Curriculum Vita

Madan Kumar Bhattacharyya
G303 Agronomy Hall, Department of Agronomy
Iowa State University Ames, Iowa 50011-1010
Phone:(515) 708-3453, E-mail : mbhattac@iastate.edu
http://faculty.agron.iastate.edu/madan/ https://scholar.google.com/citations?hl=en&user=ZSvP6SsAAAAJ

EDUCATION

1987	Ph.D., Plant Sciences	University of Western Ontario	Canada
1978	M.Sc., Olericulture	Punjab Agricultural University	India
1975	B.Sc., (Ag.)	Assam Agricultural University	India

PROFESSIONAL EXPERIENCE

2020	Adjunct Professor	Assam Agricultural University, India
2014-present	Professor	Department of Agronomy, ISU
2003-2014	Associate Professor	Department of Agronomy, ISU
2000-2003	Assistant Professor	Department of Agronomy, ISU
1997-2000	Associate Scientist	Noble Foundation
1996-2000	Adjunct Assistant Professor	Oklahoma State University
1991-1996	Assistant Scientist	Noble Foundation
1990-1991	Postdoctoral Fellow	Noble Foundation
1987-1990	Higher Scientific Officer	John Innes Institute
1983-1987	Graduate Assistant	University of Western Ontario
1980-1982	Assistant Professor	Assam Agricultural University
1978-1980	Senior Research Assistant	Assam Agricultural University

AWARDS, HONORS, AND RECOGNITION

- **2021 AAAS Fellow -** for distinguished contributions to the field of plant-microbe interactions, particularly for understanding the interactions between soybean and its fungal and oomycete pathogens.
- Invitation to deliver the **First G.R. Das Memorial Lecture** - Assam Agricultural University, Jorhat, India, February 29, 2020.
- Honored with **Adjunct Professorship** Assam Agricultural University under the National Agricultural *Higher* Education Project, Indian Council of Agricultural Research, 2020.
- Awarded **Visiting Fellowship** under the Chinese Academy Sciences President's International Fellowship Initiative, 2019.
- **Co-chairman** at the valedictory function of the 70th Annual Meeting and National Symposium on "Plant Health Management: Embracing Eco-Sustainable Paradigm," Assam Agricultural University, February 17, 2018.
- Iowa State University **PSI Faculty Scholar** 2015-2018.
- **Keynote Lecture** in the National Symposium on Molecular Insect Science, Assam Agricultural University, Jorhat, India, February 6-8, 2017.
- **Chair** of the Pathogenesis and Disease Resistance session in the VI International Congress on Legume Genetics and Genomics (ICLGG), Hyderabad, India, October 2-7, 2012.

- **Chair** of the **Plant Molecular & Cell Biology session** of the BIT 1st Annual World Congress of Molecular & Cell Biology, Beijing, China, August 6-8, 2011.
- **Chair and co-chair** of "Gene" sessions at the World Soybean Research Conference, Beijing, China, August 10-15, 2009.
- **Member** of the Sudden Death Syndrome/Plant Health Initiative Website Steering Committee, 2012 - 2014.
- **Ruth Horner Arnold Fellowship** for obtaining the highest rank among the first-year graduate students doing research in the field of mycology in the University of Western Ontario, London, Canada, 1983.
- **Canadian Commonwealth Scholarship**, highly competitive scholarship, awarded by Canadian Government to carry out graduate studies in Canada, 1983-1987.
- **International Development Association Fellowship**, highly competitive fellowship, to carry out master's degree in Punjab Agricultural University, India, 1975-1978.
- **University Gold Medal** for obtaining the highest rank among the students who completed B.Sc. (Agriculture) in Assam Agricultural University, India, 1975.
- **ICAR Scholarship**, a competitive national merit scholarship, awarded by Indian Council of Agricultural Research for under graduate study leading to B.Sc. (Agriculture) in Assam Agricultural University, 1971-1975.

TEACHING EXPERIENCE

Bhattacharyya taught the Plant Genetics (Agron 527) course from 2002-2012 and has been teaching Applied Molecular Genetics & Biotechnology (Agron 524) to graduate students from 2012 - 2021. Taught a short course on "Recent Advances in Plant Breeding" to undergraduate and graduate students of the Assam Agricultural University, India in the month of February, 2020.

EDITORIAL BOARD MEMBER/ASSOCIATE AND GUEST EDITOR

- Editorial Board member - Molecular Biotechnology, 2008 – 2017.
- Associate Editor - BMC Genomics, 2010 – 2021.
- Editorial Board Member – BMC Genomics – 2021- present.
- Associate Editor - BMC Plant Biology, 2009 – 2017.
- Review Editor - Crop Biology and Sustainability, Frontiers in Chemistry, 2014 – present.
- Editorial Advisors - BMC Plant Biology, 2017 – 2020.
- Guest Associate Editor – "Novel Technologies for Soybean Improvement" – Frontiers in Plant Science - https://www.frontiersin.org/research-topics/20853/novel-technologies-for-soybean-improvement - 2021- 2022.

PANEL CHAIR & MEMBER

- Member, NP 301C Panel 12a. Oilseeds Genetic Improvement, USDA-ARS Plant Genetic Resources, Genomics and Genetic Improvement National Program. July 24, 2023.
- Chair, NP301 Panel 12b. Oilseeds Physiology/Biochemistry, USDA-ARS Plant Genetic Resources, Genomics and Genetic Improvement National Program. March 28, 2023.
- Member, Small Business Innovation Research Program Plant Production and Protection-Biology, NIFA FY 2022 SBIR Program 8.2 panel from February 7 to 9, 2022.
- Member, Genome Canada - Genomic Applications Partnership Program 2019 - 2020.

- Member, USDA-ARS Plant Genetic Resources, Genomics, and Genetic Improvement National Program. Plant Metabolism and Pathways Panel Member. January 19, 2018.
- Member, NSF Panel, Physiological and Structural Systems Cluster, April 30 – May 1, 2015.
- Member, Plant Health and Production and Plant Products, USDA-NIFA FY2014 – contacted by panel manager to serve the panel; but he declined to participate because of conflict of interest.
- Member, Biol. of Plant Microbe-Assoc. NRICGP-USDA, FY2000.
- Member, Plant Genome program NRICGP-USDA, FY1997.

PATENT AWARDS AND INVENTIONS

7. **Bhattacharyya, M.K.** (2007) "*Rps1*-k Gene Family, Nucleotide Sequences, and Proteins." U.S. Patent No. 7,256,323 - Issued 8/14/2007.
6. **Bhattacharyya, M.K.** (2010) "*Rps1*-k Nucleotide Sequence and Proteins." Patent number 7,696,410 - Issued 4/13/2010.
5. **Bhattacharyya, M.K.** (2011) "Metacaspase II in Engineering Soybean for Disease Resistance." Patent number 7,943,825 - Issued 5/17/2011.
4. **Bhattacharyya, M.K.**, Li, S. (2012) "Compositions and Methods for Enhancing Disease Resistance in Plants." US Patent 8,173,794 - Issued 5/8/2012.
3. **Bhattacharyya, M.K.**, Sumit, R., Sahu, B.B. (2018) Arabidopsis Nonhost Resistance Gene(S) And Use Thereof to Engineer Disease Resistant Plants. U.S. Patent No. 10,045,499 – Issued 8/14/2018
2. **Bhattacharyya, M.K.**, Singh P., Kambakam S. (2018) Arabidopsis Nonhost Resistance Gene(s) and Use Thereof to Engineer SDS Resistant Plants. U.S. Patent No. 10,087,462– Issued 10/2/2018.
1. **Bhattacharyya, M.K.**, Ngaki, M. (2018) Glycine max Resistance Gene(S) And Use Thereof to Engineer Plants with Broad-Spectrum Resistance to Fungal Pathogens and Pests. U.S. Patent No. 10,087,461 – Issued 10/2/2018

PATENT APPLICATION PENDING

1. **Bhattacharyya, M.K.**, and Wang B. (2016) Identification of Peptides Binding to FvTox1 Involved in SDS Disease Resistance in Soybean. U.S. Appl. No. 62/430,047 – Filled 12/05/2016

GERMPLASM

3. Cianzio, S.R., Lundeen, P., Rivera-Velez, N., Gebhart., G. K., Molen, Van Der and **Bhattacharyya**, **M.K.** Soybean Germplasm Line AR11SDS/SCN ISURF Docket # 03999.
2. Cianzio, S.R., Gebhart, G., Rivera-Velez, N., Lundeen, P., and **Bhattacharyya**, **M.K.** Soybean Variety IAR3001 Phyto/SCN Experimental Designation A95-684043BC Rps8. ISURF # 03712.
1. Cianzio, S.R., Lundeen, P., Rivera-Velez, N., Gebhart., G. K., Molen, Van Der and **Bhattacharyya**, **M.K.** Soybean Germplasm Line AR10SDS (formerly identified as AR03-163008) ISURF #03624.

GRANT AWARDS

The total extramural grant award received from 2000 to 2025 is $10,535,252, of which $9,701,074 was from 68 awards as PI and $834,178 from 15 awards as co-PI. Of the $9,701,074 received as a PI, $7,694,834 was to conduct research in my lab. In total, $8,529,012 in extramural funding was received to conduct research in my lab during the last 23 years at ISU.

GRANTING AGENCIES

Received funds from the following granting agencies.

- USDA-NIFA-AFRI, United State Department of Agriculture – National Institute of Food and Agriculture-Agriculture Food and Research Initiative
- NRICG-USDA, National Research Initiative Competitive Grant, USDA
- CPBR, Consortium for Plant Biotechnology Research (Federal Funds)
- ISA, Iowa Soybean Association
- USB, United Soybean Board
- North Central Soybean Research Program
- SRDC, Soybean Research Development Council
- UI, University of Illinois
- SIU, Southern Illinois University
- PSI, Plant Sciences Institute, Iowa State University
- Syngenta

CURRENT GRANT AWARDS

2022-2025 Jianxin Ma and six co-PIs including **Bhattacharyya M.K.** SoyRenSeq: a Novel Approach for Disease Resistance Gene Discovery and Application for Soybean Improvement. North Central Soybean Research Program. Bhattacharyya's amount is $175,000.

2021-2024 Whitham, S., **Bhattacharyya M.K.** and Yang B. The soybean genome editing toolbox – improving disease resistance and drought tolerance. $525,000 ($207,000 to my lab)

2020-2023 **Bhattacharyya M.K.** Identification of high yielding sudden death syndrome and *Phytophthora* resistant soybean lines and molecular markers for improving disease resistance in soybean. United Soybean Board. 2020-2023; $330,000

SELECTED PAST GRANT AWARDS

2013-2018 **Bhattacharyya M.K. and 14 co-PIs from five institutions.** Transgenic approaches in managing sudden death syndrome in soybean. USDA NIFA AFRI. $5,358,680

2015-2018 **Bhattacharyya M.K.** Predictive phenomics for developing climate resilient crop plants. Plant Sciences Institute, Iowa State University. $225,000.

2009-2011 **Bhattacharyya M.K. and two co-PIs.** Sequencing the *Fusarium virguliformae* genome. SRDC & ISA. $214,050.

2008-2010 **Bhattacharyya M.K.** Isolation and characterization of FvToxin1-interacting soybean proteins. Syngenta. $168,822.

2007-2012 **Bhattacharyya M.K.** Nonhost resistance for engineering disease resistance. CPBR. 2007-2008; 2009-2012; $182,442.

2001-2003 **Bhattacharyya M.K.** Signal transduction in the expression of disease resistance in soybean. NRICG-USDA. $160,000.

