

JYOTI RANJAN BEHERA

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EDUCATION

Ph.D. in Biomedical Sciences, Department of Biological Scie, East Tennessee State University, TN, USA 2018-2023

Integrated BS-MS: Biological Sciences major, National Institute of Science Education and Research, Bhubaneswar, India 2013-2018

RESEARCH EXPERIENCE

Ph.D. Dissertation, East Tennessee State University, USA 2018-2023
Advisor: Dr. Aruna Kilaru
Title: *Elucidation of the Role of Avocado WRI1 and WRI2 and Their Ability to Affect Oil Content and Composition When Co-expressed With DGAT1 and PDAT1*

Junior Research Fellow, Bhabha Atomic Research Center, Mumbai, India 2018

Master's Thesis 2016 - 2018
National Institute of Science Education and Research, Bhubaneswar, India
Advisor: Dr. Kishore CS Panigrahi
Title: *Possible phenotypic role of Gigantea gene in Physcomitrium Patens*

Summer Internship at IIT Guwahati, India 2015
Advisor: Dr. Lingaraj Sahoo
Title: *Enzymatic assay for comparing stress resistance property of three cowpea (Vigna unguiculata) varieties*

Summer Internship at IIT Guwahati, India 2015
Advisor: Dr. Lingaraj sahuo
Title: *Stress mediated regulation in the expression of different isoforms of NAC transcription factors in cowpea (Vigna unguiculata)*

Summer Research Internship Program Fellow at IIT Gandhinagar, India 2014
Advisor: Dr. Sharad Gupta
Title: *Studying the aggregation kinetics of different isoforms of heat stable protein TAU(τ)*

AWARDS & FELLOWSHIPS

Second place at the **Plant Biology 2023 African Researchers network (PB23 ARN) Hackathon** on 'The role of science communication in enhancing innovative technologies in agriculture' 2023

Ambassador, Early Career Plant Scientists Section of the **American Society of Plant Biologists (ASPB)** Ambassador Program 2023

Best Oral presentation Award at the **Gordon Research Conference (GRC)** on **Plant Lipids: Structure, Metabolism and Function (2023)** held at Galveston, TX 2023

First place at the Plant Biology 2022 African Researchers network (PB22 ARN) Hackathon on ‘Enhancing Climate-Smart Agriculture to Build Resilient Ecosystems’	2022
Oral Presentation Award (First position) Doctoral Students - Biosciences division at the 2022 Appalachian Student Research Forum (ASRF)	2022
Yampolsky Yampolsky Yampolsky (YYY) award for contribution to the field of Evolution and Molecular Biology, East Tennessee State University	2022
Henry Daniell International Scholar Award (HD-ISA) for achievements and contributions to Plant Science	2022
Young Member Committee award (First position) for the poster presentation at Phytochemical Society of North America (PSNA) virtual meeting	2020
Summer Research Internship Program (SRIP) fellowship, IIT Gandhinagar, India	2014
Innovation in Science Pursuit for Inspired Research (INSPIRE) fellowship by the Department of Science and Technology, Government of India.	2013-2018

PUBLICATIONS (*First author; #Corresponding author)

Gautam D., **Behera J.R.**, Sinde S., Devaiah S., Roth M. R., Yao L., Welti R., Kilaru A. **(2024)** Dynamic changes in the lipidome of a bryophyte *Physcomitrium* are distinct from that of vascular plants *Selaginella* and *Arabidopsis*, *Biology* special issue on Lipid Metabolism in Plant Growth and Development (Invited)

Behera J. R.*, Kilaru A. **(2024)** Transcriptional Regulation of Lipid Metabolism Across Diverse Plant Tissues. *Plant Physiology* special issue on ‘Plant Lipids: Signaling and Metabolism’ (Invited review)

Behera J. R., Keereetaweep J., Kilaru A. **(2024)** Recent Advancements in Regulation and Biosynthesis of Storage Lipids. *Progress in Lipid Research* (Invited review)

Shu Y, Zhao R, Xu N, Dai Y, **Behera JR**, Kilaru A, and Wang L **(2024)** Over-expression of the *Iris laevigata* cold-resistance gene *MYB97* improves photosynthetic capacity and photoprotection in tobacco (*Nicotiana tabacum*), *Journal of Forestry Research* (Accepted)

Behera, J. R.#, Ekwudo, M., Nohoesu, N.R., Kilaru A. **(2023)** Metabolic engineering of microbial and plant chassis to optimize artemisinin production. *CABI Reviews*.
<https://doi.org/10.1079/cabireviews.2023.0044>

Malek, M. C., **Behera, J. R.**, Kilaru, A., and Yampolsky, L. Y. **(2023)** Differential Expression of Gluconeogenesis-Related Transcripts in a Freshwater Zooplankton Model Organism Suggests a Role of the Cori Cycle in Hypoxia Tolerance. *PLOS ONE* 18(8): e0284679.

