

CURRICULUM VITAE

Personal Details

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Current position: Postdoctoral Research Plant Pathologist (GS-0434-11)
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Nationality: Dual nationality - US citizen and Sudanese citizen
Date of birth: 1974
Marital status: Married
Languages: English and Arabic

Education

- **Doctor of Philosophy, 2012**, Washington State University, Plant Pathology. Major Advisor: Prof. Scot Hulbert.
 Dissertation title: *Influence of crop volunteer and grassy weed greenbridge on Rhizoctonia root rot of cereals; and disease resistance in Brassica and Triticum germplasm*
- **Master of Science, 2006**, South Dakota State University, Plant breeding. Major Advisor: Dr. Amir Ibrahim.
 Thesis title: *Identification of a Microsatellite Marker associated with Stem Rust Resistance Gene Sr35 in Wheat.*
- **Bachelor of Science, 2000**, University of Khartoum, Horticulture, Khartoum, Sudan

Professional Experience

- **September 2012- present:** Postdoctoral Research Plant Pathologist (GS-0434-11), Small Grains and Potato Germplasm Research Unit - USDA-ARS, Aberdeen, ID.

Accomplishments:

- (1) Mapped seedling resistance to *Pgt* race TTKSK and adult plant resistance to Ug99 race group in three bi-parental mapping populations using the 90000 wheat iSelect SNP genotyping platform.
- (2) Developed novel strategy to prioritize resistant landraces for follow-up genetic studies to test for the presence of new resistance genes using seedling response to *Pgt* race TTKSK, molecular markers linked to specific *Sr* genes, population segregation ratios, and bulked segregant analysis (BSA).
- (3) Mapped new resistance gene to *Pgt* race TRTTF and adult plant resistance to Ug99 in wheat landrace CItr 15026 using the 90000 wheat iSelect SNP genotyping platform.

- (4) Collaborated with scientists from Kenya, Ethiopia and the USDA Cereal Disease Laboratory to screen wheat landraces and mapping populations against diverse races of the stem rust pathogen
 - (5) Mapped QTL for partial resistance to oat crown rust in three bi-parental mapping populations using the 6,000 SNP genotyping platform
 - (6) Collaborated with scientists from USDA and Agriculture and Agri-Food Canada to develop a consensus map of hexaploid oat (manuscript in preparation)
- **August, 2007- August 2012:** Graduate Research Assistant for Dr. Scot Hulbert, Department of Plant Pathology, Washington State University
 - Accomplishments:**
 - (1) Screened collections of synthetic wheat and *Brassica* spp germplasm for resistance to Rhizoctonia root rot.
 - (2) Involved in research to develop a camelina mutant with increased resistance to acetolactate synthase inhibitors herbicides.
 - (3) Conducted research on downy mildew in camelina to understand the transmission of the disease and developed a polymerase chain reaction assay to detect the pathogen in camelina tissue.
 - (4) Conducted research to determine the optimum time to apply glyphosate before planting to manage Rhizoctonia root rot disease in barley.
 - **December, 2004 - April, 2007:** Graduate Research Assistant for Dr. Amir Ibrahim, Winter wheat breeding program, Department of Plant Science, South Dakota State University (SDSU).
 - Accomplishments:**
 - (1) Conducted research on virulence of *Pgt* races on the stem rust resistance gene *Sr35*.
 - (2) Developed winter wheat germplasm with *Sr35*, *Sr32*, and *Sr13* for use in commercial cultivar development.
 - (3) Involved in all wheat breeding activities to develop new winter wheat cultivars with desirable agronomic characteristics including optimum maturity, plant height, long coleoptile, stand establishment, excellent winter survival ability, end-use quality characteristics, and resistance to disease prevalent in South Dakota and the northern Great Plains.
 - **December, 2000 - November, 2003:** Teaching Assistant, Department of Horticulture, University of Khartoum, Shambat, Sudan.

Professional and Academic Associations

- American Phytopathological Society

- Peer reviewer for Plant Disease, Phytopathology, and European Plant Pathology Journals
- Treasurer, Plant Pathology Graduate Student Organization, Department of Plant Pathology, Washington State University 2010 - 2011.

Awards

- 2012: José and Silvia Amador student Travel Award, American Phytopathological Society.
- 2011: Student Travel Award, Crop Science Society of America.
- 2010: Student Travel Award, Pacific Division, American Phytopathological Society.
- 2009: Graduate and Professional Student Association Travel Grant, WSU.
- 2008: S. O. Graham Scholarship, Department of Plant Pathology, WSU.

