

Curriculum Vitae of

Dr. Sudhangshu Kumar Biswas

Professor, Dept. of Biotechnology and Genetic Engineering
Islamic University, Kushtia-7003



<p>Contact Details Email: shu_genetics@yahoo.com skbiswas@btge.iu.ac.bd Cell phone: +8801718626225 Citation: 1233 (According to Google Scholar) 660 (According to Scopus index) H index: 18</p> <p>Education Ph.D. in Microbiology University of Malaya, Malaysia.</p> <p>Skills Phage Therapy Phage cocktail development Textile dye degradation Genetic study of drug resistant bacteria Transmission Electron Microscopy Pulse Field Gel Electrophoresis Multiplex PCR</p> <p>Collaborators Dr. Tang Swee Seong Head of Microbial Biochemistry Lab, Microbiology Division Institute of Biological Sciences University of Malaya, Malaysia.</p> <p>Dr. Mustafizur Rahman Senior Scientist, Head of Virology and Genome Centre) Icddr,b, Dhaka, Bangladesh.</p> <p>Dr. Khandker Md Faisal Alam Professor and Head of Microbiology, Rajshahi Medical College Rajshahi, Bangladesh</p>	<p>Research Interest</p> <ul style="list-style-type: none">▪ An In-Depth Case Study of Dengue Dynamics in Bangladesh, Focusing on Serotype Analysis, Geographic Distribution, and Patient Profiles▪ Multidrug-resistant bacteria, bacteriophage biology and phage therapy with an aim to purify a unique broad-host-range bacteriophage as well as to develop phage-cocktail against the multidrug-resistant bacterial pathogens.▪ Isolation and characterization of different dye degrading and decolorizing bacteria and fungi with an aim to develop a microbial consortium for large scale biodegradation. <p>Recent Research Projects Working as Principal Investigator (PI)</p> <ol style="list-style-type: none">1. Formulation of Phage Cocktails and Synergistic Antibiotic Combinations for the Treatment of Multidrug-Resistant Uropathogens. (MoST, 2025-2026)2. Identification of Bacterial Genes Involved in Reactive Red Dye Biodegradation. (IU-UGC grant, 2025-2026)3. Bacteriophage-mediated control of drug-resistant bacteria isolated from urinary tract infected (UTI) patients (MoST,2024-2025)4. Development and Application of Phage Cocktails against Drug Resistant Bacteria Isolated from Intensive Care Unit (ICU) Patients (MoST, 2023-2024)5. Efficacy of Phage Antibiotic Synergy (PAS) Against Multidrug Resistant <i>Shigella</i> Spp. and <i>Shigella</i> like organism (SLO) (MoST, 2022-2023)6. Combine effect of bacteria on textile dye degradation and toxicity assessment of the end-products. (IU-UGC grant, 2022-2023)7. Development of potential phage cocktail against multidrug resistant <i>Shigella</i> spp. (University Grant Commission (UGC), Grant -2021-2022).
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Working Experience

Besides my PhD research, I have the experience to work different potential projects as an associate researcher at University of Malaya, Malaysia. Grant No: BK 031-2014 (2015-2016), Ministry of Education grant, Malaysia, entitled "The origin and evolutionary of serotype 1c of *Shigella flexneri*", Grant No: PG 046-2015B (2016-2017), entitled "Studies on novel genes involved in synthesizing unique antimicrobial peptides" and Grant No: RG 347-

15AFR (2016-2019) entitled “Diversities of bacteriophages against *Shigella* spp.” University of Malaya, Malaysia. In addition I co-supervised two final year project students during my PhD candidature at University of Malaya.

