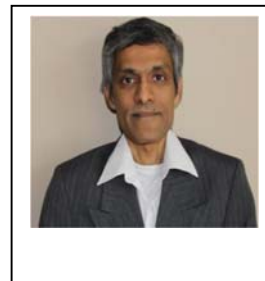


Name: Ramakrishna Wusirika
Designation: Professor and Head
Centre: Biochemistry and Microbial Sciences
University: Central University of Punjab
Bathinda- 151001
E-mail ID: wusirika@gmail.com
Mobile: 7038531409



Education

Ph.D. University of Pune/ National Chemical Laboratory (1995) Chemistry (Biochemistry/Plant Molecular Biology)
M.Phil. Hyderabad Central University (1990) Life Sciences (Biochemistry)
M.Sc. Hyderabad Central University (1988) Life Sciences (Biochemistry)

Experience

2015 (Dec)-Current - Professor and Head, Centre for Biochemistry and Microbial Sciences, Central University of Punjab , Bathinda
2017-Current - Dean, School of Global Relations, Central University of Punjab , Bathinda
2015-2015 - Associate Professor, Centre for Plant Sciences, Central University of Punjab , Bathinda
2009-2015 - Associate Professor, Department of Biological Sciences, Michigan Technological University , Houghton, MI, USA
2003-2009 - Assistant Professor, Department of Biological Sciences, Michigan Technological University , Houghton, MI, USA
1997 (Oct)-2003 (Aug) - Post-doctoral Fellow, Purdue University , West Lafayette, IN, USA
1995 (Oct)-1997 (Oct) - Research Associate, National Chemical Lab , Pune

Professional Recognition/Awards/Scholarship

- Panel member for United States Department of Agriculture Plant Biology panel (2011)
- 1890 Institution Teaching, Research and Extension Capacity Building Grants Program of USDA (2012)
- Reviewer for competitive grant programs: National Science Foundation (NSF); U.S. Civilian Research and Development Fund; The United States - Israel Binational Agricultural Research and Development (BARD) Fund; Michigan Tech Research Excellence Fund (REF); Century II Campaign Endowed Equipment (C2E2) Fund
- 1990-1994: UGC-CSIR Junior and Senior Research Fellowship

Peer recognition

Editorial Board Member of Journals: Environmental & Analytical Toxicology; Frontiers in Plant Biotechnology (Reviews Editor); TheScientificWorldJournal and SOJ Biotechnology.

Areas of Interest/ specialization

- Plant growth promoting bacteria and their role in enhancing biomass, heavy metal remediation and soil health
- Systems Biology (Genomics, Proteomics and Metabolomics) to understand plant-microbe interactions
- Development of novel plant natural products as anti-cancer drugs

