bertrand, A.**, Bourassa, J., Bélanger, G., Castonguay, Y., Tremblay, G., Baron, V. and Seguin, P. 2015. Performance of Low-Cost Open-Top Chambers to Study Long-Term Effects of CO₂ and Climate Under Field Conditions. *Agronomy Journal* 60: 5: 11-11

Bertrand, A., Dhont, C., Bipfubusa, M., Chalifour, F-P, Drouin, P. and Beauchamp, C.J. 2015. Improving salt stress responses of the symbiosis in alfalfa using salt-tolerant cultivar and rhizobial strain. *Applied Soil Ecology*. 87: 108-117.

Gagné-Bourque, F., Mayer, B.F., Charron, J-B, Vali, H., **Bertrand, A.** and Jabaji, S. 2015. Accelerated Growth Rate and Increased Drought Stress Resilience of the Model Grass *Brachypodium distachyon* Colonized by *Bacillus subtilis* B26. *PLOS ONE* 10(6): e0130456

Aung, B., Gruber, MY, Amyot, L. Omari, K., **Bertrand, A.** and Hannoufa, A. 2015. MicroRNA156 as a promising tool for alfalfa improvement. *Plant Biotechnology Journal*. 13: 779-790.

Mayer, B.F., Ali-Benali, M.A., Demone, J. **Bertrand, A.** and Charron, J-B. 2015. Cold acclimation induces distinctive changes in the chromatin state and transcript levels of COR genes in *Cannabis sativa* varieties with contrasting cold acclimation capacity. *Physiologia Plantarum* 155:281-95.

Adeleke, R., Cloete, T.E., **Bertrand, A.** and Khasa, D.P. 2015. Relationship between plant growth and organic acid exudates from ectomycorrhizal and non-ectomycorrhizal *Pinus patula*. *South African Journal of Plant and soil*. 2015: 1-6.

CHARRON, J.B.

Vonapartis, E., Aubin, M.P., Seguin, P. Mustafa, A.F. and **Charron, J.B.** 2015. Seed composition of ten industrial hemp cultivars approved for production in Canada. *Journal of Food Composition and Analysis*. 39: 8-12

Mayer, B.F., Ali-Benali, M.A., Demone, J.; Bertrand, A., **Charron, J.B.** 2015. Cold acclimation induces distinctive changes in the chromatin state and transcript levels of COR genes in *Cannabis sativa* L. varieties with contrasting

freezing tolerance *Physiologia Plantarum* 155: 281–295

Aubin, M.P., Seguin, P., Vanasse, A., Tremblay, G.F., Mustafa, A. and **Charron, J.B.** 2015. Industrial Hemp Response to Nitrogen, Phosphorus, and Potassium Fertilization. *Crop, Forage & Turfgrass Management* 1: 1-10

Gagné-Bourque, F., Mayer, B.F., **Charron, J.B.** and Jabaji, S. 2015. Accelerated Growth Rate and Increased Drought Stress Resilience of the Model Grass *Brachypodium distachyon* Colonized by *Bacillus subtilis* B26. *PLOS ONE* 10(6): e0130456

DE BLOIS, S.

Byun, C., **de Blois, S.** & Brisson, J. 2015. Interactions between abiotic constraint, propagule pressure, and biotic resistance regulate plant invasion. *Oecologia*, 178, 285-296.

DONNELLY, D.J.

Nassar, A.M.K., Kubow, S. & **Donnelly, D.J.** 2015. High-throughput screening of sensory and nutritional characteristics for cultivar selection in commercial hydroponic greenhouse crop production. *International Journal of Agronomy* Volume 2015, Article ID 376417

Lovat, C.E., A.M.K. Nassar, Kubow, S., Li, X.-Q. and **Donnelly, D. J.** 2015. Metabolic biosynthesis of potato (*Solanum tuberosum* L.) antioxidants and implications for human health. *Critical Reviews in Food Science and Nutrition*.