Conferences

1. **Genomic Insights into the Probiotic Potential of *Lysinibacillus sphaericus*: First Isolation from the Human Gut in Bangladesh.** *6th International Conference on Biotechnology in Health and Agriculture*, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh, September 26–27, 2025. **(Oral Presentation)**
2. **Genomic Insights into *Klebsiella pneumoniae* Phage-Host Dynamics: A Framework for Developing Regional Phage Biobanks.** *ICBC International Conference and Bioscience Carnival*, Rangamati Science and Technology University, Rangamati, Bangladesh, May 16–18, 2025. **(Oral Presentation)**
3. **Exploring Bacteriophages as Biocontrol Agents against Two Multidrug-Resistant *Staphylococcus* spp.** *38th Bangladesh Society of Microbiologists (BSM) Annual International Conference*, BRAC University, Dhaka, Bangladesh, December 28–29, 2024. **(Poster Presentation)**
4. **Host MLST: A Critical Determinant in the Success of Personalized Phage Therapy for Combating the AMR Crisis.** *17th Asian Conference on Diarrhoeal Disease and Nutrition (ASCOOD)*, Kathmandu, Nepal, December 8–10, 2024. **(Oral Presentation)**
5. **Unveiling Multidrug Resistance in ICU Pathogens: Isolation, Identification and Antibiotic Profiling.** *International Conference on Advances and Challenges through Translational Research in Biological Sciences*, University of Rajshahi, Rajshahi, Bangladesh, April 27, 2024. **(Poster Presentation)**
6. **Exploring His-Box Dynamics in Bacteriophage Tail Fibers: Insights into Host Specificity and Evolutionary Flexibility.** *2nd ISCB RSG Bangladesh CompBio Symposium-2025*, Department of Biochemistry and Molecular Biology, University of Dhaka, Dhaka, Bangladesh, February 22, 2024. **(Poster Presentation)**
7. **iPHaGe Study: Identifying Lytic Phages as Potential Alternatives to Antibiotics for Combatting Multidrug-Resistant Enterobacteriaceae.** *International Conclave on Antimicrobial Resistance (AMR) and the Future of Antibiotics (ICAFA-2023)*, SRM University-AP, Andhra Pradesh, India, November 8, 2023. **(Oral Presentation)**
8. **Decolorization of Textile Dyes by *Pseudomonas* sp.: Characterization and Potential for Environmental Remediation.** *International Conference on Biotechnology in Sustainable Development*, Khulna University, Khulna, Bangladesh, October 7–8, 2023. **(Poster Presentation)**
9. ***Acinetobacter baumannii*: A Promising Bacterium for Eco-Friendly Textile Dye Degradation.** *5th International Conference on Biotechnology in Health and Agriculture*, GNOBB, University of Dhaka, Dhaka, Bangladesh, September 1–3, 2023. **(Oral Presentation)**
10. **Isolation of Reactive Red and Cationic Malachite Green Dye Degrading Bacteria from Drainage Water and Toxicity Assessment of These Dyes Using *Artemia salina*.** *36th Bangladesh Society of Microbiologists (BSM) Conference*, Department of Biotechnology and Genetic Engineering, Shahjalal University of Science and Technology, Sylhet, Bangladesh, January 19–20, 2023. **(Poster Presentation)**
11. **Sudhangshu Kumar Biswas, Dipankar Chandra Roy, Ananda Kumar Saha, Biswanath Sikdar, Apurba Kumar Roy and Tang Swee-Seong (2018).** Isolation and characterization of Malachite Green dye degrading bacterial strains from textile effluents. 23rd Biological Sciences Graduate Congress, 17-19 December 2018, Chulalongkorn University, Bangkok, Thailand **(Oral Presentation)**
12. **Dipankar Chandra Roy, Sudhangshu Kumar Biswas, Mizanur Rahman, Ananda Kumar Saha, Biswanath Sikdar, Apurba Kumar Roy and Md. Enamul Haque (2018).** Biodegradation of Mixed Dyes by Bacteria Isolated from Textile Effluent. 23rd Biological Sciences Graduate Congress, 17-19 December 2018, Chulalongkorn University, Bangkok, Thailand **(Poster Presentation)**.
13. **Biswas SK., Rosli IS, Tan WS and Tang SS. (2017).** Characterization of a tailless bacteriophage against drug resistant *Shigella* spp. 22st Biological Sciences Graduate Congress, 19-21 December 2017, **National**

University of Singapore, Singapore (Oral presentation).

