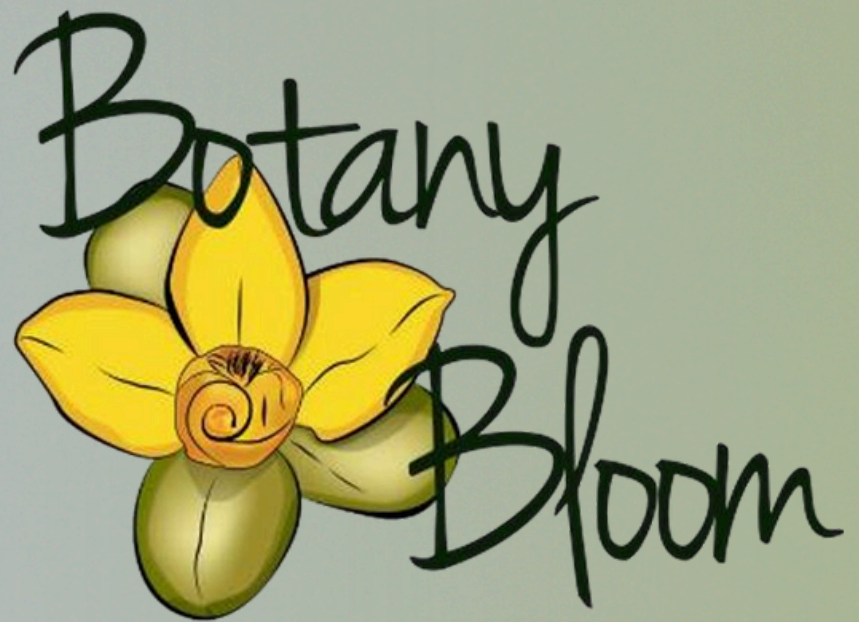


THE OFFICIAL

NEWSLETTER

DEPARTMENT OF PLANT SCIENCES



Issue 9 | December 2025



office@pts.cmb.ac.lk



+94 11-258 5038

THE OFFICIAL
NEWSLETTER
DEPARTMENT OF PLANT SCIENCES



Issue 9 | December 2025

First annual general meeting of the Plant Sciences Alumni Association



The Plant Sciences Alumni Association of the University of Colombo held its First Annual General Meeting (AGM) on 20 December 2025 at the Department of Plant Sciences, marking an important milestone in the formal establishment of the Association. The meeting took place from 9.00 a.m. to 10.30 a.m. with arrangements made to facilitate both in-person and online participation, enabling wider representation of alumni.

The first AGM served as a platform for former students of the Department to reconnect with one another and with their alma mater, while also discussing the future direction of the Association. Emphasis was placed on strengthening alumni engagement, fostering professional and academic collaboration, and supporting the Department's educational and research initiatives.

Read more [»](#)

Inspirational Dialogue

"If there's a will, there's a way. Dream big and never be afraid to make mistakes."

Dr. Hiruni Weerasooriya

Read more [»](#)

Research Spotlight

Miss Vishadinie Jayasinghe is a First Class Honors graduate in Plant Biotechnology from the University of Colombo, with experience in academic research, university teaching, and science communication.

Read more [»](#)

BOTSOC Corner

The Botanical Society of the University of Colombo engaged in a field-based plant identification session at the Independent Square following a request from Rainforest Trust of Sri Lanka.

Read more [»](#)

Student Corner

The Killer Will Count to Two

The plant kingdom is full of quiet marvels, and few are as striking as the Venus flytrap (*Dionaea muscipula*).

Read more [»](#)

‘Poson Dansala’ Organized by the Department of Plant Sciences

In keeping with the spirit of generosity and community service, the Department of Plant Sciences organized a Dansala on 13th June 2025 within the university premises. Seeni sambol buns and ginger tea were served to approximately 1,500–2,000 members of the university community, including students, academic staff, and non-academic staff. The initiative reflected the Department’s commitment to fostering unity, compassion, and cultural values within the university environment.



First Annual General Meeting of the Plant Sciences Alumni Association

The 1st Annual General Meeting (AGM) of the Plant Sciences Alumni Association was held on 20th December 2025 from 9.00 a.m. to 10.30 a.m. at the Department of Plant Sciences, University of Colombo, with provisions made for online participation. The meeting served as an excellent platform for alumni to reconnect, share ideas, and contribute toward strengthening the alumni network. Mr. Wasantha Nihal was appointed as President, while Mr. Rishan Sampath was appointed as Secretary and Ms. Vidumini Alwis was appointed as the Treasurer. Furthermore, the AGM was attended by alumni representing multiple other countries. The Department looks forward to continued collaboration and engagement with its alumni community.