DUTILLEUL, P.

Dutilleul, P., Han, L., Valladares, F., and Messier, C. 2015. Crown traits of coniferous trees and their relation to shade tolerance can differ with leaf type: A biophysical demonstration using computed tomography scanning data. *Frontiers in Plant Science* 6:172

Dutilleul, P., Johnson, C. W., Bürgmann, R., Wan, Y., and Shen, Z.-K. 2015. Multi-frequential periodogram analysis of earthquake occurrence: An alternative approach to the Schuster spectrum, with two examples in central California. *Journal of Geophysical Research – Solid Earth* 120:8494-8515.

Lafond, J. A., Han, L., and **Dutilleul, P.** 2015. Concepts and analyses in the CT scanning of root systems and leaf canopies: A timely summary. *Frontiers in Plant Science* 6:1111

Schwinghamer, T. D., Souleimanov, A., **Dutilleul, P.**, and Smith, D. L. 2015. The plant growth regulator lipochitooligosaccharide (LCO) enhances the germination of canola (*Brassica napus* [L.]). *Journal of Plant Growth Regulation* 34:183-195.

Subramanian, S., Han, L., **Dutilleul, P.**, and Smith, D. L. 2015. Computed tomography scanning can monitor the effects of soil medium on root system development: An example of salt stress in corn. *Frontiers in Plant Science* 6:256

Whalen, J. K., Han, L., and **Dutilleul, P.** 2015. Burrow refilling behavior of *Aporrectodea turgida* (Eisen) and *Lumbricus terrestris* L. as revealed by X-ray computed tomography scanning: Graphical and quantitative analyses. *Canadian Journal of Soil Science* 95:231-235.

GEITMANN, A.

Bidhendi, A., **Geitmann, A.** 2015. Relating the mechanics of the primary plant cell wall to morphogenesis *Journal of Experimental Botany* 67 (2).

Geitmann, A., Nebenfuhr A. 2015 Navigating the plant cell: Intracellular transport logistics in the green kingdom

Molecular Biology of the Cell 26(19): 3373-3378

Chebli, Y., **Geitmann, A.** 2015. Live Cell and Immuno-Labeling Techniques to Study Gravitational Effects on Single Plant Cells *Methods in molecular biology* (Clifton, N.J.) 1309:209-26

Agudelo, C., Nezhad, A., Ghanbari, M., Packrisamy, M., **Geitmann A.** 2015. Navigating a Maze - Sensing and Responding to Mechanical Obstacles during Cellular Invasive Growth *Biophysical Journal* 108(2):12a

GRAVEL, V.

Gravel, V., Dorais, M., Dey, D., & Vandenberg, G. 2015. Fish effluents promote root growth and suppress fungal diseases in tomato transplants. *Canadian Journal of Plant Science*, 95(2), 427-436.

van Bruggen, A. H., Narouei-Khandan, H. A., **Gravel, V.,** & Blok, W. J. 2016. Corky root severity, root knot nematode galling and microbial communities in soil, rhizosphere and rhizoplane in organic and conventional greenhouse compartments. *Applied Soil Ecology*, 100, 112-123.

JABAJI, S.

Gagné-Bourque F., Xu M, Dumont MJ, **Jabaji S.** 2015. Pea protein alginate encapsulated *Bacillus subtilis* B26, a plant biostimulant, provides controlled release and increased storage survival. *Journal of fertilizers and Pesticides*.

Jeukens J, Kukavica-Ibrulj I, Freschi L, **Jabaji S,** Levesque, R. 2015. Draft genome sequences of two lipopeptide producer strains of *Bacillus methylotrophicus*. *Genome Announcements*

Gagne-Bourque F, Mayer BF, Charron JB, Vali H, Bertrand A, **Jabaji S.** 2015. Accelerated growth rate and increased drought stress resilience of the model grass *Brachypodium distachyon* colonized by *Bacillus subtilis* B26. *PlosOne*,10(6):e0130456.