14. **Biswas SK.,** Tan WS, Saha AK, and Tang SS. (2017). Isolation of potential bacteriophage against drug resistant *Shigella* serovars. International Congress of the Malaysian Society for Microbiology, 4-7 December 2017, **Hotel Bangi, Putrajaya, Malaysia (Poster presentation).**
15. **Biswas SK,** Tan WS, Saha AK, and Tang SS. (2016). Isolation, serotyping and molecular identification of multidrug resistant *Shigella flexneri* from clinical samples. 21st Biological Sciences Graduate Congress, 15-16 December 2016, **University of Malaya, Malaysia (Oral presentation).**
16. **Biswas SK,** Saha AK and Tang SS. (2016). Isolation and serotyping of antibiotic resistant *Shigella* spp. from clinical samples. The 1st Asian Research Symposium, 25-27 April 2016, **Universitas Indonesia, Indonesia. (Oral presentation)**
17. World DNA Day Conference, 02-03 May, 2019, University of Rajshahi, Bangladesh **(Participant).**
18. Conference on Biotechnology for better tomorrow (2014), Institute of biological sciences, University of Rajshahi, Bangladesh **(Participant).**
19. 7th International Plant tissue Culture & Biotechnology Conference (2014) ,University of Dhaka, Bangladesh **(Participant).**
20. **Sudhangshu Biswas,** Apurba Roy, Rezuanul Islam and Samanandro Chowdhury, International Conference on Green Chemistry for Sustainable Development (2012), Isolation of Seed-Borne and Seed Associated Fungi of *Lablab purpureus*(L.) Sweet and Their Biological Control, Jashore University of science and technology, Bangladesh **(Oral Presenter).**
21. 6th International Plant tissue Culture & Biotechnology Conference (2011), BSRI, Bangladesh **(Participant).**

Workshops

1. Enago Academy workshop on “**Academic Writing and Publishing**”. Date 7 August 2019. Venue: IPPP Auditorium, University of Malaya, Kuala Lumpur Malaysia.
2. Elsevier publishing campus “**Author Workshop**”. Date 14 September 2017. Venue: HIR Building, University of Malaya, Kuala Lumpur, Malaysia.
3. “**Prime Flow™ RNA Assay Workshop**”. Date 1-2 March 2016. Venue: Medical Biotechnology Laboratory, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia.
4. “**Workshop Data Management of Clinical Research Data**”. Date 27-28 January 2016. Venue: Julius Center, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia.

Training

Received month-long foundation training (2015) from Graduate Training Institute, Bangladesh Agricultural University, Mymensingh.

Awards

- Best poster presentation awarded from the International Conference of Malaysian Society for Microbiology (2017)
- Shahid Ziaur Rahman Hall Gold Medal from University of Rajshahi (2006) (this award is given for outstanding academic performances sincerity and regularity at graduation level).

Teaching experience

Foreign University: University of Malaya, Malaysia, working as a tutor from April 2016 to August 2018.

Native University: Islamic University, Kushtia, Department of Biotechnology and Genetics Engineering from 18.04.2010 to till date.