PUBLICATIONS

Type of Article	2000-2023	Entire Career
(a) Peer Reviewed Journal Article	67	93
(b) Book Edited	1	1
(b) Book Chapter	6	7
(c) Non-peer Reviewed Journal Article	2	9
(d) Patent	7	7
Total	83	117

(a) Peer Reviewed Journal Articles

(Published 67 peer reviewed journal articles [# 27 to 93] from 2000 to 2022 at ISU).
* indicates communicating authors.
Google Scholar Citations = 9,265, i10-index = 80 and h-index = 39 on June 30, 2023
https://scholar.google.com/citations?hl=en&user=ZSvP6SsAAAAJ

Peer Reviewed Publications (# 27 – 93 during 2000 to 2023 period)

93. Sahoo, D.K., Hegde, C. and **Bhattacharyya, M.K.** (2023) Identification of multiple novel genetic mechanisms that regulate chilling tolerance in Arabidopsis. *Frontiers in Plant Science* 13:1094462. Published online 2023 Jan 12 doi: 10.3389/fpls.2022.1094462.
92. Wang, F., Das, P., Pal, N., Zhang, S. and **Bhattacharyya, M.K.*** (2022) A phosphoproteomics study indicates involvement of type II metacaspases in the cell death pathway. *Frontiers in Plant Science* 13:882561. Published online 2022 Jul 19. doi: 10.3389/fpls.2022.882561
91. Li, S., Hanlon, R., Wise, H., Pal, N., Brar, H.K, Liao, C., Gao, H., Perez, E., Zhou, L.C., Tyler, B.M. and **Bhattacharyya, M.K.*** (2021) Interaction of *Phytophthora sojae* effector Avr1b with E3 ubiquitin ligase GmPUB1 is required for recognition by soybeans carrying *Phytophthora* resistance *Rps1*-b and *Rps1-k* genes. *Frontiers in Plant Science* 12:725571. https://doi.org/10.3389/fpls.2021.725571
90. Sahoo, D.K., Das, A., Huang, X., Cianzio, S. and **Bhattacharyya, M.K.*** (2021) Two tightly linked functional resistance genes provide broad-spectrum *Phytophthora* resistance in soybean. *Scientific Reports.* https://www.nature.com/articles/s41598-021-96425-1/metrics
89. Kambakam, S., Sahu, B.B., Ngaki, M.N., Kandel, D.R., Singh, P., Sumit, R., Swaminathan, S., Rajesh, M.K., and **Bhattacharyya, M.K.*** (2021) Arabidopsis nonhost resistance *PSS30* gene encoding a folate transporter enhances disease resistance in soybean. *Plant J.*, https://doi.org/10.1111/tpj.15392
88. Zhou, H-K., Tang, K-Q., Li, G., Liu, W-Q., Yang, S-X.*, **Bhattacharyya, M.K.*,** Feng, X-Z.* (2021) A robust and rapid candidate gene mapping pipeline based on M_2 populations. *Frontiers in Plant Science - Plant Breeding*, 12:681816. doi: 10.3389/fpls.2021.681816
87. Geiser D. M.*, Al-Hatmi A., Aoki T., Arie T, Balmas V., Barnes I., Bergstrom G.C., **Bhattacharyya M.K.** et al. (2020) Phylogenomic analysis of a 55.1 kb 19-gene dataset resolves a monophyletic *Fusarium* that includes the *Fusarium solani* Species Complex. *Phytopathology*. 2020 Nov 17. https://doi.org/10.1094/PHYTO-08-20-0330-LE
86. Ngaki, M.N., Sahoo, D.K., Wang, B. and **Bhattacharyya, M.K.*** (2020) Overexpression of a plasma membrane protein generated broad-spectrum immunity in soybean. *Plant Biotechnol. J.* 19:502–516.
85. Cianzio, S.R.*, Arelli, P. R., Swaminathan, S., **Bhattacharyya, M.K.**, Gebhart, G., Aboobucker, S. I., Carvalho, J. P. S. (2019). Registration of 'IAR1902 SCN' cultivar resistant to soybean cyst nematode and brown stem rot. *J. Plant. Reg.* 13:334–344.
84. Madhusudhan, P., Sinha, P.*, Rajput, L.S., **Bhattacharyya, M.**, Sharma, T., Bhuvaneshwari, V., Gaikwad, K., Krishnan, S.G., and Singh, A.K. (2019) Effect of temperature on Pi54 mediated leaf blast resistance in rice. *World J. Microbiol. Biotechnol.* 35:148. doi:10.1007/s11274-019-2724-8.
83. Swaminathan, S., Das, A., Assefa, T., Knight, J.M., Ferreira Da Silva, A., Hartman, G.L., Huang, X., Cianzio, S. R., **Bhattacharyya, M.K.*** (2019) Genome wide association study identifies novel single nucleotide polymorphic loci and candidate genes involved in soybean sudden death syndrome resistance. *PLoS One* 14(2):e0212071. doi: 10.1371/journal.pone.0212071. eCollection 2019.

82. Swaminathan, S., Abeysekara, N.S., Knight, J.M., Liu, M., Dong, J., Hudson, M.E., **Bhattacharyya, M.K.,** and Cianzio, S.R.* (2018). Mapping of new quantitative trait loci for sudden death syndrome and soybean cyst nematode resistance in two soybean population. *Theor. Appl. Genet*. 131:1047–1062.

81. Wang, B., Sumit, R., Sahu, B.B., Ngaki, M., Srivastava, S.K., Yang, Y., Swaminathan, S., and **Bhattacharyya, M.K.*** (2018). An Arabidopsis glycine-rich plasma membrane protein enhances disease resistance in soybean. *Plant Physiology* 176:865-878.

80. Marshall, J., Qiao, X., Baumbach, J., Xie, J., Dong, L.*, **Bhattacharyya, M.K.*** (2017) Microfluidic device enabled quantitative time-lapse microscopic-photography for phenotyping vegetative and reproductive phases in *Fusarium virguliforme*, which is pathogenic to soybean. *Scientific Reports* 7:44365.

79. Sahoo, D., Abeysekara, N., Cianzio, S., and Robertson, A.E., **Bhattacharyya, M.K.*** (2017) A novel *Phytophthora* resistance gene, *Rps12* mapped tightly to the *Rps4*/6 region in soybean. *PLoS One*, 12:e0169950.

78. Sahu, B.B., Baumbach, J., Singh, P., Srivastava, S.K., Yi, X., and **Bhattacharyya, M.K.*** (2017) Investigation of the *Fusarium virguliforme* transcriptomes induced during infection of soybean roots suggests that enzymes with hydrolytic activities could play a major role in root necrosis. *PLOS One*,12:e0169963.

77. Sandhu, D.*, Ghosh, J., Johnson, C., Srivastava, S.K., Baumbach, J., Baumert, E., Cina, T., Grant, D., Palmer, R., **Bhattacharyya, M.K.*** (2017) The endogenous transposable element *Tgm9* is suitable for generating knockout mutants for functional analyses of soybean genes and genetic improvement in soybean. *PloS One*, 12(8):e0180732.

76. Abdelsamad, N.A., Baumbach, J. and **Bhattacharyya, M.K.,** Leandro, L.F.* (2017) Soybean Sudden Death Syndrome Caused by *Fusarium virguliforme* is Impaired by Prolonged Flooding and Anaerobic Conditions. Plant Disease, 101:712-719.

75. Abeysekara, N., Matthiesen, R.L., Cianzio, S., **Bhattacharyya, M.K.**, and Robertson, A.E.* (2016) Novel sources of partial resistance against *Phytophthora sojae* in PI 399036. *Crop Sci.* 56:2322-2335.

74. Baumbach, J., Pudake R.N., Johnson, C., Ollhoff, A., Palmer, R.G., **Bhattacharyya, M.K.*** and Sandhu, D.* (2016) Transposon tagging of a male-sterility, female-sterility gene, *St8*, revealed that the meiotic MER3 DNA helicase activity is essential for fertility in soybean. *PLoS One* 11(3): e0150482.

73. Cianzio, S.R.*, Lundeen, P. **Bhattacharyya, M.K.,** Swaminathan, S., Gebhart, G., and Rivera-Velez, N. (2016) Registration of AR11SDS Soybean germplasm resistant to sudden death syndrome, soybean cyst nematode, and with moderate iron deficiency chlorosis scores. *Journal of Plant Registrations* 10:177–188.

72. Huang, X.*, Das, A., Sahu, B.B., Srivastava, S.K., Leandro, L.F., O'Donnell, K., and **Bhattacharyya, M.K.** (2016) Identification of highly variable supernumerary chromosome segments in an asexual pathogen. *PLoS One* 11(6): e0158183.

71. Ngaki, N.N., Wang, B., Sahu, B.B., Srivastava, S., Farooqi, M.S., Kambakam, S., Swaminathan S., **Bhattacharyya, M.K.*** (2016) Tanscriptomic Study of the soybean-*Fusarium virguliforme* interaction revealed a novel ankyrin-repeat containing defense gene, expression of whose during infection led to enhanced resistance to the fungal pathogen in transgenic soybean plants. *PloS One*, 11:e0163106.

70. Liu, M., Li S., Swaminathan, S., Sahu, B.B., Leandro, L.F., Cardinal, A.J., **Bhattacharyya, M.K.**, Song, Q., Walker, D.R., Cianzio, S.R.* (2016) Identification of a soybean rust resistance gene in PI 567104B. *Theor Appl Genet.* 129: 863-877.