Summary of Skills

Laboratory:

- Isolation and identification of different plant pathogens
- Expertise in molecular techniques such as DNA and RNA extraction, cDNA synthesis, Southern and Northern blot, PCR, RT-PCR, cloning, gene expression, sequencing, and high-throughput genotyping with SSR and SNP markers
- Cytogenetics: Chromosome preparation and Fluorescent *in situ* hybridization

Field and greenhouse:

- Emasculation, Pollen collection and pollination
- Visual evaluation and selection for desirable traits
- Highly proficient in diseases screening tests for foliar and soil borne pathogens
- Familiar with the use of head row planter, plot combine, row binder, head thresher and thermal infrared camera.

Computer skills:

- Proficient user of statistical software (SAS, Sigmaplot and Minitab)
- Proficient in Microsoft office
- Excellent knowledge, usage, and operation of mapping software (Mapmaker, Mapmaker QTL, QTL Cartographer, Genome Studio, Multipoint, Bioedit and JMP Genomics)
- Proficient with Agrobase software
- Familiar with the use of bioinformatics analysis tools and various web based search tools

Peer-Reviewed Publications

- **Babiker**, E. M., T. C. Gordon, S. Chao, M. N. Rouse, G. Brown-Guedira, S. Williamson, Z. A. Pretorius, and J. M. Bonman. 2015. Rapid identification of resistance loci effective versus *Puccinia graminis* f. sp. *tritici* race TTKSK in 33 spring wheat landraces. Plant Disease (accepted).
- **Babiker**, E. M., T. C. Gordon, S. Chao, M. Newcomb, M. N. Rouse, Y. Jin, R. Wanyera, M. Acevedo, G. Brown-Guedira, S. Williamson, and J. M. Bonman. 2015. Genetics mapping of

stem rust resistance gene effective against Ug99 in a spring wheat landrace. *Theoretical and Applied Genetics* 128:605-612.

- Bonman, J. M., E. M. **Babiker**, A. Cuesta-Marcos, K. Esvelt-Klos, G. Brown-Guedira, S. Chao, D. See, J. Chen, E. Akhunov, J. Zhang, H. E. Bockelman, and T. C. Gordon. 2015. Genetic diversity among wheat germplasm-bank accessions. *Crop Science* 55:1243-1253.
- **Babiker**, E. M., T. C., Gordon, E. W., Jackson, S., Chao, S. A., Harrison, M. L., Carson, D. E., Obert J. M. Bonman 2015. Quantitative trait loci from two genotypes of oat (*Avena sativa* L.) conditioning resistance to *Puccinia coronata*. *Phytopathology* 105: 239-245.
- **Babiker**, E. M., Hulbert, S. H., Schroeder, K. L., and T. C. Paulitz. 2013. Evaluation of *Brassica* species for resistance to *Rhizoctonia solani* and binucleate *Rhizoctonia* (*Ceratobasidium* spp.) under controlled environment conditions. *European Journal of Plant Pathology* 136:763-773.
- **Babiker**, E. M., Hulbert, S. H., and T. C. Paulitz. 2012. *Hyaloperonospora camelinae* on *Camelina sativa* (L.) in Washington State: Detection, seed transmission, and chemical control. *Plant Disease* 96:1670-1674.
- Walsh, D. T., E. M. **Babiker**, I. C. Burke, and S. H. Hulbert. 2012. Camelina mutants resistant to acetolactate synthase inhibitor herbicides. *Molecular Breeding* 30:1053-1063.
- **Babiker**, E. M., Hulbert, S. H., Schroeder, K. L., and T. C. Paulitz. 2011. Optimum timing of pre-plant applications of glyphosate to manage *Rhizoctonia* root rot in barley. *Plant Disease* 95:304-310.

Invited Presentation

- **Babiker**, E. M., Gordon, T. C., Jackson E. W., Chao S., Harrison S. A., Carson, M. L., Obert D. E., Bonman J. M. 2013. Quantitative trait loci from two genotypes of oat (*Avena sativa* L.) conditioning resistance to *Puccinia coronata*. American Oat Worker conference, Ottawa, CA July, 13-16, 2014.
- **Babiker**, E. M., D. T., Walsh, I. C., Burke, and S. H. Hulbert. 2011. Camelina mutants resistant to acetolactate synthase inhibitor herbicides. ASA-CSSA-SSSA Annual Meeting San Antonio, TX.
- **Babiker**, E. M., S. H., Hulbert, K. L., Schroeder, and T. C. Paulitz. 2010. Optimum timing of pre-plant applications of glyphosate to manage *Rhizoctonia* root rot in barley. APS and Canadian Phytopathological Society Annual Meeting, Vancouver, BC.