Publications

Book publication

Article Publications

1. Mohammad Jubair Arefeen Haider, Tahsin Khan, Naimul Islam Faysal, Sezanur Rahman, Jannat Akther, Shovan Basak Moon, Nure Sharaf Nower Samia, Shakhinur Islam Mondal, Anowara Begum, **Sudhangshu Kumar Biswas**, Mustafizur Rahman (2026). From Sewage to Salvage: Complete Characterization of Arefeen1 Phage Against MDR *Pseudomonas aeruginosa*. *International Journal of Microbiology*
2. Noman, A., Parvez, R., Sarker, A., Sharma, S. C. D., **Biswas, S. K.**, & Biswas, K. K. (2026). Identification of dye-decolorizing bacteria from textile industry effluents and optimization of decolorization process using response surface methodology. *Water Practice and Technology*.
3. Sumon, M. M. H., Jubair, M., Tony, S. R., Islam, M. J., Paul, D. K., Al Shaharia, M., ... & **Biswas, S. K.** (2024). Understanding dengue outbreaks in Rajshahi district, Bangladesh: A comprehensive case study. *IDCases*, 37, e02032. (**Corresponding author**)
4. **Biswas, S. K.**, Sumon, M. M. H., Ahmed, S., Ruma, R. A., Parvin, A., Paul, D. K., ... & Tang, S. S. (2024). Beyond Antibiotics: Exploring the Potential of Bacteriophages and Phage Therapy. *PHAGE*, 5(4), 186-202. (**First and Corresponding author**)
5. Arya, R., Faruquee, H. M., Shakya, H., Rahman, S. A., Begum, M. M., **Biswas, S. K.**, ... & Kim, J. J. (2024). Harnessing the Antibacterial, Anti-Diabetic and Anti-Carcinogenic Properties of *Ocimum sanctum* Linn (Tulsi). *Plants*, 13(24), 3516.
6. Sornaly, H. H., Ahmed, S., Titin, K. F., Islam, M. N., Parvin, A., Islam, M. A., ... & **Biswas, S. K.** (2024). The utility of bioremediation approach over physicochemical methods to detoxify dyes discharges from textile effluents: A comprehensive review study. *Sustainable Chemistry and Pharmacy*, 39, 101538. (**Corresponding author**)
7. Rahman, S., Hossain, M., Akther, J., Mahamud, I., Khan, T., Haider, A, **Biswas, S. K.**, ... & Rahman, M. (2024). Identification of Lytic Phages Against Multidrug-Resistant *Klebsiella pneumoniae*: Illuminating Hope on Antimicrobial-Resistance. *PHAGE*.
8. Ashik, M. A. R., Hossain, M. A., Rahman, S. A., Akter, M. S., Zaman, N. N., Uddin, M. H., **Biswas, S. K.** ... & Rahman, M. H. (2024). Bioinformatics and system biology approaches for identifying potential therapeutic targets for prostate cancer. *Informatics in Medicine Unlocked*, 47, 101488.
9. Khan, T, Haider A, Rahman S, Moon, S. B, Mahamud I, Mondal, S. I, Begum A, **Biswas, S. K.** Jubair, M, Rahman, M. Complete genome sequence of *Escherichia* phage iGC_PHA_EC001. Microbiology Resource Announcements. 2023 Nov 29:e00842-23.
10. Huq, A. F. M. A., **Biswas, S. K.**, Sheam, M. M., Syed, S. B., Elahi, M. T., Tang, S. S., ... & Paul, D. K. (2023). Identification and antibiotic pattern analysis of bacillary dysentery causing bacteria isolated from stool samples of infected patients. *Biologia*, 78(3), 873-885. (**Equal Contributing First Author**)
11. Ahmed, S., Ali, M.C., Ruma, R.A., Mahmud, S., Paul, G.K., Saleh, M.A., Alshahrani, M.M., Obaidullah, A.J., **Biswas, S.K.**, Rahman, M.M. and Rahman, M.M., (2022). Molecular Docking and Dynamics Simulation of Natural Compounds from Betel Leaves (*Piper betle* L.) for Investigating the Potential Inhibition of Alpha-Amylase and Alpha-Glucosidase of Type 2 Diabetes. *Molecules*, 27(14), p.4526.
12. Hossain, M. S., Paul, G. K., Mahmud, S., Saleh, M. A., Uddin, M. S., Dutta, A. K., ... & **Biswas, S. K.** (2022). Mixed dye degradation by *Bacillus pseudomycoloides* and *Acinetobacter haemolyticus* isolated from

industrial effluents: A combined affirmation with wetlab and in silico studies. *Arabian Journal of Chemistry*, 15(9), 104078. **(Corresponding author)**.