Publications

1. Dhawi F, Datta R, Ramakrishna W. (2017) Proteomics provides insights into biological pathways altered by plant growth promoting bacteria and arbuscular mycorrhiza in sorghum grown in marginal soil. **Biochimica et Biophysica Acta (BBA) - Proteins and Proteomics** 1865:243-251. [Impact factor (IF) = 2.9]
2. Rahman N, Dhadi SR, Deshpande A, Ramakrishna W. (2016) Rice callus suspension culture inhibits growth of cell lines of multiple cancer types and induces apoptosis in lung cancer cell line. **BMC Complementary Alternative Medicine** 16:427 [IF = 2.3]
3. Dhawi F, Datta R, Ramakrishna W. (2016) Mycorrhiza and heavy metal resistant bacteria enhance growth, nutrient uptake and alter metabolic profile of sorghum grown in marginal soil. 157:33–41 [IF = 4.5]
4. Pidatala VR, Li K, Sarkar D, Ramakrishna W., Datta R. (2016) Identification of biochemical pathways associated with lead tolerance and detoxification in *Chrysopogon zizanioides* L. Nash (Vetiver) by metabolic profiling. **Environmental Science and Technology** 50:2530-2537 [IF = 6.2]
5. Sripathi SR, Sylvester O, He W, Moser T, Um JY, Lamoke F, Ramakrishna W., Bernstein PS, Bartoli M, Jahng WJ. (2016) Prohibitin as the molecular binding switch in the retinal pigment epithelium. **Protein J** 35:1-16 [IF = 1.1]
6. Dhawi F, Datta R, Ramakrishna W. (2015) Mycorrhiza and PGPB modulate maize biomass, nutrient uptake and metabolic pathways in maize grown in mining-impacted soil. **Plant Physiology and Biochemistry** 97:390-399 [IF = 3.1]
7. Dhadi SR, Xu Z, Shaik R, Driscoll K, Ramakrishna W. (2015) Differential regulation of genes by retrotransposons in rice promoters. **Plant Molecular Biology** 87:603-613 [IF = 3.4]
8. Li K, Pidatala VR, Shaik R, Datta R, Ramakrishna W. (2014) Integrated metabolomic and proteomic approaches dissect the effect of metal resistant bacteria on maize biomass and copper uptake. **Environmental Science and Technology** 48:1184–1193. [IF = 6.2]
9. Shaik R, Ramakrishna W. (2014) Machine learning approaches distinguish multiple stress conditions using stress-responsive genes and identify candidate genes for broad resistance in rice. **Plant Physiology** 164:481-495. [IF = 6.5]
10. Shaik R, Ramakrishna W. (2013) Genes and co-expression modules common to drought and bacterial stress responses in Arabidopsis and rice. **PLoS One** 8:e77261. [IF = 2.8]
11. Dhadi SR, Deshpande A, Driscoll K, Ramakrishna W. (2013) Major cis-regulatory elements for rice bidirectional promoter activity reside in the 5'-untranslated regions. **Gene** 526:400–410. [IF = 2.4]
12. Rafi S, Ramakrishna W. (2012) Bioinformatic analysis of epigenetic and microRNA mediated regulation of drought responsive genes in rice. **PLoS One** 7:e49331. [IF = 2.8]
13. Li K, Pidatala RR, Ramakrishna W. (2012) Mutational, proteomic and metabolomic analysis of a plant growth promoting copper-resistant *Pseudomonas* spp. **FEMS Microbiology Letters**

