

# CURRICULUM VITAE OF SHARMISTHA GHOSAL



## Contact details:

<b>Senior Scientific Officer</b> Plant Breeding Division Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh	<b>E-mail:</b> sharmi.brri@gmail.com Cell phone: + 880-1716938780 Telephone: 9257401-5 (Ext.647) Fax: 88-02-9261110
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## Personal details:

1. Name : **SHARMISTHA GHOSAL**
2. Father's Name : Late Ananda Mohan Ghosal
3. Mother's Name : Shefali Ghosal
4. Sex : Female
5. Marital Status : Married
6. Religion : Sanaton
7. Date of birth : 17 July, 1979
8. Nationality : Bangladeshi
9. National ID NO : 3323007201139
10. Permanent Address : C/O: Priya Lal Biswas, Vill.- Rasulpur, P. O.- Bahara, P.S-Madhabpur, P. S.- Madhabpur, Dist.- Habigonj, Post Code: 3334, Bangladesh

## Educational qualifications:

Name of the degree	Board/ Institute	Year	GPA/ Class	Marks obtained (%)	Duration
PhD ( Genetics major Plant breeding & MBB minor)	University of Philippines Los Banos	2018	A	Score=1.15 (highest score 1.00)	4 years
Master of Science (M S ) in Genetics & Plant Breeding (GPB)	Bangladesh Agricultural University, Bangladesh	2005	A	CGPA=3.89 (out of 4.00)	1.5 years
Bachelor of Science in Agriculture (BScAg)	Bangladesh Agricultural University, Bangladesh	2002 (held in 2004)	1 <sup>st</sup>	64.76 %	4 years
Higher Secondary Certificate (HSC)	Jessore, Bangladesh.	1997	1 <sup>st</sup>	70.60 %	2 years
Secondary School Certificate (SSC)	Jessore, Bangladesh.	1995	1 <sup>st</sup>	78.90 %	10 years

## Thesis Work:

MS Thesis on *in vitro* regeneration of **Brassica** spp. (Rapeseed, Mustard & Cole crops).

PhD Thesis on Genetic mapping of anaerobic germination QTLs through linkage analysis and Genome Wide Association Study (GWAS) in rice (*Oryza sativa* L.).

**Field of specialization:** Genetics and Plant Breeding.

**Job experiences:**

Position	Organization	Job responsibility	Duration
Scientific Officer (SO)	Bangladesh Rice Research Institute	Rice variety development for favorable and unfavorable (stress) environment.	12 Nov, 2007 to 21 Nov, 2012
Senior Scientific Officer (SSO)			22 Nov, 2012 to date

**Research Projects affiliated:**

SL No	Name of the project	Worked as	Activities
1	Stress Tolerant Rice for Poor Farmers in Asia and South Africa (STRASA-IRRI)	Co-PI	Development of submergence tolerance varieties through Introgression of Sub1 QTL, PVS & baby trial, screening of germplasm tolerance to submergence, maintenance of pedigree nursery and conduction of advanced yield trials.
2	Improving rice productivity of submergence and salinity prone Southern belts of Bangladesh. (BMGF-IRRI)	Co-PI	Conduction of PVS Trial at coastal region extension of released variety and evaluation of promising lines from IRRI & BIRRI.
3	Pyramiding Bacterial Blight Resistant Genes into the Genetic Background of BR11-derived Submergence Tolerant Rice Lines (NATP-BIRRI)	Co-PI	Pyramiding <i>Sub1</i> , <i>Xa21</i> & <i>xa13</i> QTLs into the genetic background of rice variety BIRRI dhan52.
4	Development of Rice Varieties with Enhanced Submergence Tolerance Through Marker Assisted Breeding (BAS-BIRRI)	Co-PI	Introgression of <i>SUB1</i> QTL into the genetic background of rice variety
5	Improvement of Rice Varieties/Breeding Lines for Low Water Availability in South and Southeast Asia (UKM, Malaysia-BIRRI)	Co-PI	Development of rice varieties for water use efficiency.
6	Integrated Agricultural Productivity Project (IAPP-BIRRI)	Co-PI	Introgression of <i>SUB1</i> QTL into the genetic background of RLR rice varieties (BNR22 & BIRRI dhan49) and dissemination of BIRRI varieties through PVS and Validation Trial
7	Rice variety development for shallow flooded ecosystem (Core program-BIRRI).	Co-PI	Developments of rice varieties tolerant to shallow flood.