Chamoun, R, Aliferis KA, **Jabaji S.** 2015. Identification of signatory secondary metabolites during mycoparasitism of *Rhizoctonia solani* by *Stachybotrys elegans*. *Frontiers in Microbiology*. 6:353.

Aliferis KA, Chamoun R, **Jabaji S.** 2015. Metabolic Responses of Willow (*Salix purpurea* L.) Leaves to Mycorrhization as Revealed by Mass Spectrometry and 1H NMR Spectroscopy Metabolite Profiling. *Frontiers in Plant Science*.

Copley TR, Aliferis KA, **Jabaji S.** 2015. Maple bark biochar affects *Rhizoctonia solani* metabolism and increases damping-off severity. 2015. *Phytopathology*, 105(10): 1334-1346.

Kaur R, Syan HS, **Jabaji S.,** Pageau D, Singh J. 2015. Dynamics of soil fungal population in herbicide resistant canola fields. *International Journal of Plant & Soil Science*, 7(6): 338-347.

Meng X, Gagné-Bourque F, Dumont MJ, **Jabaji S.** 2015. Encapsulation of *Lactobacillus casei* ATCC 393 cells and evaluation of their survival after freeze drying, storage and under gastrointestinal conditions. *Journal of Food Engineering*, 168: 52–59.

KUSHALAPPA, A.

Yogendra KL, Kumar A, Sarkar K, Li y, Pushpa D, Mosa K, Duggavathi R and **Kushalappa A.** 2015. Transcription factor *stwrky1* regulates phenylpropanoid metabolites conferring late blight resistance in potato. *The Journal of Experimental Botany*

Kage U, Kumar A, Dhokane D, Karre S, **Kushalappa AC.** 2015. Functional Molecular Markers for Crop Improvement. *Critical Reviews in Biotechnology*

Pena C, Restrepo-S LP, **Kushalappa AC,** Rodríguez-M LE, Mosquera T, Narvaez-C CE. 2015. Nutritional contents of advanced breeding clones of *Solanum tuberosum* group Phureja. *LWT – Food Science and Technology* 62:76-82.

Yogendra KN, **Kushalappa AC**, Sarmiento F, Rodriguez E, Mosquera T. (2015). Metabolomics deciphers quantitative resistance mechanisms in diploid potato clones against late blight. *Functional Plant Biology*.42: 284-298.

Kumar A, Karre S, Dhokane D, Kage U, Hukkeri S, **Kushalappa AC**. 2015. Real-time quantitative PCR based method for the quantification of fungal biomass to discriminate quantitative resistance in barley and wheat genotypes to fusarium head blight. *Journal of Cereal Science* 64: 16-22. 64: 16-22.

Duarte-Delgado D, Narváez-Cuenca CE, Restrepo-Sánchez LP, **Kushalappa A**, Mosquera-Vásquez T. 2015. Development and validation of a liquid chromatographic method to quantify sucrose, glucose, and fructose in tubers of *Solanum tuberosum* Group Phureja.. *J Chromatogr B Analyt Technol Biomed Life Sci*. 15;975:18-23.

Hamzehzarghani H, Vikram A, Abu-Nada, Y., **Kushalappa AC**. 2015. Tuber metabolic profiling of resistant and susceptible potato varieties challenged with *Phytophthora infestans*. *European j plant pathology*.

SEGUIN, P.

Wees D., **Seguin P.**, Boisclair J, Gendre C. 2015. Performance and quality of sweet potato cultivars grown in a Quebec, Canada with biodegradable plastic mulch. *HortTechnology*. 25(6): 815-823.