Behera, J.R.*, Rahman, M.M., Shockey, J., Kilaru, A. **(2023)** Biochemical Properties of Acyl-CoA-dependent and Acyl-CoA-independent Avocado Acyltransferases Positively Influence Oleic Acid Content in Nonseed Triacylglycerols. *Front Plant Sci.* 13.

Yang, W., Hu, J., **Behera, J.R.**, Kilaru, A., Yuan, Y., Zhai, Y., Xu, Y., Xie, L., Zhang, Qingyu Zhang, Y., and Niu, L. **(2021)** A Tree Peony Trihelix Transcription Factor PrASIL1 Represses Seed Oil Accumulation, *Front. Plant Sci.* *Front. Plant Sci.*, 12.

Behera, J.R.*, Rahman, M.M., Bhatia, S., Shockey, J. and Kilaru, A. **(2021)** Functional and Predictive Structural Characterization of WRINKLED2, A Unique Oil Biosynthesis Regulator in Avocado. *Front. Plant Sci.*, 12, 992.

PATENTS

Behera J. R., Kilaru A., Enhanced triacylglycerol production by expression of avocado WRINKLED1, WRINKLED2, DGAT1 and PDAT1 genes (*Pending*)

RESEARCH & TRAVEL GRANTS

Behera J (PI), Kilaru A (2024), Research grant on ‘Harnessing Moss Biotechnology for Sustainable Vegetable Oil Production’, ETSU Research Funding Program 2024 (\$20,000; *pending*)

Kilaru A (PI), **Behera J (Co-PI), Sun T, Shilabin A, Prince R, Mims P (2024), Research grant** on ‘Development of Moss Bioreactors for Greener Production of Biofortified Oils’, BioMADE 4.0 (\$1,556,184; *pending*)

Behera J (2023) Travel fund support to attend the ‘Plant Biology 2023 Annual Conference’ organized by American Society of Plant Biologists (ASPB), Savannah, GA (\$500)

Behera J (2023) Travel fund support to attend the ‘Phytochemical Society of North America (PSNA) annual meeting’ at Lansing, MI (\$700)

Behera J (2023) Elucidation of the Mechanistic Role of Novel Avocado Oil Biosynthesis Regulator Protein WRINKLED2, **Student Research Grant Award** by Sigma XI Scientific Research Honor Society (\$1000)

Behera J (2023) Travel fund support to attend the ‘Gordon Research Conference and Seminar’ on Plant Lipids: Metabolism, Structure, and Function at Galveston, TX (\$1805)

Behera J (2022) Travel grant to attend the workshop ‘An Integrated View on Early Land Plant Evolution’ by the European Molecular Biology Organization (EMBO), Bhubaneswar, India (€500)

Behera J (2022) Travel fund support by the office of Equity and Inclusion, ETSU to attend the workshop ‘An Integrated View on Early Land Plant Evolution’ by the European Molecular Biology Organization (EMBO), Bhubaneswar, India (\$1500)

Behera J (2022) Travel fund support by the Graduate program in Biomedical Sciences, ETSU to attend the workshop ‘An Integrated View on Early Land Plant Evolution’ by the European Molecular Biology Organization (EMBO), Bhubaneswar, India (\$500)

Behera J (2022) Travel grant to attend annual meeting of the Phytochemical Society of North America (PSNA), Blacksburg, VA (\$700)

Behera J (2022) Travel fund support by the Graduate and Professional Students Association (GPSA), ETSU to attend the ‘Plant Biology Worldwide Summit 2022’ by American Society of Plant Biologists (ASPB), Portland, OR (\$300)

Behera J (2022) Understanding the novel oil biosynthesis regulation mechanism in avocado mesocarp, **ETSU-Graduate Council Research Grant** (\$1000)

Behera J (2020) Understanding the structural domains of oil biosynthesis regulator protein in avocado. **ETSU-Graduate Council Research Grant** (\$800)