13. Mukhles, M. B., Rahman, M. M., Rana, M. R., Huda, N., Ferdous, J., Rahman, F., ... & **Biswas, S. K.** (2022). Effect of pesticides on nitrification activity and its interaction with chemical fertilizer and manure in long-term paddy soils. *Chemosphere*, 304, 135379.
14. Nain, Z., Barman, S. K., Sheam, M. M., Syed, S. B., Samad, A., Quinn, J. M., ... & **Biswas, S. K.** (2021). Transcriptomic studies revealed pathophysiological impact of COVID-19 to predominant health conditions. *Briefings in Bioinformatics*, 1-15 **(Corresponding author)**.
15. Rahman, M. M., Khanom, A., & **Biswas, S. K.** (2021). Effect of Pesticides and Chemical Fertilizers on the Nitrogen Cycle and Functional Microbial Communities in Paddy Soils: Bangladesh Perspective. *Bulletin of Environmental Contamination and Toxicology*, 1-7.
16. Sheam, M. M., **Biswas, S. K.**, Ahmed, K. R., Syed, S. B., Hossain, M. S., Khan, M. S. A., ... & Rahman, M. M. (2021). Mycoremediation of reactive red HE7B dye by *Aspergillus salinarus* isolated from textile effluents. *Current research in microbial sciences*, 2, 100056. **(Corresponding author)**
17. Sultana, A., Sarker, N. C., Kakon, A. J., Syed, S., Elahi, M. T., **Biswas, S. K.**, ... & Paul, D. (2021). Comparison of major nutritional constituents and genetic diversity analysis of five strains of oyster mushrooms. *J. Adv. Biotechnol. Exp. Ther.*, 4, 405-414.
18. Sintia, M., Rahman, M. M., Khanom, A., Huq, M. A., Ali, M. Y., Rauf, M., **Biswas, S. K.**, ... & Azad, M. A. K. (2021). Differential response of the nitrifying microbes and net nitrification rates (NNRs) between different cereal and legume crop soils with chemical fertilization. *Arabian Journal of Geosciences*, 14(18), 1857.
19. Khanom, A., Azad, M. A. K., Ali, M. M., Ali, M. Y., **Biswas, S. K.**, & Rahman, M. M. Plants and microbes' responses to the net nitrification rates of chemical fertilizers in vegetable soils. *Applied Soil Ecology*, 158(2020), 103783.
20. Sheam, M. M., Syed, S. B., Nain, Z., Tang, S. S., Paul, D. K., Ahmed, K. R., & **Biswas, S. K.** (2020). Community-acquired pneumonia: aetiology, antibiotic resistance and prospects of phage therapy. *Journal of Chemotherapy*, 1-16. **(Corresponding author)**.
21. Roy, D. C., **Biswas, S. K.**, Sheam, M. M., Hasan, M. R., Saha, A. K., Roy, A. K., ... & Tang, S. S. (2020). Bioremediation of Malachite Green dye by two bacterial strains isolated from textile effluents. *Current Research in Microbial Sciences*. **(Corresponding author)**.
22. Sheam, M. M., Syed, S. B., Barman, S. K., Hasan, M. R., Paul, D. K., & **Biswas, S.K.** (2019) COVID-19: The catastrophe of our time. *J Adv Biotechnol Exp Ther*, 3(4): 01-13 **(Corresponding author)**.
23. Tang, S. S., **Biswas, S. K.**, Tan, W. S., Saha, A. K., & Leo, B. F. (2019). Efficacy and potential of phage therapy against multidrug resistant *Shigella* spp. *PeerJ*, 7, e6225. **(Equal contributing first author)**.
24. Tang, S. S., Prodhan, Z. H., **Biswas, S. K.**, Le, C. F., & Sekaran, S. D. (2018). Antimicrobial peptides from different plant sources: Isolation, characterisation, and purification. *Phytochemistry*, 154, 94-105.
25. Roy, D. C., **Biswas, S. K.**, Saha, A. K., Sikdar, B., Rahman, M., Roy, A. K., ... & Tang, S. S. (2018). Biodegradation of Crystal Violet dye by bacteria isolated from textile industry effluents. *PeerJ*, 6, e5015. **(Corresponding author)**
26. Islam, M. A., Maitra, P., **Biswas, S. K.**, & Faruquee, H. M. (2018). Actions of polyamine on abiotic stresses in rice. *International Journal of Scientific & Engineering Research*, 9, 73-80.
27. Rahman, S., **Biswas, S. K.**, Barman, N. C., & Ferdous, T. (2016). Plant extract as selective pesticide for integrated pest management. *Biotechnological Research*, 2(1), 6-10.