69. Xu, Z., Jiang, H., Sahu, B.B., Kambakam, S., Singh, P., Wang, X., Wang, Q., **Bhattacharyya, M.K.,** and Dong, L.* (2016) Humidity assay for plant-pathogen interactions in miniature controlled discrete humidity environments with good throughput. *Biomicrofluidics* 10, 034108.
68. Zhang, B., Wang, B., Morales, A.W., Scudder, J., **Bhattacharyya, M.K.**, and Ye, J.Y.* (2016) Study of the interactions of *Fusarium virguliforme* toxin FvTox1 with synthetic peptides by molecular simulations and a label-free biosensor. *Analytical Chemistry,* 88: 3024–3030.
67. Abeysekara, N.S., Swaminathan, S., Desai, N., Guo, L., and **Bhattacharyya, M.K.*** (2015) The plant immunity inducer pipecolic acid accumulates in the xylem sap and leaves of soybean seedlings following *Fusarium virguliforme* infection. *Plant Science* 243:105–114.
66. Swaminathan, S., Abeysekara, N.S., Liu, M, Cianzio, C.R. and **Bhattacharyya, M.K.*** (2015) Quantitative trait loci underlying host responses of soybean to *Fusarium virguliforme* toxins that cause foliar sudden death syndrome. *Theor Appl Genet.* 129:495-506.
65. Wang, B., Swaminathan, S., and **Bhattacharyya, M.K.*** (2015) Identification of *Fusarium virguliforme* FvTox1-interacting synthetic peptides for enhancing foliar sudden death syndrome resistance in soybean. *PLoS ONE* 10: e0145156.
64. Hughes, T.J.*, O'Donnel, K., Rooney, A.P., Sink, S., Scandiani, M.M., Luque, A., **Bhattacharyya, M.K.,** and Huang, X. (2014) Genetic architecture and evolution of the mating type locus in fusaria that cause soybean sudden death syndrome and bean root rot. *Mycologia*, 106:686-697.
63. Cianzio, S.R.*, **Bhattacharyya, M.K.**, Swaminathan, S., Westgate, M., Gebhart, G., Rivera-Velez, N., Lundeen, P., Van Der Molen, K. and Pruski, T.I. (2014). Registration of 'AR10SDS' soybean germplasm partially resistant to sudden death syndrome and resistant to soybean cyst nematode. *Journal of Plant Registrations*, 8:200-210.
62. Srivastava, S.K., Brar, H.K., Fakhoury, A.M., Bluhm, B.H., Huang, X., and **Bhattacharyya, M.K.*** (2014) The genome sequence of the fungal pathogen *Fusarium virguliforme* that causes sudden death syndrome in soybean. *PLoS* One 9:e81832.
61. Abeysekara, N.S., and **Bhattacharyya, M.K.*** (2014) Analyses of the xylem sap proteomes: identification of candidate *Fusarium virguliforme* toxins and differentially expressed soybean proteins. *PLoS One*. 9:e93667.
60. Ott, A., Yang, Y., **Bhattacharyya, M.K.,** Horner, H.T., Palmer, R.G., and Sandhu, S. (2013) Molecular mapping of *D1, D2* and *ms5* revealed linkage between the cotyledon color locus *D2* and the male-sterile locus *ms5* in soybean. *Plants* 2:1-x. doi:10.3390/ plants20x000x.
59. Luckew A.S., Leandro, L.F., **Bhattacharyya, M.K.,** Nordman, D.J. Lightfoot, D.A., and Cianzio S.R. (2013) Usefulness of 10 genomic regions in soybean associated with sudden death syndrome resistance. *Theor. Appl. Genet.* DOI 10.1007/s00122-013-2143-4.
58. Pudake, R.N., Sahu, B.B., Swaminathan, S., Leandro, L.F., and **Bhattacharyya, M.K.*** (2013) Investigation of the *Fusarium virguliforme fvtox1 mutants* revealed that the FvTox1 toxin is involved in foliar sudden death syndrome development in soybean. *Current Genetics* DOI 10.1007/s00294-013-0392-z.
57. Geiser, D.M., Aoki, T., Bacon, C.W., Baker, S.E., **Bhattacharyya, M.K.** et al. (2013) One fungus, one name: Defining the genus *Fusarium* in a scientifically robust way that preserves longstanding use. *Phytopathology* 103:400-408.
56. Raval, J., Baumbach, J., Ollhoff, A.R., Pudake, R.N., Palmer, R.G., **Bhattacharyya, M.K.**, and Sandhu, D.* (2013) A candidate male-fertility female-fertility gene tagged by the soybean endogenous transposon, *Tgm9*. *Funct. Integr. Genomics* 13:67-73.
55. Baumbach, J., Slattery, R.A., Rogers J.P., Narayanan N.N., Xu, M., Palmer, R.G., **Bhattacharyya, M.K.**, and Sandhu, D.* (2012) Segregation distortion in a region containing a male-sterility, female-sterility locus in soybean. *Plant Science* 195:151-156.

54. Sumit, R., Sahu, B.B., Xu, M., Sandhu, D., and **Bhattacharyya, M.K.*** (2012) Arabidopsis nonhost resistance gene *PSS1* confers immunity against an oomycete and a fungal pathogen but not a bacterial pathogen that cause diseases in soybean. *BMC Plant Biology* 12:62.
53. Brar H.K., and **Bhattacharyya, M.K.*** (2012) Expression of a single-chain variable-fragment antibody against a *Fusarium virguliforme* toxin peptide enhances tolerance to sudden death syndrome in transgenic soybean plants. *Mol. Plant-Microbe Interact*. 25:817-824. (**Front** C**over** article)
52. Sahu, B.B., Sumit, R., and **Bhattacharyya, M.K.*** (2012) Sequence based polymorphic (SBP) marker technology for targeted genomic regions: its application in generating a molecular map of the *Arabidopsis thaliana* genome. *BMC Genomics* 13:20 doi:10.1186/1471-2164-13-20.
51. Yang, H., Qiao, X., **Bhattacharyya, M.K.,** and Dong, L.* (2011) Microfluidic droplet encapsulation of highly motile single zoospores for phenotypic screening of an antioomycete chemical. *Biomicrofluidics* 5: 044103.
50. Brar H.K., Swaminathan, S., and **Bhattacharyya, M.K.*** (2011) The *Fusarium virguliforme* toxin FvTox1 causes foliar sudden death syndrome-like symptoms in soybean. *Mol. Plant-Microbe Interact.* 24:1179-1188.
49. Mbofung, G.C.Y., Fessehaie, A., **Bhattacharyya, M.K.**, and Leandro, L.F.S.* (2011) A new Taqman real-time PCR assay for quantification of *Fusarium virguliforme* in soil. *Plant Disease* 95:1420-1426.
48. Schmutz, J., Cannon, S.B., Schlueter, J., Ma, J., Hyten, D., Song, Q., Mitros, T., Nelson, W., May, G.D., Gill, N., Peto, M., Goodstein, D., Thelen, J.J., Cheng, J., Sakurai, T., Umezawa, T., Du, J., **Bhattacharyya, M.K.,** Sandhu, D., Grant, D., Joshi, T., Libault, M., Zhang, X-C., Xu, D., Futrell-Griggs, M., Abernathy, B., Hellsten, U., Berry, K., Grimwood, J., Wing, R.A., Cregan, P., Stacey, G., Specht, J., Rokhsar, D. Shoemaker, R.C, and Jackson S.A.* (2010) Genome sequence of the paleopolyploid soybean (*Glycine max* (L.) Merr.). *Nature*, 463:178-183.
47. Xu, M., Brar, H., Grosic, S., Palmer, R., and **Bhattacharyya, M.K.*** (2010) Excision of an active CACTA-like transposable element from *DFR2* led to variegated flowers in soybean. *Genetics* 184:53-63.
46. Sandhu, D., Tasma, M.I., Frasch, R., and **Bhattacharyya, M.K.*** (2009) Systemic acquired resistance in soybean is regulated by two proteins, orthologous to Arabidopsis *NPR1*. *BMC Plant Biol*. 9:105.
45. Narayanan N.N., Grosic, S. , Grant, D., Shoemaker, R., and **Bhattacharyya, M.K.*** (2009) Identification of candidate signaling genes including regulators of chromosome condensation 1 protein family differentially expressed in the soybean-*Phytopthora sojae* interaction. *Theor. Appl. Genet.* 118:399-412.
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(b) Book Editing

My % contributions are shown in the parenthesis.

1. Nguyen, H.T. and **Bhattacharyya, M.K**. (2017) The Soybean Genome. Springer, Sep 20, 2017 - 211 pages. DOI 10.1007/978-3-319-64198-0. (50%)

(c) Book Chapters

My % contributions are shown in the parentheses

7. Ratnaparkhe, M.B. *et al.* (2022). Genomic Design for Biotic Stresses in Soybean. In: Kole, C. (eds) Genomic Designing for Biotic Stress Resistant Oilseed Crops. Springer, Cham. https://doi.org/10.1007/978-3-030-91035-8_1 (5%).
6. Sandhu, D. and **Bhattacharyya, M.K.** (2017) Transposon Based Functional Characterization of Soybean Genes. The Soybean Genome. Ed. H.T. Nguyen and M.K. Bhattacharyya. Springer, pp. 183-192 (50%)
5. **Bhattacharyya, M.K.** (2010) Map based cloning in soybean. In "Genetics, Genomics and Breeding of Soybean." Eds. K. Bilyeu, M. Ratnaparkhe, and C. Kole. Science Publishers and CRC Press. (100%)
4. Lübberstedt, T. and **Bhattacharyya, M.K.** (2010) Applications of genomics researches in plant breeding. In "Principles and Practices of Plant Genomics," Volume 3: Advanced Genomics, Eds. C. Kole and A.G. Abbott. Science Publishers and CRC Press. (40%)
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1. Dixon, R.A., Paiva, N.L., and **Bhattacharyya, M.K.** (1995) Engineering disease resistance in plants: an overview. In "Molecular Methods in Plant Pathology," Eds. R.P. Singh and U.S. Singh, CRC Press, Boca Raton. (30%)

(d) Non-refereed journal articles, and popular publications, meeting reports

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9. Feng, X., Yu, D., and **Bhattacharyya, M.K**. (2022) Editorial: Novel technologies for soybean improvement. *Front. Plant Sci.* 13:1047739. doi: 10.3389/fpls.2022.1047739 (20%)
8. Moe, P., Rekoske, M., Miller, J., Schumann, M., and **Bhattacharyya, M.K.** (2021) Breeding for Sugar Beet Root Maggot Resistance. American Society of Sugar Beet Technologist (ASSBT) 41st Biennial Virtual Meeting, March 1-4, 2021. (10%)
7. Gresshoff P.M., Stiller, J., Men, A., Radutoiu, S., Pillai, S., Landau-Ellis, D., Chian, R.-J. Ghassemi, F., **Bhattacharyya, M.,** Hussain, A., Lohar, D., and Jiang, Q. (1999) Functional genomics of legumes:map-based cloning and gene trapping advances in soybean and Lotus japonicus. In "Highlights of Nitrogen Fixation Research." Eds. E. Martinez and G. Hernadez, Kluwer Academic Plenum publ. New York. (5%)
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4. Martin, C., **Bhattacharyya, M.,** Dry, I., Hedley, C., Ellis, N., Wang, T., and Smith, A. (1992) Towards an understanding of starch biosynthesis and its relationship to protein synthesis in plant storage organs. In "Biotechnology and Nutrition: Proceedings of the Third International Symposium," Eds. Butterworth-Heinemann, Boston. (20%)
3. Hedley, C.L., Jones, D.A., Wang, T.L., Ambrose, M.J., Smith, A.M., Ellis, T.H.N., Turner, L., Matthews, P., **Bhattacharyya, M.K.**, Harwood, W., Bedford, I.D., and Green, F.N. (1990) Evidence for a new *rugosus* locus. *Pea News Letter* 2:26-28. (10%)
2. **Bhattacharyya, M.K.,** Nandpuri, K.S., and Singh, S. (1979) Genetic divergence in tomato. *Acta Horticulture* 93:289-300. (90%)
1. **Bhattacharyya, M.K.,** Nandpuri, K.S., and Singh, S. (1979) Screening of tomato germplasms for quality and yield. *Acta Horticulture* 93:301-303. (90%)

INVITED LECTURES (Total 158 in entire career; 136 during 2000 – 2023 after joining ISU)

(a) Invited International Oral Presentations (# 9 – 76 - during 2000-2023)

76. **Bhattacharyya M.K. (2023**) "Engineering Disease Resistance for Sustainable Agriculture." International Conference on Biodiversity, Food Security, Sustainability & Climate Change, Assam Agricultural University, India, April 27, 2023. ***Plenary Speaker***