Behera J (2018-2023) Department travel grant for graduate students, Biology Department, East Tennessee State University (\$1800)

Behera J (2019) Travel grant to attend 58th annual meeting of the Phytochemical Society of North America, Johnson City, TN (\$300)

PRESENTATION AND POSTERS

1. **Behera J and Kilaru A (2023)** Avocado WRINKLED2 is functional and positively regulates lipid biosynthesis in nonseed tissues. *American Society of Plant Biologists Annual Meeting 2023*, Savannah, GA (*Oral and Poster*)

2. **Behera J** and Kilaru A (2023) Smoothing out ‘WRINKLES’ in the plant oil biosynthesis. *The annual meeting of Phytochemical Society of North America*, Lansing, MI (Oral and Poster)
3. **Behera J** (2023) Scientific research and Its Impact on Society. *Invited talk at the Liberty Bell Middle School*, Johnson City, TN
4. **Behera J** (2023) Making healthy oil in plants- lessons learned from Avocado, *Invited talk for the department seminar at University of North Carolina*, Asheville
5. **Behera J** and Kilaru A (2023) Avocado WRINKLED paralogs positively regulate lipid biosynthesis in non-seed tissues, *The Gordon Research Conference (GRC)*, Galveston, TX (Oral)
6. **Behera J** and Kilaru A (2023) Avocado WRINKLED paralogs positively regulate lipid biosynthesis in non-seed tissues, *The Gordon Research Conference (GRC) and Gordon research Seminar (GRS)*, Galveston, TX (Poster)
7. **Behera J**, Gautam D, and Kilaru A (2022) Changes in lipid profile during development of the moss *Physcomitrium patens*, *The European Molecular Biology Organization (EMBO) workshop on ‘An integrated View of the Early Land Plant Evolution’*, Bhubaneswar, India (Poster)
8. **Behera J** and Kilaru A (2022) Can we make healthy oil in plants? *3MT Thesis competition*, ETSU (Oral)
9. **Behera J** and Kilaru A (2022) Agrobacterium-mediated transformation of avocado lipid-synthesis genes to improve healthy-oil production in plants, *American Society of Microbiologists, TN-KY local chapter meeting*, Johnson City, TN (Oral)
10. **Behera J** and Kilaru A (2022) Synthesizing heart-healthy oil in plants utilizing oil biosynthesis machinery in Avocado. *Phytochemical Society of North America (PSNA) Annual Meeting*, Blacksburg, VA (Oral)
11. **Behera J** and Kilaru A (2022) Synthesizing heart-healthy oil in plants utilizing oil biosynthesis machinery in Avocado. *American Society of Plant Biologists Annual Meeting*, Portland, OR (Oral)
12. **Behera J** and Kilaru A (2022) Novel structural and functional characteristics of oil biosynthesis regulator protein WRINKLED2 in avocado. *Sigma Xi Student Research Showcase* (Oral)
13. **Behera J** and Kilaru A (2022) Structural and functional characteristics of oil biosynthesis regulator protein WRINKLED2 in Avocado. *Southern section of the American Society of Plant Biologists Annual Meeting*, Birmingham, AL (Oral)
14. **Behera J** and Kilaru A (2022) Structural characteristics of oil biosynthesis regulator protein WRINKLED2 in Avocado. *Appalachian Student Research Forum*, Johnson City, TN (Oral)
15. **Behera J** (2022) Can we make healthy oil in plants? 3MT Thesis presentation at the *American Society of Plant Biologists worldwide summit*, Portland, OR (Oral)
16. **Behera J** and Kilaru A (2021) Novel structural characteristics of oil biosynthesis regulator protein in avocado. *American Society of Plant Biologists Annual Meeting*, Virtual (Poster)
17. **Behera J** and Kilaru A (2021) Novel structural characteristics of oil biosynthesis regulator protein in avocado. *American Society of Plant Biologists Annual Meeting*, Virtual (Oral)
18. **Behera J**, Bhatia S, Rahman MMd and Kilaru A (2021) Novel structural characteristics of oil biosynthesis regulator protein in avocado. *Southern Section of the American Society of Plant Biologists Annual Meeting*, Virtual (Oral)
19. **Behera J** and Kilaru A (2021) Novel structural characteristics of oil biosynthesis regulator protein in avocado. *Appalachian Student Research Forum*, Virtual (Oral)
20. **Behera J**, Bhatia S, Rahman M, Kilaru A (2020) Novel structural characteristics of oil biosynthesis regulator protein in avocado, *Phytochemical Society of North America (PSNA) virtual meeting (poster)*
21. **Behera J**, Bhatia S, Rahman M, Kilaru A (2020) Structural and functional characterization of avocado transcriptional factor in oil biosynthesis, *Southern Section of the American Society of*

Plant Biologists (SS-ASPB) annual conference (oral). The abstract was submitted, but the meeting was not held due to the pandemic situation.