**Research achievements:**

1. Directly participated in the development of three submergence tolerance rice varieties (BIRRI dhan51, BIRRI dhan52 and BIRRI dhan79)
2. Development of homogygous lines through introgression of flash flood tolerant QTL *SUB1* into RLR rice varieties viz. BIRRI dhan33, BIRRI dhan39, BIRRI dhan44 and BIRRI dhan49.
3. Development of pyramided BR11-Sub1-Xa21-xa13 homozygous lines for submergence & bacterial blight resistance.
4. Several anaerobic germination potential QLTs identification through QTL mapping and Genome Wide Association Study (GWAS).

### Professional Training:

SL No	Name of the course	Year	Duration	Sponsoringagency
1	Hybrid Rice Development and Seed Production	2008	5 days	BRRRI
2	Breeder Seed Production and Preservation of Rice	2009	5 days	BRRRI
3	Marker Assisted Breeding for Agricultural Crops	2009	10 days	BARC and FAO
4	Participatory Variety Selection	2009	2 days	BRRRI-IRRI
5	Research Methodology	2009	13 days	GTI, Bangladesh
6	GSR-Hybrid Rice Seed Production Training Course	2010	3 days	BRRRI and IRRI
7	1-Month Rice Production Training Course	2010	1 month	BRRRI
8	Genetic Theory of Hybrid Rice Breeding	2011	15 days	BRRRI and China
9	Integrated Techniques of Hybrid Rice Seed Production	2011	20 days	BRRRI and China
10	Hybrid Rice Technology for Asian Countries	2011	4 month	YLHTACL, China
11	Training on Rice and Wheat Cultivation for Unfavorable Ecosystem	2011	2 days	BARC
12	Training on Theory and Practice of Molecular Breeding in Rice	2012	7 days	BRRRI
13	Foundation Training Course for NARS Scientists	2012	4 months	BARD
14	Theoretical and Applied Molecular Breeding	2012	6 days	BRRRI
15	Molecular Biology Application in Plant Breeding	2014	6 days	BRRRI, KOICA
16	Research Data Management 101	2015	3 days	IRRI, Philippines
17	Best Practices in Marker Assisted Plant Breeding	2016	1 day	IRRI, Philippines
18	SNP Data Analysis Course	2016	5 days	IRRI, Philippines
19	R for Genomic Data analysis (for Genome Wide Association Studies)	2016	10 days	IRRI, Philippines
20	Introduction to R and Data management , Statistical Analysis, GWAS, QTL mapping and RNA sequencing	2017	7 days	IRRI, Philippines
21	Basic experimental Design and Data Analysis using Statistical Tool for Agricultural Research (STAR)	2017	5 days	IRRI, Philippines
22	Design and Analysis of Breeding Trials using Plant Breeding Tools (PB Tools)	2017	4 days	IRRI, Philippines
23	Training Course for PERL	2017	12 days	IRRI, Philippines
24	Statistical Design and Analysis of Agricultural Experiments using R	2018	5 days	IRRI, Philippines
25	Statistical Design and Analysis for Plant Breeding Experiments using R	2018	5 days	IRRI, Philippines

BRRRI=Bangladesh Rice Research Institute, BARC=Bangladesh Agricultural Research Council, FAO=Food and Agriculture Organization, GTI=Graduate Training Institute, IRRI=International Rice Research Institute, YLHTACL=Yuan Longping High-Tech Agri. Co., Ltd. ,BARC=Bangladesh Agricultural Research Council, BARD=Bangladesh Academy of Rural Development.