Aubin M-P., **Seguin P.**, Vanasse A., Tremblay GF., Mustafa AF, Charron J-B. 2015. Industrial hemp response to nitrogen, phosphorus, and potassium fertilization. *Crop, Forage, and Turfgrass Management*. 2015(1)

Thivierge M-N, Chantigny MH., Angers DA., **Seguin P.**, Vanasse A. 2015. Sweet pearl millet and sweet sorghum grown under cool, wet climate of eastern Canada have high nitrogen use efficiency. *Nutrient Cycling in Agroecosystems*. 102(2):195-208.

Kurian JK., Nair GR., Garipey ,Y., Lefsrud M., Orsat V., **Seguin,P.**, Yaylayan VA., Raghavan GSV. 2015. An experimental study on hydrothermal treatment of sweet sorghum bagasse for the extraction of hemicellulose. *Biomass Conversion and Biorefinery*. 5(2):161-171.

Thivierge M-N., Chantigny MH., Bélanger G., **Seguin P.**, Bertrand A., Vanasse A. 2015. Response to nitrogen of sweet pearl millet and sweet sorghum grown for ethanol in eastern Canada. *Bioenergy Research*. 8(2):807-820.

Messerli J., Bertrand A., Bourassa J., Bélanger G., Castonguay, Y., Tremblay G., Baron V., **Seguin P**. 2015. Performance of low-cost open-top chambers for long-term assessment of climate change under field conditions. *Agronomy Journal*. 107(3):916-920.

Dos Passos Bernardes A., Tremblay GF., Bélanger G., Brégard A, **Seguin P.**, Vanasse A. 2015. Sugar yield of sweet pearl millet and sweet sorghum as influenced by harvest dates and delays before biomass chopping and pressing. *Bioenergy Research*. 8(1):100-108.

Morrison MJ, Cober ER, Frégeau-Reid JA, **Seguin P**. 2015. Changes in lutein and tocopherol concentrations in soybean varieties released across seven decades in the short-season region. *Crop Science*. 55(1):55:312-319.

Vonapartis E., Aubin M-P., **Seguin P.**, Mustafa A., Charron J-B. 2015. Seed composition of ten industrial hemp cultivars authorized in Canada. *Journal of Food Composition and Analysis*. 39(1):8-12.

SINGH, J.

Brown R. H., **Singh, J.**, Singh, S., Dahleen, L. S., Lemaux' P. G., Stein N., Mascher, M., Bregitzer, P. 2015 Behavior of a modified *Dissociation* element in barley: A novel tool for genetic studies and for breeding transgenic barley. *Molecular Breeding* 35: 85: 1-15.

Ahmad, S., Lamb-Palmer, N. D., Kaur S., Lefsrud, M., **Singh, J**. 2015 Genetic diversity and population structure of *Pisum sativum* accessions for marker-trait association. *The Crop Journal* 3: 238-245.

Kaur, R., Syan, H. S., Jabaji, S., Pageau, D., **Singh, J**. 2015 Dynamics of soil fungal population in herbicide resistant canola fields. *International Journal of Plant & Soil Science* 7(6): 338-347.

SMITH, D.L.

Schwinghamer T., Souleimanov A., Dutilleul P., **Smith DL** 2015. 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*

Schwinghamer T., Souleimanov A., Dutilleul P. and **Smith DL**. 2015. The response of canola cultivars to lipo-chitooligosaccharide(Nod Bj V [C18:1, MeFuc]) and thuricin 17. *J Plant Growth Regulation*

Ma BL, Biswas DK., Herath AW., Whalen JK., Ruan SQ., Caldwell C., Earl H., Vanasse A., Scott P. and **Smith DL**. 2015. Growth, yield, and yield components of canola as affected by nitrogen, sulfur, and boron application. *Journal of Plant Nutrition and Soil Science* 178:658–670.

Bourgault M., Madramootoo CA., Webber HA., Stulina G., Horst MG. and **Smith DL**. 2015. A short season Canadian soybean cultivar double cropped after winter wheat in Uzbekistan with and without inoculation with *Bradyrhizobium* J. *Plant Studies* 4

Subramanian S. and **Smith DL**. 2015. Bacteriocins from the rhizosphere microbiome – from an agriculture perspective. *Frontiers in Plant Science* 6:909.