75. **Bhattacharyya M.K. (2023**) "The molecular basis of broad-spectrum disease resistance in soybean." The International Conference on Frontiers in Biological Sciences, organized by the National Institute of Technology, Rourkela, India, February 2-4, 2023 - *postponed*.
74. **Bhattacharyya M.K. (2023**) "Enhancing broad-spectrum disease resistance in soybean." International Conference on Vegetable Oils 2023 on 'Research, Trade, Value Chain and Policy' organized jointly the Indian Council of Agricultural Research, ICAR-Indian Institute of Oilseeds Research, and Indian Society of Oilseeds Research (ISOR) at Hyderabad during January 17-21, 2023
73. **Bhattacharyya M.K. (2022**) "Gregor Mendel: Mendelism Down to the Molecular Level." The Bicentenary birth anniversary celebration of Gregor Johann Mendel. Department of Plant Breeding & Genetics, Assam Agricultural University. July 20, 2022. ***Plenary Speech,*** **Virtual**
72. **Bhattacharyya M.K. (2022**) "Arabidopsis nonhost resistance genes for enhancing disease resistance in soybean." IS-MPMI 2022 conference to be held at Jeju Island, South Korea, June 19-24, 2022. Meeting was cancelled because of Covid-19.
71. **Bhattacharyya M.K. (2022**) "A Novel Approach for Enhancing Disease and Pest Resistance in Soybean." The 9th World Biotechnology Congress" (Webinar), February 25, 2022. ***Plenary Speech,*** **Virtual**
70. **Bhattacharyya M.K. (2021**) "Overexpression of a soybean plasma membrane protein creates broad-spectrum disease and pest resistance in soybean." 2021 Advanced Technologies and Applications of Modern Industry (ATAMI 2021), November 19-21, 2021 in Wuhan, China. *Virtual*
69. **Bhattacharyya M.K. (2021**) "Genetic engineering for disease resistance." International Conference on Management of Basal Stem Rot in Oil Palm – Present Status and Future Strategies", ICAR, Indian Institute of Oil Palm Research, Andhra Pradesh, India, November 9-11, 2021. ***Plenary Speech,*** *Virtual*
68. **Bhattacharyya M.K. (2021**) "Overexpression of a soybean plasma membrane protein induces expression of NB-LRR-type disease resistance receptor genes and enhances broad-spectrum disease and pest resistance in soybean." The 8th World Biotechnology Congress" (Webinar), October 04-05, 2021. ***Plenary Speech,*** *Virtual*
67. **Bhattacharyya M.K.,** Nagaki, M.N., Wang, F., and Srivastava, S. (2020) "Genetic modification of a soybean gene for enhancing broad-spectrum disease and pest resistance in soybean." The International Conference on "Evolving Materials and Nanotechnology for Sustainable Development" (EMNSD-2020) in online mode on 16 December, 2020. ***Keynote Lecture,*** *Virtual*
66. **Bhattacharyya M.K.** (2020) "Application of a transcriptomic approach in enhancing broad-spectrum disease and pest resistance in soybean." International Conference "Omics of Plant-Pathogen Interaction with their implication" November 16, 2020 ***Inaugural Keynote Lecture,*** *Virtual*
65. **Bhattacharyya M.K.** (2020) "Can Plant Breeding Meet the Needs of the 21st Century?" International Conference on Agricultural Newness: Multidisciplinary Innovations to Health, Environment, Biotechnology, and Sustainable Development. SAGE University, Indore, India. August 28, 2020. ***Keynote Lecture,*** *Virtual*
64. **Bhattacharyya M.K.** (2020) "Plant Breeding to Meet the Needs of the 21st Century." ***First G.R. Das Memorial Lecture***, Assam Agricultural University, Jorhat, India, February 29, 2020.
63. **Bhattacharyya M.K.** (2019) "Arabidopsis Nonhost Resistance Genes for Enhancing Disease Resistance in Soybean." Presented at the "Academic Seminar on Mining, Research and Utilization of Characteristic Plant Resources in Jilin Province and the Second Annual Meeting of Jilin Province Young Scientists annual meeting" June 22, 2019.

62. **Bhattacharyya M.K.** (2019) “Transgenic Approaches in Enhancing Disease and Pest Resistance In Soybean.” Presented in the Key Laboratory of Soybean Molecular Design Breeding, Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences, Changchun, China on June 20, 2019.

61. **Bhattacharyya M.K.** (2019) "Arabidopsis Nonhost Resistance Genes for Enhancing Disease Resistance in Soybean.” Presented in the Soybean Key Laboratory of Northeast Agricultural University, Harbin on June 8, 2019.

60. **Bhattacharyya M.K.** (2019) “Phosphoproteomics of the Root Necrotic Mutant *rn1* in Soybean.” Presented at the Proteomics Workshop of the Plant & Animal Genome XXVII Conference on January 15, 2019.

59. **Bhattacharyya M.K.** (2019) "Digital phenotyping for understanding the cold-stress tolerance mechanisms in Arabidopsis.” Presented at the Functional Genomics Workshop of the Plant & Animal Genome XXVII Conference on January 13, 2019.

58. **Bhattacharyya, M.K.** (2018) What have we learned about the plant adaptation to cold-stress by studying the model plant Arabidopsis thaliana? International Conference on “Climate Change, Biodiversity and Sustainable Agriculture (ICCBSA-2018). Assam Agricultural University, Jorhat-13, Assam, India. December 13-16, 2018.

57. **Bhattacharyya, M.K.** (2018) The endogenous transposable element *Tgm9* is suitable for generating knockout mutants for functional analyses of soybean genes. Conference on Molecular Breeding and Green Agriculture in 21 Century. Changchun, China. July 23, 2018.

56. **Bhattacharyya, M.K.** (2018) Engineering soybean for enhanced broad-spectrum disease and pest resistances. Conference on Molecular Breeding and Green Agriculture in 21 Century. Changchun, China. July 22, 2018.

55. **Bhattacharyya, M.K.** (2018) Arabidopsis Nonhost Resistance Genes for Enhancing Disease Resistance in Soybean. State Key Laboratory of Plant Physiology and Biochemistry, College of Biological Sciences, China Agricultural University, Beijing, China. July 20, 2018.

54. **Bhattacharyya, M.K.** (2018) Isolation and Utilization of Arabidopsis Nonhost Resistance Genes in Enhancing Disease Resistance in Soybean. 70th Annual Meeting, Indian Phytopathological Society and National symposium on 'Plant Health Management**:** Embracing Eco-Sustainable Paradigm' (Feb. 15-17, 2018) Assam Agricultural University, Jorhat-13, Assam, India. ***Keynote Lecture***

53. **Bhattacharyya, M.K.** (2017) Arabidopsis nonhost resistance genes for enhancing disease resistance in soybean. Horticultural Research Station, Assam Agricultural University, Kahikuchi, Guwahati, Assam, India, December 8, 2017.

52. **Bhattacharyya, M.K.** (2017) Arabidopsis nonhost resistance genes for enhancing disease resistance in soybean. ISMPP International Conference on “Plant Health for Human Welfare” Department of Botany, University of Rajasthan, Jaipur, Rajasthan, November 1-4, 2017.

51. **Bhattacharyya, M.K.** (2017) Arabidopsis nonhost resistance genes for enhancing disease resistance in soybean 2017 World Soybean Research Conference 10. University of Georgia, Savannah, September 9-15, 2017. Meeting was cancelled due to a hurricane.

50. **Bhattacharyya, M.K.** (2017) Folate in Plant Immunity. The society TASARD, India-2017 was organized at A P Shinde Auditorium, NASC complex, New Delhi during February 20-22, 2017, on the topic "Advancement for Sustainable Agriculture and Rural Development (TASARD-India-2017)"

49. **Bhattacharyya, M.K.** (2017) Overexpression of a plasma membrane protein enhances resistance to multiple pathogen and pests in soybean. National Symposium on Molecular Insect Science, Assam Agricultural University, Jorhat, India, February 6-8, 2017. ***Keynote Lecture***

48. **Bhattacharyya, M.K.** (2016) Identification and application of Arabidopsis nonhost immunity genes in enhancing disease resistance in soybean. International Symposium, Central Plantation Crops Research Institute, Kerela, December 10-12, 2016.

47. **Bhattacharyya, M.K.** (2016) Towards identification of adaptation genes for generating climate resilient crop plants. International Conference on Climate Change Adaptation and Biodiversity: Ecological Sustainability and Resource Management for Livelihood Security, Andaman Science Association, Port Blair, Andaman & Nicobar Islands, India, 8-10, December, 2016.

46. **Bhattacharyya, M.K.** (2016) Folic acid in plant health. College of Veterinary, Assam Agricultural University, Khanapara, Assam, India, December 6, 2016.

45. **Bhattacharyya, M.K.** (2016) Folic acid in plant health. ICAR-NRC Plant Biotechnology, New Delhi, India, December 2, 2016.

44. **Bhattacharyya, M.K.** (2016) The *Tgm9*-Induced Indexed Insertional Mutant Collection to Conduct Community-Based Reverse Genetic Studies in Soybean. Transposable Elements Workshop. Plant & Animal Genome XXIII, Town & Country Convention Center, San Diego, CA, January 8-13, 2016.

43. **Bhattacharyya, M.K.** (2016) Identification of Defense-related Proteins in the Root Necrotic Mutant *rn1* in Soybean. Proteomics Workshop. Plant & Animal Genome XXIII, Town & Country Convention Center, San Diego, CA, January 8-13, 2016.

42. **Bhattacharyya, M.K.** (2015) Transgenic approaches in managing diseases in soybean. Agri-Biotechnology Summit, Hyderabad, India, October 19-21, 2015.

41. Kambakam, S., Sumit, R., Sahu, B., Singh, P., Wang, B., Yang, Y., Ngaki, M., and **Bhattacharyya, M.K.** (2015) Identification and application of nonhost immunity mechanisms for creating broad-spectrum disease resistance in crop plants. International Conference on Innate Immunity during at Barcelona, Spain, July 20-21, 2015.

40. **Bhattacharyya, M.K.** (2015) Transgenic approaches in managing diseases in soybean. 2nd International Conference on Frontiers in Biological Sciences (InCoFIBS-2015), 22-24 January, 2015, Rourkela, Odisha, India.

39. **Bhattacharyya, M.K.** (2015) "Arabidopsis nonhost resistance for enhancing disease resistance in soybean." Plant Interactions with Pests and Pathogens Workshop. Plant & Animal Genome XXIII, Town & Country Convention Center, San Diego, CA, January 10-14, 2015.

38. **Bhattacharyya, M.K.** (2014) Novel management approaches: managing diseases in soybean. SOYCON-2014 International Soybean Research Conference. Indore, India, 22-24 February, 2014.

37. **Bhattacharyya, M.K.** (2014) Novel management approaches: managing diseases in soybean. IIT, Guwahati, February 17, 2014.

36. **Bhattacharyya, M.K.** (2014) Molecular characterization of a mutant soybean population induced by an endogenous transposable element, *Tgm9.* The International Plant & Animal Genome XVII Conference, Town & Country Convention Center, San Diego, CA**,** January 11, 2014**.**

35. **Bhattacharyya, M.K.** (2013) "Fvtox1 is a major virulence factor that causes foliar sudden death syndrome in soybean." BIT's 3rd Annual World Congress of Agriculture-2013. Hangzhou, China, September 23-25, 2013.

34. **Bhattacharyya, M.K.** (2013) "Arabidopsis nonhost disease resistance for improving disease

resistance in soybean." Lilongwe University, Lilongwe, Malawi, Africa, July 1, 2013.

33. **Bhattacharyya, M.K.** (2013) "The role of a proteinacious toxin in developing the sudden death syndrome disease in soybean." Chitedze Research Station, Lilongwe, Malawi, Africa, June 28, 2013.

32. **Bhattacharyya, M.K.** (2013) "The *Arabidopsis thaliana PSS1* gene confers nonhost resistance against two soybean pathogens, *Phytophthora sojae* and *Fusarium viguliforme*." The First International American Moroccan Agricultural Sciences Conference. Rabat, Morocco, Africa, March 18-19, 2013.

31. **Bhattacharyya, M.K.** (2012) "Genomics analyses of the soybean SDS pathogen, *Fusarium virguliforme*." The 7th International Conference on Genomics (ICG-7) & Bio-IT APAC. The Kowloon Shangri-La Hotel, Hong Kong, November 28 - December 1, 2012.

30. **Bhattacharyya, M.K.** (2012) "Expression of a single chain variable fragment antibody against the *Fusarium virguliforme* toxin FvTox1 resulted in enhanced foliar sudden death syndrome resistance in soybean." 2nd Annual International Symposia of Mycology (ISM-2012), Guangzhou, China, July 30-August 1, 2012 (was invited; but declined).

29. **Bhattacharyya, M.K.** (2012) "One possible mechanism involved in foliar sudden death syndrome development in soybean." Biometrics Division, IASRI, New Delhi, India, October 1, 2012.

28. **Bhattacharyya, M.K.** (2012) "One possible mechanism involved in foliar sudden death syndrome development in soybean." Assam Agricultural University, India, September 21, 2012.