Abstracts and Conference Proceedings

- **Babiker**, E. M., S. Chao, P. Njau, M. Newcomb, M. N. Rouse, Y. Jin, R. Wanyera, M. Acevedo, and J. M. Bonman. 2015. Identification and mapping seedling resistance to *Puccinia graminis* f. sp. *tritici*, race TRTTF and field resistance to Ug99 in a spring wheat landrace. International Wheat Conference, Sydney, Australia.

- **Babiker**, E. M., S. Chao, M. Newcomb, M. N. Rouse, Y. Jin, R. Wanyera, M. Acevedo, and J. M. Bonman. Molecular mapping of resistance to the Ug99 race group of the stem rust pathogen in spring wheat landrace PI 177906. Borlaug Global Rust Initiative 2015 Technical Workshop, Sydney, Australia.
- **Babiker**, E. M., S. Chao, P. Njau, M. Newcomb, M. N. Rouse, Y. Jin, R. Wanyera, M. Acevedo, and J. M. Bonman. 2015. Genetics mapping of stem rust resistance gene effective against Ug99 in spring wheat landrace PI 374670. PAG Conference San Diego, CA.
- **Babiker**, E. M., T. C. Gordon, S. Chao, M. Newcomb, S. Stoxen, M. N. Rouse, M. Acevedo, G. Brown-Guedira and J. M. Bonman. Identification of genomic regions controlling stem rust resistance in wheat landraces by bulked segregant analysis. Borlaug Global Rust Initiative 2014 Technical Workshop, Obregon, Mexico.
- **Babiker**, E. M., S. Chao, P. Njau, M. Newcomb, M. N. Rouse, Y. Jin, R. Wanyera, M. Acevedo, and J. M. Bonman. Inheritance of Ug99 resistance in spring wheat landrace P1374670. Borlaug Global Rust Initiative 2013 Technical Workshop, New Delhi, India.
- **Babiker**, E. M., T. C., Paulitz, and S. H., Hulbert. 2012. Detection, seed transmission, and chemical control of *Hyaloperonospora camelinae* on *Camelina sativa* (L.) in Washington State. *Phytopathology* 102:S4.8
- **Babiker**, E. M., S. H., Hulbert, and T. C., Paulitz. 2009. Screening different *Brassica* spp. germplasm for resistance to *Rhizoctonia solani* AG-2-1 and AG-8. *Phytopathology*.99.6.S180.
- **Babiker**, E.M., S. H., Hulbert, I. C., Burke, and T. C. Paulitz, T.C. 2009. Influence of weed species and time of glyphosate application on *Rhizoctonia* root rot of barley. *Phytopathology* 99:S6.
- **Babiker**, E., Ibrahim, A. M. H., Yen Y., and J. Stein. 2007. Inheritance and identification of a microsatellite marker associated with stem rust resistance Gene *Sr35* in wheat, Abstract for North American Wheat Workers, Saskatoon, Saskatchewan, Canada.

Extension Publications

- Hulbert, S. H., **Babiker**, E., Paulitz, T.C., and K. L. Schroeder. 2008. Management of *Rhizoctonia* Damping-off of Brassica Oilseed Crops in the PNW. Washington State University, College of Agriculture and Home Economics. Page: 26.
- Paulitz, T.C., Schroeder, K.L., **Babiker**, E., and S. H. Hulbert. 2008. Optimum timing for spraying out greenbridge with roundup to control *Rhizoctonia* in barley. Washington State University, College of Agriculture and Home Economics. Page: 37.
- Ibrahim, A.M.H., S.A. Kalsbeck, R. S. Little, S. Malla, and E. **Babiker** 2006. Winter wheat breeding and genetics. Annual Wheat Newsletter Volume 52:185-186.

References

J. Michael Bonman (Mike)

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Scot Hulbert

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Timothy Paulitz

Current position: Research Plant Pathologist, USDA-ARS/ Adjunct Professor

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