

Mr. Sinto Antoo, M.Sc.

Scientist-B

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EDUCATIONAL QUALIFICATION

- Indian Agricultural Research Institute, New Delhi** 2019–2021
M.Sc. (Agri.) in Plant Physiology | CGPA – 9.02
Thesis Title: Interactive Effects of Elevated [CO₂] and Nitrogen Fertilization on Yield and Nitrogen Response of Bread Wheat
- University of Agricultural Sciences, GKVK, Bengaluru** 2015–2019
B.Sc. in Agricultural Biotechnology | CGPA – 8.59
- Indian Institute of Science, Bengaluru** 2018–2019
Bachelor's Dissertation
Thesis Title: Screening and Investigation of Novel Anticancer Secondary Metabolites from Endophytic Fungi of Marine Algae

RESEARCH EXPERIENCE

- Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee, USA** Feb 2023 – Mar 2023
Visiting Scholar | Advisor: Dr. Xiaohan Yang, Biosciences Division
Participated in the overseas training program under NAHEP-CAAST entitled “Genomics Assisted Crop Improvement and Management” to gain hands-on experience in the selection of candidate genes, designing of guide RNA, cloning gRNA into a suitable vector, reducing off-target edits and other techniques involved in genome editing of bioenergy poplar plants.
- Indian Agricultural Research Institute (IARI), New Delhi, India** Aug 2019 – Sept 2021
Master's Thesis | Advisor: Dr. Lekshmy S, Division of Plant Physiology
Interactive Effects of Elevated [CO₂] and Nitrogen Fertilization on Yield and Nitrogen Response of Bread Wheat. The additional reproductive stage nitrogen application alleviates the negative impact of elevated CO₂ on grain protein content. Elevated [CO₂] also alters the grain ionome, grain size, and the expression of genes involved in grain ionome, morphology, and N metabolism in source and sink tissues of wheat genotypes.
- Indian Institute of Science (IISc.), Bengaluru, India** Dec 2018 – Mar 2019
Bachelor's Thesis | Advisor: Prof. C. Jayabaskaran, Department of Biochemistry
Screening and Investigation of Novel Anticancer Secondary Metabolites from Endophytic Fungi of Marine Algae. The endophytic fungi *Aspergillus unguis* isolated from marine algae *Enteromorpha* species showed good anticancer activity and mild antioxidant activity. *A. unguis* ethyl extract showed anti-proliferative activity against various cancer cell lines in a dose-dependent manner while exhibiting negligible cytotoxicity against non-malignant cell line, HEK 293T.

Rural Agricultural Work Experience Program, Karnataka, India Nov 2018 – Dec 2018
In rural parts of Karnataka state in India, work focused on analyzing the effect of late blight of potato and soft rot of ginger on shifting cropping patterns. Farmers were educated regarding the boons of mushroom cultivation to enable them to start up small-scale cultivation and financially support their livelihood. Also, they were educated with field days and exhibitions on various crop protection methods and yield-enhancing practices available for agriculture. Indigenous farm practices were learned from farmers.

University of Agricultural Sciences, Bengaluru, India Jul - Oct 2018
Undergrad research | Advisor: Dr. Geetha Govind and Dr. Ramesh B N, Dept. of Agricultural Biotechnology
Biochemical Analysis, Molecular Characterization, and Endophytic Study of *Phyllanthus urinaria* from Different Parts of Western Ghats. An attempt was made to study the biochemical and molecular characteristics of a medicinal plant, *Phyllanthus urinaria* from different parts of the Western Ghats to find potent hepatoprotective compounds.

University of Agricultural Sciences, Bengaluru, India Jul - Oct 2018
Undergrad research | Advisor: Dr. Girisha, Dept. of Agricultural Microbiology
Isolation of Probiotic Bacteria from Different Curd Samples