27. **Bhattacharyya, M.K.** (2012) "Xylem sap of *Fusarium virguliforme*-infected soybean plants contains candidate toxins involved in sudden death syndrome development." Proteomics Workshop, Plant & Animal Genome Conference, San Diego, CA, January 17, 2012.

26. **Bhattacharyya, M.K.** (2011) "Nonhost resistance for improving disease resistance in crop plants." BIT 1st Annual World Congress of Molecular & Cell Biology (CMCB-2011). Beijing, China, August 6-8, 2011.

25. **Bhattacharyya, M.K.** (2011) "Expression of a single-chain variable fragment antibody against the *Fusarium virguliforme* toxin, FvTox1, resulted in reduced foliar sudden death syndrome symptom development in stable transgenic soybean plants." Plant Transgene GeneticsWorkshop. Plant & Animal Genome XVII Conference; Town & Country Convention Center, San Diego, CA, January 15-19, 2011.

24. **Bhattacharyya, M.K.** (2011) "The proteinacious toxin, FvTox1 is a major pathogenicity factor involved in foliar sudden death syndrome development in soybean." Plant Interactions with Pests and Pathogens Workshop, Plant & Animal Genome XVII Conference; Town & Country Convention Center, San Diego, CA, January 15-19, 2011.

23. **Bhattacharyya, M.K.** (2011) "Sequencing and analyses of the *Fusarium viguliforme* genome." Lucigen Workshop. Plant & Animal Genome XVII Conference; Town & Country Convention Center, San Diego, CA, January 15-19, 2011.

22. **Bhattacharyya, M.K.** (2010) "Expression of a single-chain variable fragment antibody against a fungal toxin reduced the incidence of a disease in stable transgenic soybean plants." Shanghai Institute of Plant Physiology and Ecology, Shanghai, China, December 1, 2010.

21. **Bhattacharyya, M.K.** (2010) "Expression of a single-chain variable fragment antibody against a fungal toxin reduced the incidence of a disease in stable transgenic soybean plants." Sun Yat-sen University, Guangzhou, China, December 3, 2010.

20. **Bhattacharyya, M.K.** (2010) "Transposon *Tgm9* in soybean." Sun Yat-sen University, Guangzhou, China, December 5, 2010.

19. **Bhattacharyya, M.K.** (2010) "Functional characterization of a phytotoxin that initiates foliar sudden death syndrome, an emerging serious disease in soybean." Functional Genomics: Methodologies Workshop, The International Plant & Animal Genome XVII Conference, Town & Country Convention Center, San Diego, CA, January 9-13, 2010.

18. **Bhattacharyya, M.K.** (2009) "Identification and characterization of the first active endogenous transposable element in soybean." Transposable Elements Workshop**,** The International Plant & Animal Genome XVII Conference, Town & Country Convention Center, San Diego, CA, January 10-14, 2009.

17. **Bhattacharyya, M.K.** (2009) "Functional genomics of the soybean-*Phytophthora sojae* interaction." Soybean Genomics Workshop, The International Plant & Animal Genome XVII Conference, Town & Country Convention Center, San Diego, CA, January 10-14, 2009.

16. **Bhattacharyya, M.K.** (2007) "*Phytophthora* resistance in soybean." Legumes Workshop, The International Plant & Animal Genome XV Conference; Town & Country Hotel, San Diego, CA, January 13-17, 2007.

15. **Bhattacharyya, M.K.** (2007) "Pyrosequencing in microfabricated high-density picolitre reactors for investigating the transcriptomes of the the soybean-*Phytophthora sojae* interaction." Functional Genomics: Methodologies Workshop, The International Plant & Animal Genome XV Conference; Town & Country Hotel, San Diego, CA, January 13-17, 2007.

14. **Bhattacharyya, M.K.** (2007) "Quantitative phosphoproteomics of the soybean-*Phytophthora sojae* interaction." Proteomics Workshop, The International Plant & Animal Genome XV Conference; Town & Country Hotel, San Diego, CA, January 13-17, 2007.

13. **Bhattacharyya, M.K.** (2006) "Toward understanding the molecular basis of the soybean-*Phytophthora sojae* interaction." Third International Conference on Legume Genomics & Genetics, Brisbane, Australia, April 9-13, 2006.

12. **Bhattacharyya, M.K.** (2006) "Phosphoproteomic approaches: In studying the soybean-*Phytophthora sojae* interaction." The International Plant & Animal Genome XIV Conference. Town & Country Hotel, San Diego, CA, January 15-19, 2006.

11. **Bhattacharyya, M.K.**, Sandhu, D., Gao, H., Narayanan, N. N., Ji, J., and Tasma, M. I. (2003) "Recognition and signal transduction in disease resistance: mechanisms and application." UMS Biotechnology. Symposium II. Universiti Malaysia Sabah, Kota Kinabalu, Malaysia. December 3-5, 2003. ***Keynote Speaker.***

10. **Bhattacharyya, M.K.** (2003) "Towards understanding resistance and susceptibility in soybean." Southern Crop Protection and Food Research Centre, 1391 Sandford St., London, ON N5V 4T3, Canada. July 22, 2003.

9. **Bhattacharyya, M.K.** (2003) "Application of a cloned *Phytophthora* resistance gene *Rps1*-k for discovering candidate genes for the expression of defense responses in soybean." Functional Genomics: Methodologies Workshop, The International Plant & Animal Genome XI Conference. Town & Country Hotel, San Diego, CA, January 11-15, 2003.

8. **Bhattacharyya, M.K.** (1999) "Phosphoinositide-specific phospholipase C is induced by nutrients MS and down-regulated by infection in soybean cell suspensions." School of Life Sciences, JNU, India, 1999.

7. **Bhattacharyya, M.K.**, Espinosa, B.G., Kasuga, T., Liu, Y., Salimath, S.S., Gijzen, M., Poisa, V., and Buzzell, R.I. (1999) "Towards understanding the recognition and signal transduction processes

in the soybean-*Phytophthora sojae* interaction." Symposium on Plant Signal Transduction, ICGEB, New Delhi, October 4-6, 1999.

6. **Bhattacharyya, M.K.** (1997) "High resolution and high density genetic mapping of AFLP markers that co-segregates with the *Rps1*-k." Department of Plant Molecular Biology, Delhi University South Campus, New Delhi, 1997.
5. **Bhattacharyya, M.K.** (1996) "Progress towards positional cloning of the *Phytophthora* resistance gene *Rps1*-k." Department of Plant Sciences, UWO, London, Canada, 1996.
4. **Bhattacharyya, M.K.** (1996) "High resolution genetic and physical mapping of the *Rps1*-k locus in soybean." Agriculture Canada, Harrow, Canada, 1996.
3. **Bhattacharyya, M.K.** (1996) "Toward cloning of the *Phytophthora* resistance gene *Rps1*-k." Department of Botany, Univ. of Toronto, Canada, 1996.
2. **Bhattacharyya, M.K.** (1993) "Identification of markers linked to the *Rps1*-k gene." London Research Centre, Agriculture Canada, London, Canada, 1993.
1. **Bhattacharyya, M.K.**, Paiva, N.L. Stermer, B.A., and Dixon, R.A. (1991) "HMG-CoA reductase of potato is encoded by a multigene family." Third International Congress of Plant Molecular Biology, Tucson, AZ, October 6-11, 1991.

(b) Invited National Oral Presentations (# 16 - 82 presented during 2000-2022)

82. **Bhattacharyya M.K.** (2022) "Investigating the molecular basis of broad-spectrum pathogen and pest resistance induced by overexpression a soybean receptor protein." CBC annual meeting on December 7, 2022.
81. **Bhattacharyya, M.K.** (2022) "Molecular basis of broad-spectrum disease and pest resistance generated by overexpression of GmDR1 in soybean" in the IPB 2020 Fall Seminar Series (PLBIO 696). October 12, 2022.
80. **Bhattacharyya, M.K.** (2021) "Engineering soybean for disease resistance." IGG Faculty Seminar Series (GENET 691 Section 2). December 6, 2021.
79. **Bhattacharyya M.K.** (2021) "Towards understanding the genetic mechanisms used by the overexpressed *GmDR1* gene in generating broad spectrum disease and pest resistance in transgenic soybean." ISU Fusarium Working Group Meeting, February 12, 2021. **Virtual**
78. **Bhattacharyya M.K.** (2021) "Stacking four plant genes to provide durable and enhanced SCN and SDS resistance in soybean." Iowa Soybean Association; January 25, 2021. **Virtual**
77. **Bhattacharyya M.K.** (2020) "Towards developing a CRISPR-Cas9 gene-editing system for *Camelina sativa."* Presented at the CBC annual meeting on December 9, 2020. **Virtual**
76. **Bhattacharyya, M.K.** (2020) "Generation of broad-spectrum disease and pest resistance in soybean" in the IPB 2020 Fall Seminar Series (PLBIO 696). October 28, 2020 **Virtual**
75. **Bhattacharyya M.K.** (2019) "Developing a digital phenotyping system for *Camelina sativa."* Presented at the CBC annual meeting on December 6, 2019.
74. **Bhattacharyya M.K.** (2019) "Nonhost immunity in enhancing disease resistance in soybean." Department of Agronomy, Iowa State University, Ames, Iowa on February 20, 2019.
73. **Bhattacharyya, M.K.** (2018) "Isolation and Utilization of Arabidopsis Nonhost Resistance Genes in Enhancing Disease Resistance in Soybean" in the IPB 2018 spring seminar series (PLBIO 696).
72. **Bhattacharyya, M.K.** (2017) "Transgenic approaches in managing sudden death syndrome in soybean." USDA/NIFA AFRI Plant-Associated Microbes and Plant-Microbe Interactions, Fungal

Pathosystems Integrated Programs, and Ecology and Evolution of Infectious Disease Project Directors Meeting Washington, DC, December 11 – December 12, 2017