Smith DL., Ilangumaran, G. and Praslickova D 2015. Inter-organismal Signaling and Management of the Phytomicrobiome *Frontiers in Plant Science* 2015; 6: 722

Smith DL., Subramanian S., Lamont JR., and Bywater-Ekegård M. 2015. Signaling in the phytomicrobiome: Breadth and Potential. *Frontiers in Plant Science* 6: 709.

Subramanian S., Han L., Dutilleul P. and **Smith DL**. 2015. Computed tomography scanning can monitor the effects of soil medium on root system development: an example of salt stress in corn. *Front. Plant Sci.*

Prudent M., Salon C., Souleimanov A., Emery N., **Smith D**. 2015. Soybean is less impacted by water stress using *Bradyrhizobium japonicum* and thuricin-17 from *Bacillus thuringiensis*. *Agronomy for Sustainable Development* 35: 749-757.

Schwinghamer T., Souleimanov A., Dutilleul P. and **Smith DL** .2015. The plant growth regulator lipo-chitooligosaccharide (LCO) can enhance the germination of canola (*Brassica napus* [L.]). *J Plant Growth Regulation*

STROMVIK. M.V.

Rodrigues de Almeida, M., de Bastiani, D., Letaif Gaeta, M., Ernesto de Araujo Mariath, J.E., de Costa, F., Retallick, J., Nolan, L., Tai, H., **Strömvik, M.V.**, and Fett-Neto, A.G. 2015. Comparative transcriptional analysis provides new insights in the molecular basis of adventitious rooting recalcitrance in *Eucalyptus*. *Plant Science*, 239: 155-165

Zolotarov, Y., and **Strömvik, M.V.** 2015. *De novo* regulatory motif discovery identifies significant motifs in promoters of five classes of plant dehydrin genes. *PLoSOne*, 2015 10(6): e0129016

Chragh, M., Zolotarov, Y., Saeed, H., **Strömvik, M.V.** 2015. *Le4* is an epicotyl preferential homologue of the soybean seed specific *Le1* lectin and the vegetative *Le3* lectin genes. *Plant Molecular Biology Reporter* 33(6): 1779-1789.

WATERWAY, M.

Waterway, M. and the Global Carex Group (2015) Making *Carex* monophyletic (Cyperaceae, tribe Cariceae): a new broader circumscription. *Botanical Journal of the Linnean Society* 179:1–42

Maguilla, E., Escudero, M., **Waterway, M.**, Hipp, A. and, Luceno, M. (2015) Phylogeny, systematics, and trait evolution of *Carex* section *Glareosae* *American Journal of Botany*102: 1128-1144

WATSON, A.

Bae J., Byun C, **Watson AK.**, and Benoit DL. 2015. Ground cover species selection to manage common ragweed (*Ambrosia artemisiifolia* L.) in roadside edge of highway. *Plant Ecology* 216 (2), 263-271.

Zimmermann J., Rasche F., du Plessis M., Musyoki M., Viljoen A., **Watson A.**, Beed .F, Cadisch G., Gorfer M. 2015. An explicit AFLP-based marker for monitoring *Fusarium oxysporum* f.sp. *strigae* in tropical soils. *Biological Control* 89, 42–52.

Zhou Z., Rasmann S., Guo J., **Watson A.**, Zheng H., Guo W., and Wan F. 2015. Mating frequency positively associates with fitness in *Ophraella communa*. *Ecological Entomology* 40(3), 292-298.

WEES, D.

Wees, D., Seguin, P., Boisclair, J., and Gendre, C. 2015. Performance and Quality of Sweetpotato Cultivars Grown in Quebec, Canada with Biodegradable Plastic Mulch. *HortTechnology*, 25(6), 815-823.