

Bradley L. Reuhs

Academic Record

Degree	Field of Study	Institution	Year
Ph.D.	Botany	University of Georgia	1994
M.S.	Botany	Eastern Illinois University	1988
B.S.	Botany	Eastern Illinois University	1981

Professional Experience

Position	Department	Location	Dates
Faculty Courtesy Appointment	Department of Botany and Plant Pathology	Purdue University	2002-Present
Assistant Professor	Department of Food Science	Purdue University	2001-Present
Assistant Research Biochemist	Department of Biochemistry and Molecular Biology	University of Georgia, Athens	1996-2001
Postdoctoral Fellow	CNRS and Complex Carbohydrate Research Center	Gif-sur-Yvette, France and UGA, Athens	1994-1996
Research Assistant	Complex Carbohydrate Research Center	University of Georgia (UGA), Athens	1989-1994
Laboratory Technician	Department of Chemistry	Eastern Illinois University	1988
Research Assistant	Department of Botany	Eastern Illinois University	1985-1987
Peace Corps Volunteer	Reforestation; Green Technology	The Dominican Republic	1982-1984

Membership in Professional Societies

American Society for Microbiology (1989-present)
American Phytopathological Society (1992-present)
Institute of Food Technologists (2002-present)

Research Publications (36 total)

- Kachlany, S.C., S.B. Levery, J.S. Kim, B.L. Reuhs, L.W. Lion, and W.C. Ghiorse. 2001. Structure and carbohydrate analysis of the exopolysaccharide capsule of *Pseudomonas putida* G7. *Environ. Microbiol.* 3:774-784
- Kiss, E., A. Kereszt, F. Barta, S. Stephens, B.L. Reuhs, A. Kondorosi, and P. Putnoky. 2001. The *rkp-3* K antigen gene region of *Sinorhizobium meliloti* Rm41 contains strain-specific genes that determine polysaccharide structure and size range. *Mol. Plant-Microbe Interact.* 14:1395-1403

- Campbell, G.R.O., B.L. Reuhs, and G.C. Walker. 2002. Chronic intracellular infection of alfalfa nodules by *Sinorhizobium meliloti* requires correct lipopolysaccharide core. *Proc. Natl. Acad. Sci. USA*. 99:3938-3943.
- Reuhs, B.L., J. Glenn, S.B. Stephens, J.S. Kim, D.B. Christie, J.G. Glushka, E. Zablackis, P. Albersheim, A.G. Darvill, and M. O'Neill. 2004. L-galactose replaces L-fucose in the pectic polysaccharide rhamnogalacturonan II synthesized by the L-fucose-deficient *murI* *Arabidopsis* mutant. *Planta* 219:147-157
- Marie, C., W. J. Deakin, T. Ojanen-Reuhs, E. Diallo, B. Reuhs, W. J. Broughton, and X. Perret. 2004. *TtsI*, a Key Regulator of *Rhizobium* Species NGR234, is Required for Type III-Dependent Protein Secretion and Synthesis of Rhamnose-Rich Polysaccharides. *Mol. Plant-Microbe Interact.* 17: 958-966.
- Kim, S., B.L. Reuhs, and L.J. Mauer. 2005. Differentiation and classification of crude lipopolysaccharides from *Salmonella* strains using Fourier transform infrared spectroscopy and chemometrics. *J. Appl. Microbiol.* 99:411-417.
- Cooley, C., B.H. Bluhm, B.L. Reuhs, and C.P. Woloshuk. 2005. Glass-fiber disks provide a suitable medium to study polyol production and gene expression in *Eurotium rubrum*. *Mycologia*. 97:743-750
- Reuhs, B.L., B. Relic, L.S. Forsberg, C. Marie, T. Ojanen-Reuhs, S.B. Stephens, C.H. Wong, S. Jabbouri, and W.J. Broughton. 2005. Structural characterization of a flavonoid-inducible *Pseudomonas aeruginosa* A-band-like O antigen of *Rhizobium* sp strain NGR234, required for the formation of nitrogen-fixing nodules. *J. Bacteriol.* 187:6479-6487.
- Kim, S., H. Kim, B.L. Reuhs, and L.J. Mauer. 2006. Differentiation of outer membrane proteins from *Salmonella enterica* serotypes using Fourier transform infrared spectroscopy and chemometrics. *Let. Appl. Microbiol.* 42:229-234
- Broughton, W.J., M. Hanin, B. Relić, J. Kopcińska, W. Golinowski, Ş. Şimşek, T. Ojanen-Reuhs, B. Reuhs, H. Kobayashi, B. Bordogna, S. Jabbouri, R. Fellay, W.J. Deakin, X. Perret, and C. Marie. 2006. Flavonoid-inducible to Rhamnan O-antigens are necessary for *Rhizobium* sp. NGR234-Legume Interactions. *J. Bacteriol.* 188:3654-3663.
- Kim, S., Y. Burgula, T. Ojanen-Reuhs, M.A. Cousin, B.L. Reuhs, and L.J. Mauer. 2006. Differentiation of crude lipopolysaccharides from *Escherichia coli* strains using Fourier transform infrared spectroscopy and chemometrics. 2006. *J. Food Sci.* 71:57-61
- Kim, J.S., B.L. Reuhs, F. Michon, R.E. Kaiser, and R.G. Arumugham. 2006. Addition of glycerol for improved methylation linkage analysis of polysaccharides. *Carbohydrate Research*. 341:1061-1064.
- Burgula, Y., D.Khali, S.S. Krishnan, M. A. Cousin, J.P. Gore, B. L. Reuhs, and L. J. Mauer. 2006. Detection of *E. coli* O157:H7 and *Salmonella* Typhimurium using filtration followed by FT-IR spectroscopy. *J. Food Protection*. 69:1777-1784.
- Granizo, D.P., B.L. Reuhs, R. Stroshine, and L.J. Mauer. 2006. Evaluating the solubility of powdered food ingredients using dynamic nuclear magnetic resonance (NMR) relaxometry. In press at *Lebensmittel Wissenschaft und Technology (LWT) Food Science and Technology*. In press.

