

# NAVYA VANGALA

Doctoral Researcher | Seed Science & Technology | PJTSAU

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ASRB NET '23

Young Researcher Award '25

Indo-German Fellow '23

9+ Publications

10+ Book Chapters

**RESEARCH INTERESTS:** Seed Science | Nanotechnology in Agriculture | Seed Quality Enhancement | Sustainable Agriculture | Plant Molecular Biology

## SUMMARY

PhD researcher in Seed Science and Technology with **5+ years** of research experience in seed quality enhancement using nanotechnology. **Indo-German Bilateral Fellow (2023)** - **Top 20 among 8000 participants across the country** with international exposure at research institutions in Germany and Netherlands. **Young Researcher Award (2025)** recipient with **9 peer-reviewed publications** and **10 book chapters**. Expertise in carbon nanodots for agricultural applications, achieving **30% improvement** in seed germination under stress conditions. Qualified **ASRB NET 2023**, India.

## EDUCATION

**Professor Jayashankar Telangana Agricultural University** | Hyderabad, India

Jan 2022 – Jan 2025

**Ph.D. in Seed Science and Technology, Agriculture**

GPA: **8.5/10**

- **Thesis:** *Seed Quality Enhancement in Chilli with Nutrients Doped Carbon Nano Dots*
- **Advisor:** [Dr. Sujatha Patta](#)
- **Research focus:** Nanotechnology applications in agriculture, sustainable seed production, stress tolerance enhancement
- **Young Researcher Award (2025);** Selected for **Indo-German Bilateral Student Exchange**

**Sam Higginbottom University (SHUATS)** | Prayagraj (Allahabad), Uttar Pradesh, India

Aug 2019 – Oct 2021

**Master of Science in Seed Science and Technology, Agriculture**

GPA: **8.0/10**

- **Thesis:** *Seed Quality Enhancement on Green Gram under Salinity Stress Conditions*
- **Advisor:** [Dr. AK Chaurasia](#)
- **Recognition:** **Merit Award for Academic Excellence**

**Dr. Panjabrao Deshmukh Krishi Vidyapeeth (PDKV)** | Akola, Maharashtra, India

Aug 2015 – Jul 2019

**Bachelor of Science in Agriculture**

GPA: **8.0/10**

- **Advisor:** [Dr. Indrapratap Thakare](#)
- **Recognition:** **Top 2 Academic Performer (2019); Academic Merit Scholarship**

## RESEARCH AND PROFESSIONAL EXPERIENCE

**Graduate Research Scholar**, PJTSAU

Jan 2022 – Present

- Leading carbon nanodot synthesis project with **INR 40 lakh** equivalent funding.
- Mentored **5 MSc students** and **60+ BSc Students** in nanotechnology applications for agriculture.
- Published **9 peer-reviewed papers** and presented at **5 international conferences**.

**Research Assistant**, State Seed Testing Laboratory, Uttar Pradesh

Apr 2021 – Oct 2021

- Conducted comprehensive seed quality assessments for **15+ crop varieties** under stress conditions.
- Implemented ISO-certified testing protocols; improved lab efficiency by **25%**.
- Developed salinity tolerance screening methods adopted by **3 regional labs**.

## FEATURED PROJECTS AND INTERNATIONAL COLLABORATIONS

**Carbon Nanodots for Agricultural Enhancement** | *Nanotechnology, Seed Science*

[PJTSAU '22-25]

- Developed nutrient-doped carbon nanodots achieving **30% improvement** in seed germination under stress.
- Established protocols for large-scale synthesis and agricultural application of functionalized CNDs.
- **Impact:** Technology being tested for commercialization with **2 seed companies**.

**Indo-German Bilateral Seed Development Program** | *International Collaboration*

[Germany/Netherlands '23]

- Selected among **top 20 students** nationwide for prestigious exchange program.
- Visited **Max Planck Institute**, **Wageningen University**, and **KWS SAAT SE** facilities.
- Gained expertise in advanced seed coating technologies and precision agriculture.