### **Award / fellowship received:**

1. Awarded 3rd position in One Month Rice Production Training,
2. Awarded Crest of Honour (4th position) in Foundation Training Course for National Agricultural Research System Scientists (duration 4 months),
3. Awarded 1st position in the training course on Theoretical and Applied Molecular Breeding (duration 7 days)
4. "Lee Foundation Rice Scholarship" awardee for PhD at International Rice Research Institute and University of Philippines Los Banos.
5. Awarded as a life time member by PHI SIGMA Biological Science Honor Society, AlphaChi Chapter and the Phi Kappa Phi International Honor Society for academic excellence at University of the Philippines Los Banos.

### **Publications:**

#### **a) National:**

- I** **Ghosal S**, L Hasan, P L Biswas and M A Prodhan. 2008. *In Vitro* Regeneration of *Brassica Species* (Rapeseed, Mustard and Cole crops). Bangladesh Journal of Agricultural Sciences, Vol. 35 (1):11-16.
- II** **Ghosal S**, M J Hasan and P L Biswas. 2009. Genetic Variability, Correlation Studies and Path Analysis of Yield and Yield Contributing Traits in Irrigated Hybrid rice. International Journal of Bio Research, Vol. 6 (2) 20-20.
- III** **Ghosal S**, P. L. Biswas, M. Khatun and S. Khatun. 2010. Genetic variability and character associations in irrigated rice (*Oryza sativa L*). Bangladesh Journal of Plant Breeding and genetics. 23 (2): 23-27.
- IV** **Ghosal S**, M A Syed, M Khatun, P L Biswas and T L Aditya. 2012. Evaluation of Selection Criteria in Premium Quality Rice Genotypes Through Genetic Variability, Character Association and Path Analysis. Bangladesh Rice Journal. 16 (1): 59-62.
- V** Biswas P L, A K Paul, M K Hossain, A Akter, H Begum and **S Ghosal**. 2009. Variability and Character Association Studies in Hybrid rice. International Journal of Bio Research, Vol. 7 (1) 48-52
- VI** Biswas P L, A K Paul, M J Hasan, A Akter and **S Ghosal**. 2009. Estimates of Genetic Parameter, character Association and Path Analysis in Hybrid rice. Eco-Friendly Agriculture Journal, Vol.2 (12):1029-1032
- VII** Roy, A.. K., M. A. K. Miah, B. C. Nath, **S. Ghosal** and P. L. Biswas, 2009. Genetic Parameters and Correlation Among Floral Characters in Local Fine rice. The Journal of Science and Technology, Vol. 6.
- VIII** Biswas P L, A Ansari, M U Kulsum, A Akter and **S Ghosal**. 2010. Study on Genetic Parameter, Character Association and Path Analysis in Restorer Lines of Hybrid rice (*Oryza sativa L*). Bangladesh Journal of Progressive Science and Technology, Vol. 8 (1)
- IX** Biswas P L, **S Ghosal**, M K Hossain, and U K Nath. 2010. Genetic Variability, Correlation and Path analysis in Maintainer lines of Hybrid rice (*Oryza sativa L*). Bangladesh Journal of Progressive Science and Technology, Vol. 8 (1)
- X** Aditya T L, **S Ghosal**, N Sharma, M R Islam, R. Bhuiyan, B Karmakar, R R Majumder, H Khatun, F M Moinuddin, T H Ansari and K M. Iftekharuddaula. 2010. General adaptability through genotype-environment interaction of some somaclonal lines in rice. Bangladesh J.prog. Sci. & Tech. 8(1): 006-008
- XI** Biswas, P. L., H. N. Barman, S. **S Ghosal**, Tohiduzzaman and M. Hazrat Ali, 2011. Stability study for growth duration and grain yield of exotic hybrid rice genotypes in Bangladesh. Bangladesh Journal of Agricultural Research 36 (1): 97-102
- XII** Khatun, M., **S Ghosal**, M R Hasan, R R Majumder and H Begum, 2011. Correlation and Path Coefficient Analysis of Rice Genotypes (*Oryza Sativa L*). Eco-Friendly Agriculture Journal, Vol.4 (12): 768-773.
- XIII** Biswas, P. L., U. K. Nath, **S. Ghosal** and A. K. Patwary. 2012. Genotype-Environment interaction and stability analysis of four fine rice varieties J. Bangladesh Agril. Univ. 10 (1): 1-7