PUBLICATIONS AND PRESENTATIONS

- 1) **Sinto, A.**, Sathee, L., Singh, D., Jha, S. K., & Chinnusamy, V. (2022). Interactive effect of elevated CO₂ and nitrogen dose reprograms grain ionome and associated gene expression in bread wheat. *Plant Physiology and Biochemistry*. 179, 134-143. (IF: 6.5, NAAS score: 12.50).
- 2) **Sinto, A.**, Sathee, L., Singh, D., Jha, S. K., Adavi, S. B., Kumar, R. R., ... & Singh, M. P. (2022). Elevated CO₂ and Nitrogen dose affect grain ionome, grain morphology, and associated gene expression in wheat (*Triticum aestivum* L.). *Indian Journal of Genetics and Plant Breeding*, 82(02), 143-152. (IF: 1.339, NAAS score: 7.00).
- 3) **Antoo, S.**, Singh, D., Jha, S. K., Adavi, S., Kumar, R. R., Chinnusamy, V., ... & Sathee, L. (2022). Effect of optimum/high nitrogen supply and elevated CO₂ on yield and nitrogen accumulation in bread wheat. *The pharma innovation journal*. 11(1): 129-134. (NAAS score: 5.23).
- 4) Sathee, L., **Antoo, S.**, Prabhakar, G. D., Arpitha, S. R., Kumar, S., Watts, A., ... & Vadakkethil, A. A. (2024). CRISPR-Based Genome Editing for Improving Nutrient Use Efficiency and Functional Genomics of Nutrient Stress Adaptation in Plants. In *CRISPR and Plant Functional Genomics* (pp. 144-174). CRC Press.
- 5) Book chapter: Lekshmy Sathee, Suriyaprakash R, Jyoti Priya, **Sinto Antoo** and Shailendra K Jha (2021). Role of molybdenum in tolerance against different environmental stresses. In: *Biology and Biotechnology of Environmental Stress Tolerance in Plants* Ed Roychoudhury A, Apple Academic Press.
- 6) Book chapter: Lekshmy Sathee, Sandeep Adavi B, Birendra K. Padhan, **Sinto A**, Anjali Anand, Ngursangzuala Sailo, Vanita Jain, Shailendra K. Jha (2021). Elevated atmospheric CO₂ induced changes in nitrogen metabolism and crop quality. *Climate Change and Crop Stress*. <https://doi.org/10.1016/B978-0-12-816091-6.00010-9>. Eds Shankar A *et al*.
- 7) Oral presentation on “Can reproductive stage nitrogen application alleviate the negative effects of elevated CO₂ on grain protein content in bread wheat?” at National Conference of Plant

Physiology, ICAR-NIASM, Baramati, Maharashtra (2021) on grain protein content in bread wheat?" at National Conference of Plant Physiology, ICAR-NIASM, Baramati, Maharashtra (2021).

- 8) Oral presentation on "Elevated CO₂ and nitrogen dosage affects wheat physiology, grain morphology, and protein content in bread wheat" at 1st International Symposium, SAWBAR, and ICAR-IIWBR, Karnal (2022).

AWARDS AND ACHIEVEMENTS

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| 1. <i>Indian Agricultural Research Institute–Merit Medal</i> for outstanding academic performance in Masters. | 2022 |
| 2. <i>Young Researcher Award</i> by the Indian Society for Plant Physiology | 2021 |
| 3. <i>First place</i> in the Science Quiz Competition at the National Conference of Plant Physiology, ICAR-NIASM, Baramati, Maharashtra, India. | 2021 |
| 4. <i>Second place</i> in a quiz organized at the "National Conference of Plant Physiology" at Kerala Agricultural University, Thrissur. | 2019 |
| 5. ' <i>Best in Science Award</i> ' by Vinayaka Public School, Yelahanka, Bengaluru. | 2013 |

FELLOWSHIPS / MEMBERSHIPS

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| 1. Life member of the Indian Society for Plant Physiology | |
| 2. DST-INSPIRE fellowship, Ministry of Science and Technology, GoI | 2023 |
| 3. NAHEP-CAAST Overseas Training Program | 2023 |
| 4. AICE-JRF/SRF (ICAR) | 2021-23 |
| 5. Junior Research Fellowship by the Indian Council of Agricultural Research | 2019-2021 |
| 6. Merit-cum-Means scholarship for minorities by Ministry of Minority Affairs, Government of India. | 2019 |
| 7. University of Agricultural Sciences Bengaluru General Scholarship | 2018-2019 |
| 8. Vidyasiri Scholarship for Minorities, Government of Karnataka. | 2017-2019 |
| 9. Post Metric Scholarships for minorities by Ministry of Minority Affairs, Government of India. | 2018 |

AFFILIATIONS

1. Central Silk Board, Ministry of Textiles – Govt. of India
2. Indian Agricultural Research Institute, New Delhi
3. University of Agricultural Sciences, Bengaluru
4. Oak Ridge National Laboratory, Tennessee, USA
5. Indian Institute of Science, Bengaluru

Declaration: I hereby declare that all the details provided are true to the best of my knowledge

(Mr. Sinto Antoo)