71. **Bhattacharyya, M.K.** (2017) "Overexpression of a plasma membrane protein enhances resistance to multiple pathogen and pests in soybean." Department of Agronomy, Iowa State University, Ames, IA 50011, February 6, 2017
70. **Bhattacharyya, M.K.** (2017) "Transgenic approaches in managing sudden death syndrome in soybean." USDA/NIFA AFRI Plant-Associated Microbes and Plant-Microbe Interactions, Fungal Pathosystems Integrated Programs, and Ecology and Evolution of Infectious Disease Project Directors Meeting Washington, DC, June 30 to July 1, 2016.
69. **Bhattacharyya, M.K.** (2016) "Expression of a receptor-like protein enhances resistance of soybean to multiple pathogen and pests including soybean cyst nematodes**."** APS organized 2016 Soybean Cyst Nematode Conference. December 13-15, 2016, Coral Gables, Florida.
68. **Bhattacharyya, M.K.** (2016) "Novel transgenic approaches in enhancing SDS resistance in soybean." Plant Pathology & Microbiology Department, Iowa State University, March 1, 2016.
67. **Bhattacharyya, M.K.** (2016) "Novel biotech. approaches in fighting sudden death syndrome in soybean." 2016 Soybean Breeders' & Pathologists' Workshop. St. Louis, MO, 22-24 February 2016.
66. **Bhattacharyya, M.K.** (2015) "Transgenic approaches in managing sudden death syndrome in soybean." USDA/NIFA Agriculture and Food Research Initiative Microbial Programs Awardee Meeting, Washington, DC NIFA Project Director Meeting, AFRI Plant-Associated Microbes and Plant-Microbe Interactions & Fungal Pathosystems Integrated Programs, July 23-24, 2015
65. **Bhattacharyya, M.K.** (2014) "Nonhost resistance for engineering disease resistance." Monsanto, March 20, 2014.
64. **Bhattacharyya, M.K.** (2013) "Transgenic approaches in managing sudden death syndrome in soybean." USDA/NIFA Agriculture and Food Research Initiative Microbial Programs Awardee Meeting, Washington, DC, August 7-8, 2013.
63. **Bhattacharyya, M.K.** (2013) "Transgenic approaches in fighting sudden death syndrome in soybean." Plant Genomics & Biotechnology Workshop for 7th - 12th grade teachers and high school students, Tuskegee University, Tuskegee, AL, July 29, 2013.
62. **Bhattacharyya, M.K.** (2013) "Nonhost resistance for engineering disease resistance." CPBR Symposium, Washington, DC, March 5-6, 2013.
61. **Bhattacharyya, M.K.** (2012) "USDA SDS project." North Central Soybean Research Program and the United Soybean Board SDS Fall Meeting, Kansas City, MO, November 15-16, 2012.
60. **Bhattacharyya, M.K.** (2012) "Genetic analyses suggest that the FvTox1 toxin produced by *Fusarium virguliforme* is involved in foliar SDS development in soybean." 14th Biennial Conference on the Molecular and Cellular Biology of the Soybean, Des Moines, IA, August 12-15, 2012.
59. Abeysekara, N., Matthiesen, R., Cianzio, S., **Bhattacharyya, M.** and Robertson, A. (2012) "Mapping quantitative trait loci encoding partial resistance to *Phytophthora sojae* in soybean." 14th Biennial Molecular & Cellular Biology of the Soybean Conference, Des Moines, IA, August 12-15, 2012.
58. **Bhattacharyya, M.K.** (2011) "The SDS pathogen—what have we learned." The NCSRP SDS Fall Meeting, St. Paul, MN, November 17-18, 2011.
57. Cianzio, S., Leandro, L. and **Bhattacharyya, M.K.** (2011) "Coping with sudden death syndrome (SDS) in Iowa soybeans - integrated research approach and solutions to protect yield." Integrated Crop Management Conference, Iowa State University, Ames, IA, November 30-December 1, 2011.
56. **Bhattacharyya, M.K.** (2011) "Nonhost resistance for engineering disease resistance." Monsanto, Inc., St. Louis. MO, July 11, 2011.

55. **Bhattacharyya, M.K.** (2011) "How does the *Fusarium virguliforme* toxin, FvTox1, generate foliar sudden death syndrome (SDS) in soybean?" CPRES Seminar Series, Iowa State University, Ames, IA, December 16, 2011.
54. **Bhattacharyya, M.K.** (2011) "Expression of an antibody against a *Fusarium virguliforme* toxin enhances SDS resistance in stable transgenic soybean plants." Department of Plant Pathology, Iowa State University, Ames, IA, February 15, 2011.
53. **Bhattacharyya, M.K.** (2010) "Sequencing the SDS pathogen." North Central Soybean Research Program and the United Soybean Board Sudden Death Syndrome Fall Meeting University of Arkansas - Cosmopolitan Hotel, Fayetteville, AR, November 18-19, 2010.
52. **Bhattacharyya, M.K.** (2010) "What we now know about the way *Fusarium virguliforme* causes foliar symptoms of sudden death syndrome in soybean." Syngenta, Inc., Research Triangle Park, NC, August 12, 2010.
51. **Bhattacharyya, M.K.** (2010) "Towards understanding the mechanism of foliar sudden death syndrome development in soybean." The 13th Biennial Molecular & Cellular Biology of the Soybean Conference, Durham, NC, August 8-11, 2010.
50. **Bhattacharyya, M.K.** (2010) "What do we now know about the mechanism of foliar SDS development in soybean?" Workshop Organized by Syngeta, Inc., Minnetonka, MN, July 15, 2010.
49. **Bhattacharyya, M.K.** (2010) "What we now know how foliar SDS developed in soybean." Syngenta, Inc., Huxley, IA, June 16, 2010.
48. **Bhattacharyya, M.K.** (2010) "Towards creating durable and broad-spectrum disease resistance in soybean." Pioneer, Inc., Johnston, IA, March 23, 2010.
47. **Bhattacharyya, M.K.** (2010) "Genome sequence of the SDS pathogen, *Fusarium virguliforme*." The Soybean Breeder's Meeting, St. Louis, MO, February 22-24, 2010.
46. **Bhattacharyya, M.K.** (2009) "Sequencing the *Fusarium virguliforme* genome." SDS meeting organized by NCSRP, SIU, Carbondale, IL, November 19-20, 2009.
45. **Bhattacharyya, M.K.** (2009) "Arabidopsis nonhost resistance for creating novel soybean germplasms with durable and broad-spectrum *Phytophthora* resistance." CPBR, February, 2009.
44. **Bhattacharyya, M.K.** (2008) "Toxin research." SDS meeting organized by NCSRP, ISU, Ames, IA, November 20-21, 2008.
43. Brar, H., and **Bhattacharyya, M.K.** (2008) "Purification of a phytotoxin that causes sudden death syndrome in soybean." CPRES Seminar Series, Iowa State University, Ames, IA, October 24 (Ms. Brar, graduate student, from my lab presented the talk).
42. **Bhattacharyya, M.K.** (2007) "A novel *Fusarium virguliforme* protein is involved in the development of foliar sudden death syndrome in soybean." CPRES Seminar Series, Iowa State University, Ames, IA, November 30, 2007.
41. **Bhattacharyya, M.K.** (2007) "*Fusarium* toxin research in soybean" SDS meeting organized by NCSRP, University of Illinois, Urbana-Champaign, IL, November 15-16, 2007.
40. **Bhattacharyya, M.K.** (2006) "Pyrosequencing in microfabricated highdensity picolitre reactors: The method and its possible applications." Plant Biology Fall Seminar Series, Iowa State University, Ames, IA**,** October 25, 2006.
39. Brar, H., and **Bhattacharyya, M.K.** (2006) "Purification of a phytotoxin that causes sudden death syndrome in soybean." CPRES Seminar Series, Iowa State University, Ames, IA, October 13, 2006 (Presented by graduate student of my lab, Ms. Brar).
38. **Bhattacharyya, M.K.** (2006) "Characterization of Rps1-k-2-interactors." 11th Biennial Cellular and Molecular Biology of the Soybean Conference, Lincoln, NE, August 8-11, 2006.

37. **Bhattacharyya, M.K.** (2006) "Toward generating SDS resistant transgenic soybean lines" SDS meeting organized by NCSRP, Souther Illininois University, Carbodale, IL, November 15-16, 2006.
36. **Bhattacharyya, M.K.** (2006) "Cloning and characterization of a type II metacaspase gene, *GmMcII*." Mendel Biotechnology, Inc., Hayward, CA, June 19, 2006.
35. **Bhattacharyya, M.K.** (2005) "*Phytophthora* resistance in soybean." Department of Plant Pathology, Kansas State University, KS, May 12, 2005.
34. **Bhattacharyya, M.K.** (2005) "Proteomics approach for SDS." USB-Biotechnology to control SDS. Chicago, IL, April 18-19, 2005.
33. **Bhattacharyya, M.K.** (2005) "Immunity, resistance and susceptibility." CPRES Seminar Series, Iowa State University, Ames, IA**,** October 13, 2005.
32. Sandhu, D., and **Bhattacharyya, M.K.** (2004) "Deletion of a disease resistance NBS-LRR-like sequence is associated with the loss of the *Phytophthora* resistance gene *Rps4* in soybean." CPRES Seminar Series, Iowa State University, Ames, IA, 2004 (Presented by assistant scientist of my lab, Dr. Sandhu).
31. **Bhattacharyya, M.K.** (2004) "Towards understanding the mechanism of *Phytophthora* resistance in soybean." 10th Biennial Cellular and Molecular Biology of the Soybean Conference, Columbia, MO, August 8-11, 2004.
30. **Bhattacharyya, M.K.** (2003) "Proteomics approach for SDS." USB-Biotechnology to Control SDS. Chicago, IL, August 25, 2003.
29. **Bhattacharyya, M.K.** (2003) "Proteomics approach for SDS." USB-Biotechnology to Control SDS. St. Louis, MO, February 19, 2003.
28. Ji, J., and **Bhattacharyya, M.K.** (2003) "Proteomics approach in studying sudden death syndrome in soybean." CPRES Seminar Series, Iowa State University, Ames, IA, 2003 (Presented by the graduate student from lab, Ms. Junli Ji).
27. **Bhattacharyya, M.K.** (2003) "Characterization of the phosphoinositide signal pathway." IGG Retreat, Iowa State University, Ames, IA, September 20, 2003.
26. **Bhattacharyya, M.K.** (2003) "Towards understanding the functions of the phosphoinositide signal pathway." Plant Biology Retreat, Iowa State University, Ames, IA, August 20, 2003.
25. **Bhattacharyya, M.K.** (2002) "Cloning of the *Rps1*-k gene family." CPRES Seminar Series, Iowa State University, Ames, IA**,** 2002.
24. **Bhattacharyya, M.K.** (2002) "Application of *Rps1*-k in developing possible broad-spectrum resistance in soybean." The *Phytophthora sojae* meeting. Wooster, OH, September 26-27, 2002.
23. **Bhattacharyya, M.K.** (2002) "Cloning of the *Rps1*-k gene family." Plant Biology Retreat, Iowa State University, Ames, IA, August 24, 2002.
22. **Bhattacharyya, M.K.**, Narayanan N. N., Gao H., Santra D. Ellison L, Kasuga, T., Salimath S.S., Liu Y., Espinosa B., Marek L.F., Shoemaker R.C., Gijzen M., and Buzzell R.I. (2002) "The *Rps1*-k locus carries multiple functional *Phytophthora* disease resistance genes in soybean." 9th Biennial Conference of the Cellular and Molecular Biology of the Soybean, Urbana-Champaign, IL, August 11-14, 2002.
21. **Bhattacharyya, M.K.** (2002) "*Rps1*-k is comprised of multiple functional *Phytophthora* resistance genes." *Phytophthora* Molecular Genetics Workshop, Milwaukee, WI, August 1-2, 2002.
20. **Bhattacharyya, M.K.** (2002) "Progress toward isolation of *Rps1*-k." Iowa Soybean Promotion Board, Des Moines, IA, March 2, 2002.
19. **Bhattacharyya, M.K.** (2001) "Molecular approaches towards improving disease resistance in soybeans." Agronomy Department, Iowa State University, Ames, IA, September 20, 2001.