**b) International:**

- I** Lina C D, **S Ghosal**, F A. Quilloy, T M Olds and S Dixit, 2021. An epigenetic pathway in rice connects genetic variation to anaerobic germination and seedling establishment. *Plant Physiology*. 186:1042-1059.
- II** **Ghosal S**, F A Quilloy, C Casal Jr, E M. Septiningsih, M S Mendioro and S Dixit, 2020. Trait-based mapping to identify the genetic factors underlying anaerobic germination of rice: Phenotyping, GXE, and QTL mapping. *BMC Genetics*. 21:6.
- III** **Ghosal S**, C Casal Jr, F A Quilloy, E M. Septiningsih, M S Mendioro and S Dixit, 2019 et al. Deciphering Genetics Underlying Stable Anaerobic Germination in Rice. *Rice*. 12(50).
- IV** Al Amin, K M Iftekharuddaula, A Sarker, A Hossain Talukder, **S Ghosal**, A. K. M. Shalahuddin, T L Aditya, M A Ali and B Collard. 2018. Identification of Novel Submergence Tolerant Local Rice Cultivars of Bangladesh. *International Journal of Genetics and Genomics*. 6(4).
- V** Al Amin A, K M Iftekharuddaula, A Sarker A, **S Ghosal**, T L Aditya TL. 2018. Introgression of SUB1 QTL into BR22 Using Marker Assisted Backcrossing. *Int J Plant Biol Res* 6(5).
- VI** S Mondal, **S Ghosal**, Barua. 2016. Impact of elevated soil and air temperature on plants growth, yield and physiological interaction: a critical review. *Scientia Agriculturae*. 14 (3).
- VII** Iftekharuddaula, K. M., H. U. Ahmed, **S. Ghosal**, Z. R. Moni, A. Amin and M. S. Ali, 2015: Development of New Submergence Tolerant Rice Variety for Bangladesh Using Marker-Assisted Backcrossing. *Rice Sci*. 22(1): 16-26.
- VIII** Iftekharuddaula, K. M., H. U. Ahmed, **S. Ghosal**, Z. R. Moni, A. Amin and M. S. Ali, 2015: Development of New Submergence Tolerant Rice Variety for Bangladesh Using Marker-Assisted Backcrossing. *Rice Sci*. 22(1): 16-26.
- IX** Iftekharuddaula, K.M., **S. Ghosal**, Z. J. Gonzaga, A. Amin, H. N. Barman, R. Yasmeen, M. M. Haque, J. Carandang, B. C. Y. Collard and E. M. Septiningsih. 2015. Allelic diversity of newly characterized submergence-tolerant germplasm from Bangladesh. *Genet Resour Crop Evol*. DOI 10.1007/s10722-015-0289-4.
- X** Ray, B. P., K. M. Iftekharuddaula and **S. Ghosal**. 2014. Marker Assisted Backcross for the development of submergence tolerant rice (*Oryzasativa L.*). *J. Biol. Chem. Research*. 31(1): 1-5.

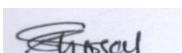
**Membership of the professional association:**

- a) Life member, Plant Breeding and Genetic Society of Bangladesh.
- b) Life member, Krishibid (Agriculturist) Institution of Bangladesh.
- c) Life member, Bangladesh Association of Advanced Science (BAAS)
- d) Life member, BRRIS Scientists Association (BRRISA).
- e) Life member, PHI SIGMA Biological Science Honor Society.

**Referees:**

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| <b>1.</b> Dr. Endang M. Septiningsih<br>Assistant Professor<br>Department of soil and crop sciences<br>Texas A&M University,<br>College station, 77483, TX<br>Email: eseptiningsih@tamu.edu | <b>2.</b> Dr. Khandakar Md. Iftekharuddaula<br>Principal Scientific Officer<br>Plant Breeding Division<br>Bangladesh Rice Research Institute<br>Gazipur-1701, Bangladesh,<br>Email: <a href="mailto:kiftekhar03@yahoo.com">kiftekhar03@yahoo.com</a> |
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I do hereby declare that the above statements are correct and complete to the best of my knowledge.

**Sharmistha Ghosal****Date: 05.07.2021**