- 335: 140–148. [IF = 1.8]
14. Deshpande AD, Dhadi SR, Hager E, Ramakrishna W. (2012) Rice callus suspension cultures inhibit growth of two cancer cell lines. **Phytotherapy Research** 26:1075–1081. [IF = 3.1]
 15. Krom N, Ramakrishna W. (2012) Retrotransposon insertions in rice gene pairs associated with reduced conservation of gene pairs in grass genomes. **Genomics** 99:308-314. [IF = 3.3]
 16. Dhadi SR, Deshpande A, Ramakrishna W. (2012) A novel non-wounding transient expression assay for cereals mediated by *Agrobacterium tumefaciens*. **Plant Molecular Biology Reports** 30:36-45. [IF = 1.9]
 17. Li K, Ramakrishna W. (2011) Effect of multiple metal resistant bacteria from contaminated lake sediments on metal accumulation and plant growth. **J. Hazardous Materials** 189:531-539. [IF = 6.4]
 18. Xu Z, Rafi S, Ramakrishna W. (2011) Polymorphisms and evolutionary history of retrotransposon insertions in rice promoters. **Genome** 54:629-638. [IF = 1.7]
 19. Krom N, Ramakrishna W. (2010) Conservation, rearrangement, and deletion of gene pairs during the evolution of four grass genomes. **DNA Research** 17:343-352. [IF = 5.5]
 20. Dhadi SR, Krom N, Ramakrishna W. (2009) Genome-wide comparative analysis of putative bidirectional promoters from rice, *Arabidopsis*, and *Populus*. **Gene** 429:65-73. [IF = 2.4]
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 22. Krom, N, Recla J, Ramakrishna W. (2008) Analysis of genes associated with retrotransposons in the rice genome. **Genetica** 134:297-310. [IF = 1.2]
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 26. Gorantla M, Babu P, Reddy Lachagari V, Reddy A, Wusirika R., Bennetzen JL, Reddy AR. (2007) Identification of stress-responsive genes in an *indica* rice (*Oryza sativa* L.) using ESTs generated from drought-stressed seedlings. **J Experimental Botany** 58:253-265. [IF = 6.5]
 27. Lai J, Ma J, Swigonova Z, Ramakrishna W., Linton E, Llaca V, Tanyolac B, Park YJ, Jeong OY, Bennetzen JL, Messing J. (2004) Gene loss and movement in the maize genome. **Genome Research** 14:1924-1931. [IF = 11.9]
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31. Swigonova Z, Lai JS, Ma JX, Ramakrishna W, Llaca M, Bennetzen JL, Messing J. (2004) On the tetraploid origin of the maize genome. **Comparative Functional Genomics** 5:281-284. [IF = 2]
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42. Bennetzen JL, Ramakrishna W. Exceptional haplotype variation in maize. (2002) **Proceedings of the National Academy of Sciences USA** 99:9093-9095. [IF = 9.7]
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45. Dubcovsky J, Ramakrishna W, SanMiguel PJ, Busso CS, Yan L, Shiloff BA, Bennetzen JL. (2001) Comparative sequence analysis of colinear barley and rice bacterial artificial chromosomes. **Plant Physiology** 125:1342-1353. [IF = 6.5]
46. Davierwala AP, Ramakrishna W, Chowdari KV, Ranjekar PK, Gupta VS. (2001) Potential of (GATA)_n microsatellites from rice for inter- and intra- specific variability studies. **BMC Evolutionary Biology** 1:7. [IF = 3.2]
47. Davierwala AP, Ramakrishna W, Ranjekar PK, Gupta VS. (2000) Sequence variations at a complex microsatellite locus in rice and its conservation in cereals. **Theoretical and Applied Genetics** 101:1291-1298. [IF = 4.1]
48. Parasnis AS, Ramakrishna W, Chowdari KV, Gupta VS, Ranjekar PK. (1999) Microsatellite (GATA)_n reveals sex specific differences in Papaya. **Theoretical and Applied Genetics** 99:1047-1052. [IF = 4.1]
49. Deshpande AD, Ramakrishna W, Mulay GP, Gupta VS, Ranjekar PK. (1999) Phylogenetic classification and molecular evolution of *knotted1* homeobox genes. **Theoretical and Applied Genetics** 99:203-209. [IF = 4.1]
50. Ramakrishna W, Gupta VS, Ranjekar PK. (1999) Differential methylation of microsatellite and minisatellite loci in rice. **Cereal Research Communications** 27:365-371. [IF = 0.5]
51. Ramakrishna W, Davierwala AP, Gupta VS, Ranjekar PK. (1998) Expansion of a (GA)_n dinucleotide at a microsatellite locus associated with domestication in rice. **Biochemical Genetics** 36:323-327. [IF = 1.5]
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53. Deshpande AD, Ramakrishna W, Mulay GP, Gupta VS, Ranjekar PK. (1998) Evolutionary and polymorphic organization of the *knotted1* homeobox in cereals. **Theoretical and Applied Genetics** 97:135-140. [IF = 4.1]
54. Rajebhonsle MD, Chowdari KV, Ramakrishna W, Tamhankar S, Gupta VS, Gnanamanickam SS, Ranjekar PK. (1997) DNA fingerprinting of Indian isolates of *Xanthomonas oryzae* pv. *oryzae*. **Theoretical and Applied Genetics** 95:103-111. [IF = 4.1]
55. Ramakrishna W, Chowdari KV, Lagu MD, Gupta VS, Ranjekar PK. (1995) DNA fingerprinting to detect variation in rice using hypervariable DNA sequences. **Theoretical and Applied Genetics** 90:1000-1006. [IF = 4.1]
56. Sastry JG, Ramakrishna W, Sivaramakrishnan S, Thakur RP, Gupta VS, Ranjekar PK. (1995) DNA fingerprinting detects genetic variability in the pearl millet downy mildew pathogen (*Sclerospora graminicola*). **Theoretical and Applied Genetics** 91:856-861. [IF = 4.1]
57. Ramakrishna W, Lagu MD, Gupta VS, Ranjekar PK. (1994) DNA fingerprinting in rice with oligonucleotide probes specific for simple repetitive DNA sequences. **Theoretical and Applied Genetics** 88:402-406. [IF = 4.1]

58. Gupta VS, Ramakrishna W, Rawat SR, Ranjekar PK. (1994) (CAC)5 detects DNA fingerprints and sequences homologous to gene transcripts in rice. **Biochemical Genetics** 32:1-8. [IF = 1.5]