22. **Behera J**, Bhatia S, Rahman M, Kilaru A (2019) C-terminal region of WR11 paralogs is a potential target for oil enhancement in avocado mesocarp, *Phytochemical Society of North America* annual conference (poster)
23. **Behera J**, Bhatia S, Rahman M, Kilaru A (2019) Comparative *in silico* analysis of WRINKLED1 paralogs in angiosperms, *Appalachian Student Research Forum* (oral)
24. **Behera J**, Bhatia S, Rahman M, Kilaru A (2019) Comparative *in silico* analysis of WRINKLED1 paralogs in angiosperms, *Southern Section of the American Society of Plant Biologists (SS-ASPB)* annual conference (oral)
25. **Behera J**, Biswal D, Das S, Panigrahi K (2017) Effects of mercury (Hg) toxicity on the physiology of *Physcomitrella patens*, *International Conference on Plant Developmental Biology (ICPDB)*, NISER, India (poster)
26. **Behera J**, Kumar GK, Gupta S (2014) Aggregation kinetics of isoforms of heat stable protein TAU, *Summer Research Symposium*, Department of Biotechnology, IIT Gandhinagar (poster)

TEACHING EXPERIENCES

BIOL 5147: Biochemistry Macromolecules Laboratory (ETSU, Fall 2019-20)
BIOL 5177: Biochemistry Metabolism Laboratory (ETSU, Spring 2020-21)
BIOL 3420: Plant Biology, Guest Lecture (Spring 2019, Fall 2021 & Spring 2024)
BIOL 5177: Biochemistry lab, Guest Lecture (Spring 2022)
Mentoring Undergraduate and Master students (Fall 2018-current)

SYNERGISTIC ACTIVITIES

Committee Member, Synthetic Biology Initiative at ETSU (2023 Aug-current)
Ambassador of the Early Career Plant Scientists (ECPS) section of ASPB (May 2023-current)
Event Supervisor at the North-east Tennessee Science Olympiad event (Mar 2023)
Discussion Leader at the Gordon Research Seminar (GRS) held at Galveston, TX (Jan 2023)
Volunteer, Table host for the ‘diversity advocacy’ workshop organized at American Society of Plant Biologists (ASPB) worldwide summit 2022, Portland, OR
Judge, The Upper East Tennessee Science Fair (Apr 2022 and Apr 2023)
Manuscript reviewer, Current Plant Biology (Aug 2021)
Volunteer, International Conference on Plant Developmental Biology (2017), NISER, India
Volunteer, Open House for Biological Sciences, ETSU (2018-present)
Attendee, BioBuilder Workshop, Kingsport, Summer 2019
Volunteer, Science Olympiad, protein modeling event, ETSU, March 2020

PROFESSIONAL AFFILIATIONS

The American Society for Microbiologists KY/TN Regional Chapter (2022-2023)
The American Association for the Advancement of Science (2019-current)
American Society of Plant Biologists (2021-Current)
Southern section of the American Society of Plant Biologists (2019-current)
Early Career Plant Scientists section of American Society of Plant Biologists (2022-current)
Phytochemical Society of North America (2019-current)
Graduate and Professional Student Association at ETSU (2019-2023)

SOCIAL MEDIA

LinkedIn: <https://www.linkedin.com/in/jyoti-ranjan-behera-a74781a2/>
ORCID: <https://orcid.org/0000-0002-4642-2204>
ResearchGate: <https://www.researchgate.net/profile/Jyoti-Behera-2>

Google Scholar: <https://scholar.google.com/citations?hl=en&user=IHidO0gAAAAJ>

Twitter: <https://twitter.com/Bapuni2645>

Facebook: <https://www.facebook.com/jyotiranjana.behera.s0203>

Instagram: <https://www.instagram.com/jyotiranjana.behera.s0203/>

OTHER INTERESTS

Photography

Travel

Music