28. Md. Moniruzzaman¹, Md. Khorshed Alam, **Shudhangshu Kumar Biswas**, Md. Kamruzzaman Pramanik, Md. Monirul Islam, G.M. Sala Uddin. (2016). Irradiation to ensure safety and quality of fruit salads consumed in Bangladesh. *Journal of Food and Nutrition Research*, 4(1), 40-45.
29. **Sudhangshu Kumar Biswas**, Rubaya, Apurba Kumar Roy, Rezuanul Islam, Laisa Ahmed Lisa, Nilufa Akhter Banu, Azizul Islam (2015). Microbial Treatment of Tannery Effluents: A Review. *Plant Environment Development*, 4 (2), 13-20. **(First author)**
30. Lisa, L. A., Paul, D. K., **Biswas, S. K.**, & Chandra, N (2015). Drug Resistance Profiles of Potential Gram Negative Rods Isolated from Urinary Tract Infected (UTI) Patients of Bangladesh with Four South Asian Countries-An Updated Review. *Int J Pharma Sciences*, 5 (4), 1160-1166
31. **Biswas, S.**, Roy, A., Islam, R., Alam, N., Chowdhury, S., & Rahman, M. (2015). Isolation of Seed-Borne and Seed Associated Fungi of *Lablab Purpureus* (L.) Sweet and Their Biological Control. *Journal of Microbiology, Biotechnology and Food Sciences*, 2019, 136-141. **(First author)**
32. Alam, N., Roy, A. K., **Biswas, S. K.**, Gan, S. H., & Khalil, M. I. (2015). Identification of Mycoflora of Lablab Bean [*Lablab purpureus* (L.) Sweet] Seed Grown in Bangladesh and its Control by Hot Water Treatment. *American-Eurasian J. Agric. & Environ. Sci*, 15 (9), 1760-1766.
33. Barman, S. K., Lisa, L. A., Paul, D. K., Dash, B. K., **Biswas, S. K.**, & Roy, A. K. Perspective of Ebola virus disease (EVD)(2015): Outbreaks, etiology and treatment. *Int J Pharma Sciences*, 5 (3), 1087-1091.
34. Alam, M. F., Amin, R., Uddin, M. E., **Kumar, S. B.**, & Islam, M. M. (2015). Regeneration of Shoot from Nodal explants of *Cucumis sativus* considering different Hormonal concentration. *Int. Res. J. Biological Sci*, 4(7), 48-52.
35. **Biswas, S. K.**, Rahman, S., Kobir, S. M. A., Ferdous, T., & Banu, N. A. (2014). A review on impact of agrochemicals on human health and environment: Bangladesh perspective. *Plant Environment Development*, 3(2), 31-35. **(First author)**
36. Islam, A., Azad, A., Karim, R., **Biswas, S.**, Rahmam, M., & Rahman, M. (2014). Antibacterial Effects of *Ocimum Sanctum* L Leaves, Flowers and Shoots against *Bacillus* Spp from Soil. *Malaysian Journal Of Medical And Biological Research*, 1(1), 35-42.
37. Saifur, R. M., Hasan, K. D. B., Jahan, M., **Biswas, S. K.**, Haque, M. R., Haque, M. E., ... & Biswas, N. Ethanol extract of *Curcuma longa* leaf, candidate against *Bacillus* species mediated infections. *International Journal of Biosciences*, 4 (7) 9-14.
38. Khan, N. E., Hassan, N., Islam, M. R., & **Biswas, S. K.** (2013). Effect of mutagenic agents on seed germination and vegetative growth of mustard (*Brassica rapa*). *Bangladesh Journal of Scientific and Industrial Research*, 48(4), 253-256.
39. Sen, M. K., Hasan, M. R., **Biswas, S. K.**, & Mahmud, S. Effect of Mutagenic Agents on Seed Germination and Growth of Lentil (*Lens culinaris*). *chemical mutagens*, 6, 9.
40. Islam, M., Sarker, N. C., **Biswas, S. K.**, & Amin, R. (2011). Effect of light intensity and its management practices on yield of *Ganoderma lucidum*. *Bangladesh Journal Mushroom*, 5, 17-22.
41. Dash, B. K., Faruquee, H. M., **Biswas, S. K.**, Alam, M. K., Sisir, S. M., & Prodhan, U. K. (2011). Antibacterial and antifungal activities of several extracts of *Centella asiatica* L. against some human pathogenic microbes. *Life Sciences and Medicine Research*, 2011, 1-5.

References

Dr. Tang Swee Seong, (Ph.D. Supervisor) Microbiology Division, Institute of Biological Sciences, University of Malaya, Malaysia. E-mail: sstang@um.edu.my	Prof. Dr. Aburba Kumar Roy (M.Sc. Thesis Supervisor) Dept. of Genetic Engineering and Biotechnology, Faculty of Biological Sciences, University of Rajshahi, Bangladesh E-mail: akroygeb@ru.ac.bd
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I declare that the information I have given in this CV is true and correct and I have personally signed this.



(Sudhangshu Kumar Biswas)