Flood Relief Support by the Department of Plant Sciences

In response to the recent floods affecting several communities, the Department of Plant Sciences, together with academic staff, students, and non-academic staff, extended flood relief support to affected areas. Essential medical and health supplies including Siddhalepa, Panadol, Doxycycline, gloves, plasters, Betadine, Piriton syrup, Asamodhagam, and other necessities were distributed. This initiative highlights the Department's commitment to social responsibility and community service during times of need.



Inauguration of the MSc in Agricultural Microbiology – New Intake 2025

The inauguration ceremony of the new intake of the MSc in Agricultural Microbiology was held on 30 August 2025 at the NBLT of the Department of Plant Sciences. The event marked the formal commencement of the postgraduate Programme and welcomed the new cohort of students. The occasion was graced by the presence of Professor Darshani Bandupriya, Head of the Department of Plant Sciences; Prof. Chandrika Nanayakkara, Chair Professor, Department of Plant Sciences; and Programme study board members of the MSc in Agricultural Microbiology. The programme highlighted the Department's continued commitment to advancing postgraduate education and capacity building in the field of agricultural microbiology.



Senate Commendation Awards Highlight the Academic Excellence of the Department of Plant Sciences

Dr. K. G. S. U. Ariyawansa and Dr. A. M. Wickramasuriya of the Department of Plant Sciences received Senate Commendation Awards for their outstanding research contributions. The awards were presented at the Annual Research Symposium of the University of Colombo on the 28th of September 2025, in the presence of the Vice-Chancellor, Professor Indika Mahesh Karunathilake. This recognition reflects the continued academic excellence of the Department of Plant Sciences and its significant contribution to advancing research and scholarly excellence at the University of Colombo.



Dr. A. M. Wickramasuriya, recipient of the Senate Commendation Award, in recognition of outstanding research contributions at the Annual Research Symposium 2025.



Dr. K. G. S. U. Ariyawansa, recipient of the Senate Commendation Award, in recognition of outstanding research contributions at the Annual Research Symposium 2025.



Senate Commendation Award recipients from the Faculty of Science, University of Colombo, recognised for academic excellence and research achievements at the Annual Research Symposium 2025.

AWARDS AND ACHIEVEMENTS

BEST PRESENTER AWARDS AT THE 45TH ANNUAL SESSIONS OF THE INSTITUTE OF BIOLOGY, SRI LANKA (IOBSL) – 2025

The 45th Annual Sessions of the Institute of Biology, Sri Lanka (IOBSL) were held on the 26th of September 2025, under the theme “Biological Innovation for Food Security and Sustainable Green Economy.” This flagship scientific forum brought together researchers, academics, and students to present original research and exchange knowledge across multiple biological science disciplines. The sessions featured peer-reviewed oral and poster presentations across four thematic tracks: Zoology and Environment Sciences; Plant Sciences and Agriculture; Molecular Biology and Biotechnology; and Microbiology and Chemical Biology.

At the conclusion of the Annual Sessions, certificates were awarded to student participants who demonstrated excellence in scientific communication. The following students received the Best Presenter Award in their respective tracks.



Mr. A. M. K. L. Abeykoon

Track: Plant Sciences and Agriculture

He presented the abstract titled ‘Morphological diversity and taxonomic resolution of Sri Lankan *Impatiens* (Family Balsaminaceae) with emphasis on evolution of floral characters,’ co-authored by Prof. H. S. Kathriarachchi and Dr. H. D. Jayasinghe

Ms. K. A. B. K. Wijeratne

Track: Plant Sciences and Agriculture

She presented the abstract titled “Comparative analysis of protein-protein interaction network modules responsible for Kranz and non-Kranz leaf development,’ co-authored by Prof. T. L. S. Tirimanne and Dr. P. C. Fernando



AWARDS AND ACHIEVEMENTS

Ms. S. A. Matharage

Track: Microbiology and Chemical Biology

She presented the e-poster titled as 'In silico analysis of virulence factors and secondary metabolite biosynthetic gene clusters in the plant pathogenic fungus *Rhizoctonia solani*' co-authored by Dr. K.G.S.U. Ariyawansa.



Inter-University Biology Quiz Competition 2025 – 2nd Runner Up



Award presented to **Mr. T.H.N. Malinda** at the Inauguration Ceremony of the 45th Annual Sessions of the Institute of Biology Sri Lanka, held on Thursday, 25th September 2025, at the Auditorium of the Center for Banking Studies, Rajagiriya, Kotte.

AWARDS AND ACHIEVEMENTS



RESEARCH AWARDS – SLAAS SECTION D

Ms. T. Hiruni Anjana was awarded the Life and Earth Sciences Gold Medal for securing the First Place under Section D of the Sri Lanka Association for the Advancement of Science (SLAAS). The award was presented at the Inaugural Ceremony of the 81st Annual Sessions of SLAAS, held on 7th December 2025, at the Lotus Hall, BMICH, