

Name Dr. Siddhartha Sankar Biswas
Date of birth 02.02.1991
Designation Scientist Sr. Scale
Qualification Ph. D (Soil Science and Agricultural Chemistry)
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Educational Qualifications

- PhD (Soil Science and Agricultural Chemistry) Indian Agricultural Research Institute, New Delhi, India (2021)
- M.Sc. (Soil Science and Agricultural Chemistry) Indian Agricultural Research Institute, New Delhi, India (2015)
- B.Sc. Agriculture (Hons.) Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, W.B., India (2013)

Professional Experience

- ❖ Scientist (Sr. scale) at ICAR-NBSS&LUP, RC Kolkata since 23-01-2026 to till date
- ❖ Scientist (Sr. scale) at ICAR-NRCO, Pakyong, Sikkim from 02-07-2022 to 22-01-2026.
- ❖ Scientist at ICAR-NRCO, Pakyong, Sikkim, from 10/10/2018 to 01-07-2022
- ❖ Scientist at ICAR-NAARM, Hyderabad from 02/07/2018 to 29-09-2018

Research Areas

- ❖ Soil fertility dynamics and nutrient management — including nitrogen mineralization, phosphorus fixation, potassium dynamics, and utilization of alternative nutrient sources for sustainable crop production.
- ❖ Advanced fertilizer technologies and precision nutrition — development and evaluation of controlled-release fertilizers, nutrient-enriched composts, and integrated nutrient management strategies for field crops and orchids.
- ❖ 7.5 years of experience in the field of orchid nutrition and potting media research
- ❖ Orchid genetic improvement and breeding
- ❖ Orchid production, protection, and precision cultivation
- ❖ Conservation biology and biodiversity management of orchids
- ❖ Orchid value chain, stakeholder capacity building, and commercialization

International Experience - Nil

Awards

- **Zonal Award** from the North Zone of India by the Indian Society of Soil Science, for best presentation of M.Sc. dissertation (2016), at the C.S. Azad university of Agriculture and Technology, Kanpur.
- **Rajiv Gandhi National Fellowship** by University Grants Commission, for the year 2015-16 to pursue my Ph.D. Degree
- **Junior Research Fellowship** by Indian Council of Agricultural Research in Soil Science for Master's Degree Programme
- **Scheme of Scholarship for College and University Students** by Government of India, Ministry of Human resource development, Department of higher education during B.Sc.(Ag.) Hons
- **Best poster Award** by International plant nutrition institute at international conference on "Advances in potassium research for efficient soil and crop management" at NASC complex, New Delhi, on 28th and 29th August 2017
- **Best poster presentation Award** by Indian Society of Soil Science during 82nd Annual Convention of the Society on 13th December 2017 at Kolkata
- Ranked first in the Indian Agricultural Research Institute Entrance Examination for the Discipline of Soil Science and Agricultural Chemistry for the Doctoral Degree Programme.

Honours/Recognitions

1. Acted as vigilance officer of ICAR-NRC for Orchid during 2025-2026. 2. Reviewer of Journal of Soil Science and Plant Nutrition, Scientific Reports etc. 3. Acted as Member of Ph.D. Co-guide of a student of Sikkim University. 4. Acted as Supervisor of institute orientation training of two of ICAR-NRCO scientists during 2022 and 2025.

- Acted as Observer 2023, and Assistant Centre Coordinator 2025, to conduct online exam for Combined NE and Preliminary Examination for ARS, SMS (T-6) and STO (T-6) – 2025 at Gangtok centre

Ten Best Research Papers along with NAAS Rating-2026

Sl. No.	Publication reference	NAAS Rating
1.	Biswas, S.S.*, Biswas, D.R., Ghosh, A., Sarkar, A., Saha, M., Roy, T., Ghosh, G.K., Das, A. and Basak, B.B., 2026. Redefining P Fertilization in Wheat, Soil P Biogeochemistry and Ecosystem Resilience with PSB-Activated Low Grade Rock Phosphate. Journal of Environmental Chemical	13.2

	Engineering, p.121342.	
2.	Biswas, S.S.* , Natta, S., De, L.C. and Das, S.P., 2024. Maximizing <i>Zygopetalum maculatum</i> orchid yield through calcium nutrition: Unveiling calcium content and dynamics across different plant parts at different growth stages of the orchid. <i>Scientia Horticulturae</i> , 333, p.113244.	10.2
3.	Biswas, S.S.* , Natta, S., Kalaivanan, N.S., Chandan Gowda, H., De, L.C. and Das, S.P., 2025. Potassium application enhances vegetative and reproductive yield of <i>Zygopetalum maculatum</i> and reduces post-flowering K depletion from storage organs of the orchid. <i>Scientific Reports</i> , 15(1), p.10907.	9.90
4.	Biswas, S.S.* , Natta, S., Kalaivanan, N.S., De, L.C., Ghosh, A., Sarkar, A. and Das, S.P., 2025. Enhanced <i>Cymbidium</i> 'PCMV' hybrid orchid yield through calcium nutrition: Deep insight into ca dynamics among different plant parts at its various growth stages. <i>Journal of Soil Science and Plant Nutrition</i> , 25(1), pp.680-692.	9.10
5.	Biswas, S.S.* , Biswas, D.R., Sarkar, A. and Ghosh, A., 2023. Oxalic-acid-treated waste mica, a potent natural supplement to K fertilizers for growing wheat and rice in inceptisol. <i>Journal of Soil Science and Plant Nutrition</i> , 23(1), pp.581-593.	9.10
6.	Biswas, S.S.* , Biswas, D.R., Ghosh, A., Sarkar, A., Das, A. and Roy, T., 2022. Phosphate solubilizing bacteria inoculated low-grade rock phosphate can supplement P fertilizer to grow wheat in sub-tropical inceptisol. <i>Rhizosphere</i> , 23, p.100556.	9.50
7.	Ghosh, A., Kumar, S., Manna, M.C., Singh, A.K., Sharma, P., Sarkar, A., Saha, M., Bhattacharyya, R., Misra, S., Biswas, S.S. and Biswas, D.R., 2019. Long-term in situ moisture conservation in hortipasture system improves biological health of degraded land. <i>Journal of environmental management</i> , 248, p.109339.	14.4
8.	Sarkar, A., Biswas, D.R., Datta, S.C., Roy, T., Moharana, P.C., Biswas, S.S. and Ghosh, A., 2018. Polymer coated novel controlled release rock phosphate formulations for improving phosphorus use efficiency by wheat in an Inceptisol. <i>Soil and Tillage Research</i> , 180, pp.48-62.	12.8
9.	Singhal, V.K., Ghosh, A., Singh, A.K., Singh, Y., Biswas, S.S. , Ojha, D. and Bhattacharyya, R., 2025. How grasses stabilize soil organic carbon in aggregates of semi-arid ecologically restored land: Evidence from ^{13}C natural abundance. <i>Catena</i> , 249, p.108627.	11.7
10.	Ghosh, A., Biswas, D.R., Bhattacharyya, R., Das, S., Das, T.K., Lal, K., Saha, S., Alam, K., Sarkar, A. and Biswas, S.S. , 2023. Recycling rice straw enhances the solubilisation and plant acquisition of soil phosphorus by altering rhizosphere environment of wheat. <i>Soil and Tillage Research</i> , 228, p.105647.	12.8

Other important achievements

❖ Lead developer of 4-ICAR certified technologies given below-

Sl. No.	Technology Code	Title of the technology
1.	ICAR-HS-NRCO-Methodology-2025-014	Modified Alkali Method for estimating metabolic activity of the cut flowers
2.	ICAR-HS-NRCO-Process-2025-057	Customized nutrient solution and potting mixture for <i>Zygopetalum</i> orchids
3.	ICAR-HS-NRCO-Technology - 2025-013	Metabolic inhibitor as vase life enhancer of the cut flowers
4.	ICAR-NRM - NRCO-Concept-2025-112	A deep insight into Ca nutrition and dynamic in <i>Zygopetalum maculatum</i> orchids

❖ **Co-developer of five registered orchid genetic stocks with high nutraceutical value**, formally documented under national accession systems, and **INGR number-Indian National Germplasm Registration number** (INGR24076, INGR24077, INGR24075, INGR24078, INGR25102).

❖ **Co-developer of 22 officially released orchid hybrids** (7 *Paphiopedilum*, 8 *Cymbidium*, 1 *Dendrobium*, 6 *Phalaenopsis*) through ICAR-NRC for Orchids and approved by the **State Variety Release Committee (SVRC)** of Sikkim.

Total Publications (Peer-reviewed journals only): 41, International: 33 and National: 08

Google Scholar link:

https://scholar.google.co.in/citations?hl=en&user=BVxlzD4AAAAAJ&view_op=list_works&sortby=pubdate

Research Gate link: https://www.researchgate.net/profile/Siddhartha-Biswas-9?ev=hdr_xprf