Book Chapters

1. Ramakrishna W, Kumari A. (2017) Plant tolerance to combined stress: An overview. **Plant Tolerance to Individual and Concurrent Stresses**. Edited by Senthil-Kumar M. Springer. 83-90.
2. Li K, Ramakrishna W. (2014) Essential information. **Genetics, Genomics and Breeding of Maize**. Edited by Ramakrishna W, Bohn M and Lai J. CRC Press. 1-13.
3. Shaik R, Ramakrishna W. (2014) Comparative genomics. **Genetics, Genomics and Breeding of Maize**. Edited by Ramakrishna W, Bohn M and Lai J. CRC Press. 120-130.
3. Ramakrishna W, Li K, Phillips RL, Bennetzen JL. (2011) *Zea*. **Wild Crop Relatives: Genomic and Breeding Resources** Edited by Kole C. Springer Verlag. 457-488.
4. Ramakrishna W, Bennetzen JL. (2003) Genomic colinearity as a tool for plant gene isolation. **Plant Functional Genomics, Methods in Molecular Biology** Edited by Grotewold E. Humana Press. 236:109-122.

Citations of Research Publications

My research publications have been cited **3877** times with **h-index** of **29** and i10-index of 39 (Source: Google Scholar July 8, 2017)

Presentations in International Conferences

1. Dhawi F, Tarasoff C, Datta R, Ramakrishna W. Using big bluestem (*Andropogon Gerardii*) for restoration of metal contaminated stamp sands in Upper Peninsula, Michigan. Geological Society of America, Vancouver, British Columbia, Canada, October 19-22, 2014.
2. Ivancich MW, Shaik R, Ramakrishna W. SRGPs: An online resource for comparative analysis of stress responsive genes in plants. PAG XXI Conference, San Diego, CA, January 12-16, 2013.
3. Shaik R, Ivancich MW, Ramakrishna W. Meta-analysis of microarray studies identifies distinct molecular profiles of abiotic and biotic stress responses in plants. PAG XXI Conference, San Diego, CA, January 12-16, 2013.
4. Shaik R, Ramakrishna W. Epigenetic and microRNA mediated regulation of drought responsive genes in rice. Genomics Research, Boston, MA, April 19-20, 2012.
5. Dhadi SR, Ramakrishna W. Dissection of cis-regulatory code of bidirectional promoters in rice and other grass genomes. PAG XIX Conference, San Diego, CA, January 15-19, 2011 (Oral presentation).
6. Dhadi SR, Ramakrishna W. Functional analysis of bidirectional promoters in rice. PAG XIX Conference, San Diego, CA, January 15-19, 2011.