18. **Bhattacharyya, M.K.** (2001) "Towards molecular cloning of *Phytophthora* resistance genes in soybean." BCB 691 Faculty Seminar, Iowa State University, Ames, IA, 2001.
17. **Bhattacharyya, M.K.** (2000) "Towards understanding the molecular-basis of the soybean-*Phytophthora sojae* interaction." Department of Plant Pathology, Iowa State University, Ames, IA, October 24, 2000.
16. **Bhattacharyya, M.K.** (2000) "Towards molecular characterization of the *Phytophthora* disease resistance genes at the *Rps1*-k region in soybean." IGG Faculty Seminar, Iowa State University, Ames, IA, 2000.
15. **Bhattacharyya, M.K.** (1999) "Progress towards cloning the soybean disease resistance gene *Rps1*-k." Department of Botany, Oklahoma State University, Stillwater, OK, 1999.
14. Shigaki T., Dammann, C., and **Bhattacharyya, M.K.** (1999) "Toward understanding the possible role of phosphoinositide-specific phospholipase C in plants." The 88th Annual Technical Meeting of OAS, Oklahoma City University, Oklahoma City, OK, November 13, 1999.
13. Dammann C., and **Bhattacharyya, M.K.** (1999) "A new gene from soybean with similarity to G-protein coupled receptors." 75th annual ASPP meeting, July 24-28, Baltimore, MD, 1999 (Dr. Christian Dammann, postdoc, from my lab offered the talk).
12. **Bhattacharyya, M.K.** (1999) "Towards positional cloning of the *Phytophthora* resistance gene *Rps1*-k in soybean." The 1999 OARDC Annual Conference, OSU, Columbus, OH, 1999. ***Keynote Speaker***
11. **Bhattacharyya, M.K.** (1999) "Possible role of phosphoinositide-specific phospholipase C in DNA replication in soybean." Department of Botany and Microbiology, University of Oklahoma, Norman, OK, 1999.
10. **Bhattacharyya, M.K.** (1998) "Towards cloning the soybean disease resistance gene *Rps1*-k." Noble Foundation Plant Biology 10-year Symposium, Noble Foundation, Ardmore, Oklahoma, October 7-10, 1998.
9. **Bhattacharyya, M.K.**, Salimath, S.S., Espinosa, B.G., Kasuga, T., Liu, Y., Marek, L., Shoemaker, R.C., Gijzen, M., and Buzzell, R. I. (1998) "Soybean-*Phytophthora sojae*, a model plant-fungal interaction: Progress towards map-based cloning of the disease resistance gene *Rps1*-k." 7th Biennial Conference on Molecular and Cellular Biology of the Soybean and 8th Gatlinburg Symposium, Knoxville, TN, July 26-29, 1998.
8. **Bhattacharyya, M.K.** (1997) "Towards cloning *Rps1*-k." Application of Biotechnology For The Control Of Soybean Diseases, St. Louis, MO, September 13-14, 1997.
7. **Bhattacharyya, M.K.** (1996) "Progress towards cloning *Rps1*-k." Application of Biotechnology for the Control of Soybean Diseases, Agronomy Department, Iowa State University, Ames, IA, October 5-6, 1996.
6. **Bhattacharyya, M.K.** (1996) "Progress towards map-based cloning the *Phytophthora* resistance gene *Rps1*-k." USDA-ARS, Beltsville, MD, 1996.
5. **Bhattacharyya, M.K.** (1996) "Towards map-based cloning of *Rps1*-k that confers resistance to *Phytophthora sojae* in soybean." Hawaiian Sugar Plantation Association, Honolulu, HI, 1996.
4. **Bhattacharyya, M.K.** (1996) "Characterization of soybean PI-PLC1." Department of Plant Molecular Physiology, University of Hawaii, Honolulu, HI, 1996.
3. **Bhattacharyya, M.K.** (1996) "Cloning and characterization of soybean PI-PLC1." Department of Botany, Oklahoma State University, Stillwater, OK, 1995.
2. **Bhattacharyya, M.K.** (1995) "Isolation of RAPD and AFLP markers that are linked to *Rps1*-k." 'Workshop on Soybean Pathology,' Iowa State University, Ames, IA, April 22, 1995.

1. **Bhattacharyya, M.K.** (1994) "Reduced variation in transgene expression from a binary vector with selectable markers at the right and left T-DNA borders." Monsanto, St. Louis, MO, 1994.

TEACHING ASSIGNMENT

Bhattacharyya is expected to participate in graduate and postdoctoral education in plant molecular genetics. He is expected to provide effective learning experience to students of AGRON 527 (Plant Genetics), a course offered primarily to the graduate students of Agronomy, Plant Biology and Interdepartmental Genetics major programs from 2002 to 2012. He spent over 12.5% of his time in teaching. Starting 2012, he has been teaching AGRON 524 (Applied Molecular Genetics and Biotechnology) to the online students of the distance education program in Plant Breeding and resident graduate students. Teaching accomplishments are summarized below.

- Engaged with GENET 699, MCDB 699, and P PHY 699 courses.
- He was a guest lecturer for BOT 545 in 2000.
- He contributed to AGRON 522, a summer one-credit graduate course, which was co-taught by Plant Breeding and Genetics faculty.
- He taught yearly the 3-credit course, AGRON 527 (Plant Genetics) from 2002 to 2012.
- In fall 2004, he taught MCDB 698, a graduate student seminar course of the Molecular Cellular and Developmental Biology (MCDB) program.
- In 2010, he initiated writing the course AGRON 524 (Applied Molecular Genetics and Biotechnology) in a collaborative effort with four faculty members. He chaired the committee involved in writing this course and wrote six of the 12 lessons for this course.
- Starting 2012, he has been teaching AGRON 524 to the online graduate students of the distance Plant Breeding program as well as resident graduate M.S. and Ph.D. students in Plant Breeding, Plant Biology and Genetics students of the interdisciplinary programs.

ADVISING ACTIVITIES

Teaching continues out-side of the classrooms. Learning takes place in both formal and informal settings. Informal teaching includes hands-on-experiences received by students and scientists in a laboratory, knowledge gained from discussion in a weekly group or lab meeting, etc. He has been advising graduate students, summer research interns, undergraduate students, postdoctoral researchers, scientists, visiting scientists and fellows in performing original research in the area of molecular host-pathogen interactions and plant molecular genetics. During his career of 32 years that started in the November of 1990 at the Plant Biology Division, Noble Foundation (NF), he has mentored 136 students and scientists. Of this number, 124, mentored in ISU during 2000 to 2022 period. The students and scientists receiving training in Bhattacharyya lab include:

- Forty-eight scientists including graduate students, postdocs and assistant scientists mentored by Bhattacharyya (Table 1);
- Twenty international visiting fellows and scientists from seven counties (Table 2);
- Thirty summer interns including 16 black minority undergraduate students and high school teachers (Table 3);
- Forty undergraduate students (Table 4).

Table 1. Forty-eight scientists including graduate students, postdocs and assistant scientists from 10 countries mentored by Bhattacharyya.

Name	Country	Place	Status	Time	Position
Junli Ji	China	ISU	M.S.	2001-2004	Research Scientist, Corteva Agriscience
Rishi Sumit	India	ISU	M.S.	2006-2013	Busin. Sys. Analyst, Cutcher & Neale, Australia
Shan Li	China	ISU	M.S.	2007-2010	Sr. Pricing Analyst, OfficeMax
James Baskett	USA	ISU	M.S.	2008-2012	Scientist, Poet, Inc., Emmetsburg, IA
Jill Heinrich	USA	ISU	M.S.	2013-2016	Sonac North America
Jasmine Lopez	USA	ISU	M.S.	2013-2014	Lipman Family Farms
Hongyu Gao	China	ISU	Ph.D.	2000-2006	Faculty, Indiana University
Hargeet Brar	India	ISU	Ph.D.	2005-2010	Manager, Mol. Biology, ACGT, Inc.
Jordan L. Baumbach	USA	ISU	Ph.D.	2011-2018	Faculty, MSSU, MO
Rusty Rueckert	USA	ISU	M.S.	2014-2015	Bayer Monsanto, Hawaii
Oluwatoyosi F. Akintayo	Nigeria	ISU	Ph.D.	2017-	
Paloma Moe	USA	ISU	M.S.	2018-2020	KWS Seed LLC, MN
Tiffani Hull	USA	ISU	M.S.	2018-2019	Research Scientist, Corteva, Hawaii, HI
Dane Anderson	USA	ISU	M.S.	2020-2021	Research Associate, AgReliant Genetics, IN
Jinrui Shi	China	NF	Postdoc	1992-1996	Scientist, Corteva, Johnston, IA
G. Subramanian	India	NF	Postdoc	1995-1996	Bioinformatician, Ceres Inc., Malibu, CA
Takao Kasuga	Japan	NF	Postdoc	1995-1997	Molecular Geneticist, USDA ARS, UC Davis
Sanmukhaswami	India	NF	Postdoc	1995-1999	University of North Texas, Denton
Jian Zhang	China	NF	Postdoc	1996-1998	General Manager, Huazhi Rice Bio-Tech., China
Toshiro Shigaki	Japan	NF	Postdoc	1996-1999	Faculty, University of Tokyo
ChristianDammann	Germany	NF	Postdoc	1997-2001	Scientist, BASF Plant Science
Yongqing Liu	China	NF	Postdoc	1998-2000	Faculty, University of Louisville
Gua-Qing Tang	China	NF	Postdoc	1999-2000	Scientist, BASF Plant Science
Dongtao Ren	China	NF	Postdoc	1999-2000	Professor, China Agricultural University, China
Wing-Ming Chou	Taiwan	NF	Postdoc	1999-2001	Faculty, National Formosa University, Taiwan
Dipak Santra	India	ISU	Postdoc	2000-2002	Faculty, UNL, Scottsbluff, NE
Narayanan N. Narayanan	India	ISU	Postdoc	2001-2004	Sen. Res Scientist, Danforth Plant Sci. Center
Made I. Tasma	Indonesia	ISU	Postdoc	2001-2004	Research Scientist, ICABIOGRD, Indonesia
Min Xu	China	ISU	Postdoc	2005-2007	Professor, Northwest University, China
Ramesh Pudake	India	ISU	Postdoc	2009-2011	Assistant Prof., Amity University, India
Subodh Srivastava	India	ISU	Postdoc	2010-2011	Scientist, USDA-APHIS-PPQ, Beltsville, MD

Xiaoping Yi	China	ISU	Postdoc	2010	Faculty, Southern University, Baton Rouge, LA
Nilwala Abeysekar	Sri Lanka	ISU	Postdoc	2011-2012	Lab Manager, NORS-DUC, San Rafael, CA.
Michelline Ngaki	Congo	ISU	Postdoc	2012-2017	Assist Sci., ISU, IA
Jayadri Ghosh	India	ISU	Postdoc	2013-2014	Postdoc, UNL, NE
Bing Wang	China	ISU	Postdoc	2013-2016	Postdoc, UC-Berkley, CA
Nainder Pal	India	ISU	Postdoc	2014-2015	Ag. Res. Tech., USDA ARS
Prashant Singh	India	ISU	Postdoc	2013	Assist Prof. Banaras Hindu Univ., India
Manash Tripathy	India	ISU	Postdoc	2017	Scientist, Inst. of Life Sci., Bhubaneswar, India
Binod Bihari Sahu	India	ISU	Postdoc	2009-2014	Assist Prof., NIT Rourkela, Odisha, India
Devi Kandel	Nepal	ISU	Postdoc	2017-2018	Postdoc, Texas A&M- Agri. Life Res Extn. Cent.
Shivendra Kumar	India	ISU	Postdoc	2021-2023	Faculty, University Florida, Suwannee Valley
Atit Parajuli	Nepal	ISU	Postdoc	2023-	
Devinder Sandhu	India	ISU	Asst. Sci.	2001-2006	Research Geneticist (Plants) USDA-ARS
Saravanan Ramusubramanium	India	ISU	Asst. Sci.	2004-2006	Assistant Scientist, Michigan State University
Sivakumar Swaminathan	India	ISU	Asst. Sci.	2009-2020	Iowa State University
Prashant Singh	India	ISU	Asst. Sci.	2013-2014	Assistant Prof., Banaras Hindu University, India
Michelline Ngaki	India	ISU	Asst. Sci.	2017-	

Table 2. Twenty international visiting fellows and scientists from seven countries mentored by :haryya.