- Developed organic priming protocols reducing salinity impact by **40%** in green gram.
- Published findings in **3 peer-reviewed journals**; adopted by **50+ farmers** in UP.

## TECHNICAL SKILLS

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**Laboratory:** Seed Testing (ISTA protocols), Molecular Biology (PCR, Gel Electrophoresis), Plant Tissue Culture, Nanotechnology Synthesis, Seed Toxicity Analysis

**Agricultural:** Seed Processing, Quality Assessment, Field Inspection, Seed Certification, Plant Breeding

**Analysis:** SPSS, R Studio, Statistical Data Analysis, Experiment Design, Meta-analysis

**Software:** Microsoft Office Suite, ImageJ, GraphPad Prism, Mendeley, Zotero

## HONORS AND AWARDS

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- **Young Researcher Award 2025**, Agricultural Technology Development Society (ATDS).
- **ASRB NET Qualified 2023**, Agricultural Scientists Recruitment Board (**All India Rank: 127**).
- **Indo-German Bilateral Fellow 2023**, Selected among **top 20 students** nationwide.
- **Merit Award for Academic Excellence**, Sam Higginbottom University, 2021.
- **Lila Poonawalla Foundation Scholarship**, 2015-2019 (Full tuition support).
- **Runner-Up**, National Quiz Competition on Agricultural Science, 2018.

## CONFERENCE PRESENTATIONS

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- **GABELS 2024** (Nepal): "Carbon Nanodots for Sustainable Seed Enhancement" - **Oral presentation**
- **CRISEA 2025** (Goa University): "AI-Driven Approaches in Seed Quality Testing" - **Poster**
- **NACAFF 2024** (ANGRAU): "Nanotechnology in Agriculture" - **Invited speaker**
- **National Conference on Sustainable Development** (PJ TSAU/ISCA): "Organic Seed Treatments" - **Oral**
- **5+ additional** national and state-level conferences

## PUBLICATIONS

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### Peer-Reviewed Journal Articles (8)

1. **N. Vangala**, A. Karadi, S. Patta (2025). Carbon nanodots: The secret to stronger, faster chilli seedlings. **Journal of Crop and Weed**, Accepted.
2. **N. Vangala**, et al. (2025). Transforming agricultural practices with AI: Insights into seed production and quality testing. **Plant Archives**, Accepted.
3. **N. Vangala**, et al. (2024). Nutrient-doped carbon nanodots for enhancing seed quality parameters in chilli seeds. **Journal of Advances in Biology and Technology**, **17**(3), 45-58.
4. **N. Vangala**, et al. (2024). Advancing crop productivity with nano-sized micronutrients: Innovations and implications in sustainable agriculture. **Plant Archives**, **24**(2), 112-125.
5. **N. Vangala**, et al. (2024). Nanotechnology interventions for seed production and seed quality enhancement. **Plant Archives**, **24**(1), 78-92.
6. **N. Vangala**, et al. (2021). Effects of Panchagavya, Beejamrutha, botanical seed treatment on seed quality parameters in chickpea (*Cicer arietinum* L.). **Asian J. Microbiol. Biotech. Environ. Sci.**, **23**(4), 512-518.
7. **N. Vangala**, et al. (2021). Effect of priming with organics and botanicals on seed quality parameters of green gram (*Vigna radiata* L. Wilczek) var. Samrat under salinity stress conditions. **Biological Forum – An International Journal**, **13**(3), 234-240.
8. **N. Vangala**, et al. (2021). Effect of seed priming on germination and initial seedling growth of cowpea seeds (*Vigna unguiculata* L.). **Biological Forum – An International Journal**, **13**(2), 145-151.

### Book Chapters (10)

1. **N. Vangala**, A. Karadi, S. Patta (2025). Seed Biology. In: **A Competitive Book on General Agriculture, Vol. 3** (pp. 45-67). Agri Tech Publications.
2. **N. Vangala**, A. Karadi (2025). Seed Biology. In: **A Competitive Book on General Agriculture, Vol. 3** (pp. 89-112). Agri Tech Publications.