7. Li K, Ramakrishna W. Multiple metal resistant bacteria from metal contaminated Lake sediments promote metal accumulation and plant growth. PAG XIX Conference, San Diego, CA, January 15-19, 2011.
8. Datta R, Ramakrishna W, Sarkar D. Biofuel feedstock production on marginal lands. Consortium of Plant Biotechnology Research. Washington DC, February 2011.
9. Xu Z, Ramakrishna W. Evolutionary origin of retrotransposons inserted in rice promoters and genes and the effect of retrotransposon insertions in promoters on gene regulation. Annual Maize Genetics Conference, St. Charles, IL, March 12-15, 2009.
10. Kumar D, Dhadi SR, Krom N, Ramakrishna W. Dissecting cis-regulatory code of putative bidirectional promoters in cereal genomes. Annual Maize Genetics Conference, St. Charles, IL, March 12-15, 2009.
11. Ramakrishna W, Krom N. Conservation and expression patterns of divergent and convergent gene pairs and bidirectional promoters in plant genomes. International Grass Genome Initiative Workshop, PAG XVII Conference, San Diego, CA, January 10-14, 2009 (Oral presentation).
12. Krom N, Ramakrishna W. Conservation and expression of gene pairs and retrotransposon-associated genes in plant genomes. PAG XVII Conference, San Diego, CA, January 10-14, 2009.
13. Dhadi SR, Krom N, Ramakrishna W. Identification and characterization of bidirectional promoters in the rice genome: A pilot scale study. Genes to Products: Agricultural Plant, Microbe and Biobased Product Research, USDA Project Directors' Meeting, Washington DC, April 16-18, 2008.
14. Krom N, Dhadi SR, Ramakrishna W. Comparative analysis of divergent and convergent gene pairs, their expression patterns, and bidirectional promoters in rice, *Arabidopsis*, and *Populus*. 50th Annual Maize Genetics Conference, Washington DC, Feb. 27 - March 1, 2008.
15. Xu Z, Krom N, Ramakrishna W. Retrotransposon insertion polymorphisms in six rice genes and their evolutionary history. 50th Annual Maize Genetics Conference, Washington DC, Feb. 27 - March 1, 2008.
16. Ramakrishna W. Natural bidirectional promoters from *Arabidopsis*, *Populus*, and rice for biotechnological applications. Consortium for Plant Biotechnology Research (CPBR) Symposium, Washington DC, Feb. 12-14, 2007.
17. Abdullahi AS, Wusirika R, Gretz MR. Phylogenetic analysis and differential expression of glycosyl transferase gene homologues from the model diatom *Thalassosira pseudonana*. J. Phycology, Vol. 42, pp. 46, Suppl. 1, Meeting Abstract: 149 April 2006.
18. Ervin N, Tso-Ching L, Ramakrishna W, Xu Z, Patricia K, Phillip S, Chiu-Ping C, Li J, Schertz K, Dunkle L, Bennetzen J. Mapping and characterization of the sorghum *pc* gene: a host disease resistance gene corrupted to assist infection by a fungal necrotroph. 48th Annual Maize Genetics Conference, Pacific Grove, CA, March 9-12, 2006.
19. Krom N, Ramakrishna W. Organization, evolution and expression of divergent and convergent gene pairs in rice. PAG Conference, San Diego, CA, January 14-18, 2006.
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27. Ma J, SanMiguel P, Dubcovsky J, Shiloff B, Rostoks N, Jiang Z, Busso C, Kleinhofs A, Devos K, Ramakrishna W, Bennetzen J. Genic rearrangements of *Wx1* homologous regions in barley, maize, pearl millet, rice, sorghum and diploid wheat revealed by comparative sequence analysis. 44th Maize Genetics Conference, Orlando, FL, March 14-17, 2002.
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30. Ramakrishna W, SanMiguel P, Emberton J, Ogden M, Linton E, Messing J, Bennetzen J. Organization and evolution of the *Rp1* gene region in maize and sorghum. PAMG X Conference, San Diego, CA, January 12-16, 2002.
31. Linton EW, Tanyolac B, Ramakrishna W, SanMiguel P, Doebley J, Bennetzen J, Messing J. Collinearity of orthologous maize and sorghum regions. PAMG X Conference, San Diego, CA, January 12-16, 2002.
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36. Park Y-J, Rostoks N, Ramakrishna W, SanMiguel P, Shiloff B, Ma J, Jiang Z, Kleinhofs A, Bennetzen J. Sequence characterization of orthologous regions in the barley and rice genomes. PAMG X Conference, San Diego, CA, January 12-16, 2002.
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38. Belele C, Maïke S, Pascal L, Ramakrishna W, Bennetzen J, Chandler V. Cloning and characterization of a 106 kb region upstream of the B' coding region. 43rd Annual Maize Genetics Conference, Lake Geneva, WI, March 14-18, 2001.
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43. Ramakrishna W, Dominguez JR, Handa AK. Differential expression and promoter analysis of fruit specific tomato pectin methylesterase genes. Plant Biology, San Diego, CA, July 15-19, 2000.
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Research Grants

Completed

Bioactive Components in Rice Callus Culture and Blueberry Extract as Anti-inflammatory Agents of the Gastrointestinal Tract.

Funded by United States Department of Agriculture (2/2014-8/2015)

PI: Aparna Deshpande

Co-PI: Ramakrishna Wusirika

Pilot Project with Natural Bacteria and Plants for Remediating Contaminated Mining Site.

Funded by Source: Superior Ideas (4/2014-3/2015)

PI: Ramakrishna Wusirika

Rice Callus: A Side-Effect-Free Solution to Cancer.

Funded by Source: Superior Ideas (8/2013-7/2014)

PI: Ramakrishna Wusirika

Bioactive fractions of rice callus suspension culture with anticancer activity.

Funded by Source: Michigan Research Excellence Fund (6/2014-5/2015)

PI: Aparna Deshpande

Co-PI: Ramakrishna Wusirika

Identification and characterization of bidirectional promoters in the rice genome.

Funded by United States Department of Agriculture (7/2007-6/2010)

PI: Ramakrishna Wusirika

Ongoing

Microbial community structure of agricultural and non-agricultural soil of Bathinda, Punjab and growth promoting activity of metal resistant bacteria in rice, wheat and chickpea (4/2016-3/2018)

Funded by Central University of Punjab

PhD Students

Degree Awarded: 7

Current Students: 2