Name	**Location**	**Visiting t/Fellow**	**Year**	**Country**
Terry MacGregor	NF	Visiting Fellow	1994-1995	Canada
Artem E. Men	NF	Visiting Scientist	1998	Australia
Thiyagarajan Kalaimagal	ISU	Visiting Scientist	2008-2009	India
Xiangwen Pan	ISU	Visiting Scientist	2010	China
R.K. Mathur	ISU	Visiting Scientist	2011	India
V. Niral	ISU	Visiting Scientist	2011	India
M.K. Rajesh	ISU	Visiting Scientist	2011	India
R. Senthil Kumar	ISU	Visiting Scientist	2011	India
Xiangwen Pan	ISU	Visiting Scientist	2011-2012	China
Amrit Paul	ISU	Visiting Scientist	2012	India
Grace Kaudzu	ISU	Borlaug Fellow	2012	Malwai
Sanjeev Kumar	ISU	Visiting Scientist	2013	India
Berna Bas	ISU	Visiting Scientist	2013-2014	Turkey
Eric Vieira-Silva	ISU	Visiting Fellow	2014-2015	Brazil
Priyanka Das	ISU	Visiting Scientist	2014	India

Scheila Guilherme	ISU	Visiting Fellow	2017	Brazil
Igor Oliveri Soares	ISU	Visiting Fellow	2017	Brazil
Shweta Meshram	ISU	Visiting Fellow	2019-20	India
Feifei Wang	ISU	Visiting Scientist	2020-2021	China

Table 3. Thirty summer interns including 16 black minority undergrad students conducted research in haryya lab.

Name	**Sex**	**Race**	**Undergrad/Teacher**	**Year**
Nia Blair	Female	Black	Undergrad	2013
Jamilah Page	Female	Black	Undergrad	2013
Ellen Tisdale	Female	Black	Undergrad	2013
Joi Davis	Female	Black	Undergrad	2013
Vincent Brazelton Jr	Female	Black	Undergrad	2013
Carol Harrison	Female	Black	H.S. Teacher	2013
JaToria Ellis	Female	Black	H.S. Teacher	2013
Imena Ezell	Female	Black	Undergrad	2014
Aneshwawa Senior	Female	Black	Undergrad	2014
Megan Washburn	Female	White	H.S. Teacher	2014
Gwendoyln Jefferson	Female	Black	H.S. Teacher	2014
Kristen Turner	Female	White	H.S. Teacher	2014
Kayla Braurer	Female	White	H.S. Teacher	2014
Hope Brown	Female	White	H.S. Teacher	2014
Christin Blount	Female	Black	Undergrad	2015
Arien Ragsdale	Male	Black	Undergrad	2015
Melissa Green	Female	White	H.S. Teacher	2015
Kevin Schnieder	Male	White	H.S. Teacher	2015
Shannon Lumley	Female	White	H.S. Teacher	2015
Brent Chambers	Male	White	H.S. Teacher	2015
Mary Anne Rabb	Female	Black	Undergrad	2016
Kara Wilson	Female	Black	Undergrad	2016
Jordan Bell	Female	Black	Undergrad	2016
Darian Turner	Female	Black	Undergrad	2016
Kristen Turner	Female	White	H.S. Teacher	2016
Emily Van Egmond	Female	White	H.S. Teacher	2016
Ashley Harlacher	Female	White	H.S. Teacher	2017
Anthony Jahr	Male	White	H.S. Teacher	2017
William Swanson	Male	White	H.S. Teacher	2017
Samantha Fezza	Female	White	H.S. Teacher	2017

Table 4. Forty undergraduate students received research experience in Bhattacharyya Lab.

Name	**Location**	**Year**
Kirby D. Childs	NF	1994-1996
R. Peter Hunsinger	ISU	2001–2002
Katie G. Schallock	ISU	2004-2005
Erin Lyon	ISU	2005-2006
Seila Hadzic	ISU	2005-2009
Maggie Amdahl	ISU	2006
Katelynn Elizabeth Davis	ISU	2010-2012
Tyler Andrew Aves	ISU	2010-2012
Katy Moore	ISU	2013
Austin Wonderlich	ISU	2012-2014
Ryan Sherzan	ISU	2013-2014
Austin Quick	ISU	2015
Genevieve Schrader	ISU	2015
Anna Baldwin	ISU	2016
Jacqueline Klindt	ISU	2016
Michael Rhoda	ISU	2016
Pablo FernandezCastro	ISU	2016
Raissa Mafuta	ISU	2016-2017
Austin Beck	ISU	2017
Candide Mafuta	ISU	2017
Jaclyn Appelhans	ISU	2017
Samuel D. Kenkel	ISU	2017, 2019
Jacob Melichar	ISU	2017, 2019
Jacqueline Klindt	ISU	2017
Melanie Bennett	ISU	2017
Eshpa Mollel	ISU	2018
Hannah Duckson	ISU	2018
Jack Pincus	ISU	2018
Isaac Linn	ISU	2018-2019
Leandra Lyon	ISU	2018-2019
Madison Huynh	ISU	2018-2021
Bryan Clements	ISU	2019
Madison Huynh	ISU	2019-2021
Julia Rhoades	ISU	2021
Christan Cave	ISU	2021
Alither Mugisha	ISU	2021
Madesh Samanu	ISU	2021
Madeline Thompson	ISU	2021-present
Cecelia Ryden	ISU	2023
Rostand Mafuta	ISU	2023

INTERNATIONAL SERVICE

Apart from attending and presenting research in international conferences, he has contributed significantly to the students of international institutions in 2019 and 2020.

In 2019, he was awarded a fellowship under the Chinese Academy Sciences President's International Fellowship Initiative to visit China and interacted with scientists and graduate students of the Key Laboratory of Soybean Molecular Design Breeding, Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences, Changchun, China. During the month of June, 2019, he interacted with eight graduate students and one postdoc and reviewed their research projects and thier manuscripts. During that time, he visited the Soybean Key Laboratory of Northeast Agricultural University, Harbin on June 8, 2019 and presented a seminar. He also presented their research findings at the "Academic Seminar on Mining, Research and Utilization of Characteristic Plant Resources in Jilin Province and the Second Annual Meeting of Jilin Province Young Scientists annual meeting" on June 22, 2019. He also presented their research at the Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences, Changchun, China on June 20, 2019.

In February of 2020, he visited Assam Agricultural University (AAU) as an Adjunct Professorship for a month and engaged teaching undergraduate and graduate students of the three Colleges of Agriculture, AAU, located in Jorhat, Dhubri and Bishwanath Sriali, Assam, India. AAU invited him under the National Agricultural *Higher* Education Project, Indian Council of Agricultural Research. He prepared lectures on recent advances plant breeding and biotechnology as well as on plant and molecular genetics for a total contact period of 12 hours. He also visited students out-side of the class rooms and visited the research programs in AAU.

SERVICE IN PROFESSIONAL SOCIETIES, ORGANIZATIONS, AND EVENTS

- He has been organizing Proteomic Workshop in the annual International Plant & Animal Genome Conference since 2004. International Plant & Animal Genome (PAG) Conference is an annual international meeting for presenting progress reports in the area of plant and animal genetics and genomics research. Initially, Prof. Barry Rolfe, Australian National University, and he co-organized the workshop. Since 2008, he has been co-organizing the workshop with Dr. Michael Djordjevic, Australian National University.
- He chaired the "Pathogenesis and Disease Resistance" section in the VI International Congress on Legume Genetics and Genomics (ICLGG), Hyderabad held from October 2-7, 2012.
- He chaired the "Plant Molecular & Cell Biology" session of the BIT 1st Annual World Congress of Molecular & Cell Biology, Beijing, China, August 6-8, 2011.
- He chaired one session and co-chaired "Gene" sessions at the World Soybean Research Conference VIII, Beijing, China, August 10-15, 2009.
- He was *ad hoc* peer reviewer of The Georgian National Science Foundation, Georgia and ANR, French Gov.
- He has reviewed four Ph.D. theses: two from the University of Queensland and Australian National University, Australia, and one each from the Guwahati University and Tezpur University, India.
- He served the Soybean Sudden Death Syndrome/Plant Health Initiative Website Committee as a member during the 2012-2013 period.

- He had presented their work in the Integrated Crop Management Conference held in Iowa State University in 2011 and 2015. The meetings were attended by nearly 100 attendees including growers, extension specialists, and was organized by ISU Extension.

PROFESSIONAL PRACTICE

EDITORIAL BOARD MEMBER

- Editorial Board member - Molecular Biotechnology, 2008 – 2017.
- Editorial Board, BMC Plant Biology, 2009 – 2017.
- Editorial Board, BMC Genomics, 2010 – present.
- Review Editor - Crop Biology and Sustainability, Frontiers in Chemistry, 2014 – present.
- Editorial Advisors - BMC Plant Biology, 2017 – 2020.
- Guest Associate Editor – "Novel Technologies for Soybean Improvement" – Frontiers in Plant Science - https://www.frontiersin.org/research-topics/20853/novel-technologies-for-soybean-improvement - 2021- 2022.

REFEREE FOR JOURNALS AND GRANTS

(a) Manuscript Reviewing

Bhattacharyya reviewed (over 200) manuscripts for 33 peer-reviewed journals including Nature Biotechnology, Plant Biotechnology J., New Phytologist, BMC Plant Biology, Canadian J. Plant Sci., Crop Science, Crop Science - Plant Genome, Current Genetics, FEBS Letters, Functional Plant Biology, Genetics, Genetics and Molecular Biology, Genome, J. Experimental Botany, Journal of Heredity, Journal of Plant Physiology, J. Proteomics Research, Microbial Pathogenesis, Molecular Biotechnology, Molecular Genetics and Genomics, Molecular Plant-Microbe Interactions, PLoS One, Phytopathology, Physiological & Molecular Plant Pathology, Plant Cell, Planta, Plant Biology, Plant Breeding, Plant and Cell Physiology, Plant Journal, Plant Molecular Biology, Plant Physiology, Plant Physiology and Biochemistry, Seed Technology, Theoretical and Applied Genetics, and Transgenic Research

(b) Grant Reviewing

Bhattacharyya reviewed grant proposals as an *ad hoc* reviewer for federal granting (USDA, NSF, CPBR, BARD, FEAR) as well as international granting [Genome Canada, Agriculture and Agri-Food Canada (AAFC), Ontario Agri-Food Innovation Alliance Research Program, Georgia NSF; ANR, French] agencies. He reviewed grant applications for N.C. Biotechnology Centre. He reviewed over 120 grant applications including 69 for one NSF and two USDA grant panels.

GRANT PANEL SERVICE

- Member, NP 301C Panel 12a. Oilseeds Genetic Improvement, USDA-ARS Plant Genetic Resources, Genomics and Genetic Improvement National Program. July 24, 2023.
- Chair, NP301 Panel 12b. Oilseeds Physiology/Biochemistry, USDA-ARS Plant Genetic

Resources, Genomics and Genetic Improvement National Program. March 28, 2023.

- Member, Small Business Innovation Research Program Plant Production and Protection-Biology, NIFA FY 2022 SBIR Program 8.2 panel from February 7 to 9, 2022.
- Member, Genome Canada - Genomic Applications Partnership Program 2019 - 2020.
- Member, USDA-ARS Plant Genetic Resources, Genomics, and Genetic Improvement National Program. Plant Metabolism and Pathways Panel Member. January 19, 2018.
- Member, NSF Panel, Physiological and Structural Systems Cluster, April 30 – May 1, 2015.
- Member, Plant Health and Production and Plant Products, USDA-NIFA FY2014 – contacted by panel manager to serve the panel; but he declined to participate because of conflict of interest.
- Member, Biol. of Plant Microbe-Assoc. NRICGP-USDA, FY2000.
- Member, Plant Genome program NRICGP-USDA, FY1997.

PROFESSIONAL AND HONORARY SOCIETY MEMBERSHIPS

1. American Association for the Advancement of Science, 2000 - present.
2. American Society of Plant Biologist, 2016 – present.
3. International Society for Molecular Plant-Microbe Interactions, 2001- present.
4. American Society of Agronomy, 2000 – 2014.
5. Crop Science Society of America, 2000 – 2014.
6. Iowa Soybean Association and Iowa Corn Growers Association, 2006 – 2015.