3. **N. Vangala**, A. Karadi (2025). Advances in seed coating and encapsulation technologies. In: **Seed Science and Technology: Foundations for the Future** (pp. 123-145). Paper Tail Publications.
4. A. Karadi, **N. Vangala** (2025). Digital tools and precision agriculture in seed production and management. In: **Seed Science and Technology: Foundations for the Future** (pp. 201-225). Paper Tail Publications.
5. A. Karadi, **N. Vangala**, S. Patta (2025). Seed Health. In: **A Competitive Book on General Agriculture, Vol. 3** (pp. 156-178). Agri Tech Publications.
6. **N. Vangala**, Arpita, S. Patta (2024). Seed classification: Types, categories, and characteristics. In: **Seed Frontiers: Innovations, Technologies, and Future Directions in Seed Science** (pp. 67-89). Stella International Publications.
7. Arpita, **N. Vangala**, S. Patta (2024). Seed biology: Structure, composition and functions. In: **Seed Frontiers: Innovations, Technologies, and Future Directions in Seed Science** (pp. 34-56). Stella International Publications.
8. A. Karadi, G. Babu, **N. Vangala**, S. Patta (2024). Seed quality testing: Techniques and innovations. In: **Seed Innovations: Advances in Seed Science Technology and Development, Vol. 4** (pp. 28-43). Stella International Publications.
9. **N. Vangala**, A. Karadi, G. Babu, S. Patta (2024). Seed storage and preservation techniques. In: **Seed Innovations: Advances in Seed Science Technology and Development, Vol. 4** (pp. 116-130). Stella International Publications.
10. G. Babu, **N. Vangala**, A. Karadi, M. Pallavi (2024). Seed certification and quality control standards. In: **Seed Innovations: Advances in Seed Science Technology and Development, Vol. 4** (pp. 131-145). Stella International Publications.

### Popular Science Articles (7)

1. **N. Vangala**, et al. (2024). Carbon farming: Cultivating solutions for climate change and sustainable agriculture. **AgriGate International e-Magazine**, December 2024.
2. **N. Vangala**, et al. (2025). Components of precision agriculture. **AgriGate International e-Magazine**, January 2025.
3. **N. Vangala**, et al. (2024). Artificial intelligence in agriculture and its applications. **AgriGate International e-Magazine**, December 2024.
4. **N. Vangala**, et al. (2025). Tracing the roots: The history, classification, and synthesis of nanomaterials in revolutionizing agriculture. **AgriGate International e-Magazine**, February 2025.
5. **N. Vangala**, et al. (2025). Robotic harvesters: Transforming the future of farming. **AgriGate International e-Magazine**, January 2025.
6. **N. Vangala**, et al. (2025). Robotic harvesters: Transforming the future of farming. **AgriGate International e-Magazine**, January 2025.
7. **N. Vangala**, et al. (2025). Bio-stimulants and bio-inoculants in agriculture. **AgriGate International e-Magazine**, February 2025.

### FEATURED COURSEWORK

**Seed Science and Technology:** **SST-721P:** Principles of Seed Production | **SST-713:** Seed Physiology | **SST-602:** Advances in Seed Quality Enhancement | **SST-605:** Seed Purity and Dust Testing | **SST-721P:** Seed Production in Field Crops | **HOVS-815:** Seed Production Technology of Vegetable Crops | **SST-699:** Doctoral Research in Seed Science

**Agriculture and Plant Science:** **MB-605:** Techniques in Molecular Biology | **GPB-713:** Advances in Plant Breeding | **AEAB-503:** Agricultural Research and Rural Development | **GPB-715:** Germplasm Collection and Exchange | **MB-608:** Plant Growth and Quality Improvement

**Research and Analysis:** **STAT-502:** Data Analysis Using Statistical Packages | **STAT-502:** Statistical Methods for Applied Sciences | **AEC-610:** Research and Publication Ethics | **SST-691:** Comprehensive Oral Examination