- Habteselassie, M., M. Bischoff, E. Blume, B. Applegate, Sylvie Brouder, B.L. Reuhs, and R. Turco. 2006. Environmental controls on the behavior and fate of *Escherichia coli* in soil, water and rhizosphere conditions. In press.
- Simsek, S., T. Ojanen-Reuhs, S. B. Stephens, and B.L. Reuhs. 2006. Strain-ecotype specificity in *Sinorhizobium meliloti-Medicago truncatula* symbiosis is determined by succinoglycan oligosaccharide structure. Submitted to *J Bacteriol.*. Submitted.
- Chong, H.H., S. Simsek, and B.L. Reuhs. 2006. Analysis of pectin from hot and cold break tomato preparations. Submitted to *J. Agric. Food Chem.* Submitted.

Book Chapters and Conference Reports (8 total)

- O'Neill, M.A., S. Eberhard, B. Reuhs, W.D. Reiter, T. Ishii, T. Fujiwara, P. Albershiem, A.G. Darvill. 2003. Borate ester cross-linking of pectin is required for plant growth. In: *Advances in Pectin and Pectinase Research* (F. Voragen, H. Schols, and R. Visser, eds.), pp. 61-73. Kluwer Academic Publishers, The Netherlands.
- Gudlavalleti, S. Kumar, S.B. Stevens, B.L. Reuhs, and L.S. Forsberg. 2003. *Sinorhizobium* sp. Strain NGR234 lipopolysaccharides: structural features and comparison of LPS from uninduced and apigenein-induced cells. In: *Proceedings of the 13th International Congress on Nitrogen Fixation* (Finan, T., ed.) Kluwer Academic Publishers, Dordrecht.

Research Abstracts (43 total)

- Ojanen-Reuhs, T., S. Schulze, B. Reuhs and M.G. Hahn. 2001. Suppression subtracted cDNA library of *Sinorhizobium* infected *Medicago truncatula* roots. *Medicago truncatula* Genomics, San Diego, CA.
- Burgula, Y., D. Khali, S. Kim, M.A. Cousin, B.L. Reuhs, and L.J. Mauer. 2003. Development of a method to detect *Salmonella typhimurium* using FT-IR spectroscopy. International Food Safety and Quality Conference. Orlando, FL.
- Burgula, Y., D. Khali, S. Kim, M.A. Cousin, B.L. Reuhs, and L.J. Mauer. 2004. A rapid method for detection of *E. coli* O157:H7 using Dynabeads™ and FT-IR spectroscopy. International Association for Food Protection 91st Annual Conference, Phoenix, AZ.
- Kim, S., Y. Burgula, T. Ojanen-Reuhs, B.L. Reuhs, M.A. Cousin, and L.J. Mauer. 2004. Differentiation and classification of the crude lipopolysaccharides from *Salmonella* species using Fourier transform infrared spectroscopy and canonical variate analysis. International Association for Food Protection 91st Annual Conference, Phoenix, AZ.
- Burgula, Y., D. Khali, S. Kim, M.A. Cousin, B.L. Reuhs, and L.J. Mauer. 2004. Development of a method to improve the sensitivity and selectivity for detection of *E. coli* O157:H7 using FT-IR spectroscopy. Institute of Food Technologists Annual Meeting and Food Expo. Las Vegas, NV.
- Chong, H.H. and B.L. Reuhs. 2004. The effect of hot and cold break processing on tomato pectin. Institute of Food Technologists Annual Meeting and Food Expo. Las Vegas, NV.
- Simsek, S., T. Ojanen-Reuhs, and B.L. Reuhs. 2004. Biochemical compatibility in *M. truncatula-S. meliloti* interactions. 19th North American Symbiotic Nitrogen Fixation Conference. Montana State University, Bozeman, Montana

- Ojanen-Reuhs, T. S. Simsek, and B.L. Reuhs. 2004. Phase shift changes in the O antigen of *Sinorhizobium* during infection. 19th North American Symbiotic Nitrogen Fixation Conference. Montana State University, Bozeman, Montana
- Simsek, S., B. Mert, O. Campanella, and B.L. Reuhs. 2005. Chemical and rheological properties of bacterial succinoglycan. Institute of Food Technologists Annual Meeting and Food Expo. New Orleans, LA.
- Chong, H.H. and B.L. Reuhs. 2005. Pectin Quality of Laboratory Hot and Cold Break Tomato Preparations. Institute of Food Technologists Annual Meeting and Food Expo. New Orleans, LA.
- Kim, S., B.L. Reuhs, Y. Burgula, and L.J. Mauer. 2005. Use of Fourier transform infrared spectroscopy for differentiation of outer membrane proteins from *Salmonella enterica* serotypes. Institute of Food Technologists' Annual Meeting and Food Expo. New Orleans, LA.
- Burgula, Y., S. Kim, M.A. Cousin, B.L. Reuhs, and L.J. Mauer. 2005. A rapid method for detection of *E. coli* O157:H7 in fruit juice matrices using FT-IR spectroscopy. Institute of Food Technologists' Annual Meeting and Food Expo. New Orleans, LA.
- Hartono, L., M. Shroyer, L. Farris, H. Diefus-Dux, R. Turco, B. Reuhs, and B.M. Applegate. 2005. Development of an *Escherichia coli* O157:H7 bioluminescent reporter for measuring bioavailable carbon. Annual Meeting of the American Society for Microbiology. Atlanta, GA.
- Simsek, S. and B.L. Reuhs. 2005. Flavonoid-dependent compositional changes of exopolysaccharides from *Sinorhizobium meliloti*. International Molecular Plant-Microbe Interactions. Cancun, Mexico.
- Simsek, S., T. Ojanen Reuhs, C. Marie, B. L. Reuhs. 2006. Production of K antigen by *Sinorhizobium* sp. NGR234 is down regulated by apigenin and is controlled by *y4gM* and *nodDI*. Joint Annual Meeting of the American Society of Plant Biologists and the Canadian Society of Plant Physiologists / Société Canadienne de Physiologie Végétale. Boston, MA.
- Watkins, B.A., Y. Li, M.F. Seifert, B. Reuhs, M. G. Ferruzzi, and K. Hamstra. 2006. Phytochemical Learning Resource (PLR). Experimental Biology 2006. San Francisco, CA.
- Burgula, Y., M.A. Cousin, B.L. Reuhs, L.J. Mauer. 2006. Differentiation of Live vs. Dead cells of *E. coli* O157:H7 based upon incubation and immunomagnetic separation. Institute of Food Technologists' Annual Meeting and Food Expo. Orlando, FL.
- Burgula, Y., M.A. Cousin, B. Applegate, R. Linton, B.L. Reuhs, L.J. Mauer. 2006. Effects of processing treatments on FT-IR based classification of dead *E. coli* K12 cells in comparison to live cells. Institute of Food Technologists' Annual Meeting and Food Expo. Orlando, FL.
- Paarlberg, K., Y. Burgula, M.A. Cousin, B.L. Reuhs, L.J. Mauer. 2006. Development of a FT-IR spectral library for select microorganisms. Institute of Food Technologists' Annual Meeting and Food Expo. Orlando, FL.
- Halim, E. and B.L. Reuhs. 2006. Differential degradation of pectin during tomato (*Lycopersicon esculantum*) fruit ripening. Institute of Food Technologists' Annual Meeting and Food Expo. Orlando, FL.
- Farris, L. A., Y. Chen, T. Filley, S. Brouder, B. L. Reuhs, B. M. Applegate, R. F. Turco. 2006. Detection of Bioavailable Carbon in Agricultural Watersheds Using Bioluminescent

- Fecal Coliforms. 106TH General Meeting – American Society for Microbiology. Orlando, FL.
- Chen, Y., E. Halim, L. Farris, R. Turco, B.M. Applegate, B. Reuhs. 2006. Use of a Bioluminescent *E. coli* O157:H7 for Detection of Bioavailable Carbon Associated with Plant Material. 106TH General Meeting – American Society for Microbiology. Orlando, FL.
- Chen, Y., E. Halim, L. Farris, R. Turco, B.M. Applegate, B. Reuhs. 2006. Characterization carbon utilization patterns of *Salmonella enterica serotype Poona* using a bioluminescence reporter. Institute of Food Technologists' Annual Meeting and Food Expo. Orlando, FL.

Invited Presentations

- 2002 Phase shift modifications in the *Sinorhizobium* sp. NGR234 cell surface during infection of cowpea.” LBMPS, Université de Genève, Switzerland
- 2004 “NMR spectroscopy in polysaccharide structural studies.” Procter and Gamble symposium on biopolymers. Cincinnati OH
- 2004 “The role of bacterial polysaccharides in biological nitrogen fixation.” Department of Horticulture, Purdue University

Courses Taught at Purdue University

Course	Credit Hours	Title	Years
FS684	1	Graduate Seminar	2002-2006
FS690b	2	Scientific Writing	2003-2006
FS631	3	Polysaccharides	2002, 2004, 2006
FS467	4	Food Analysis	2004-2006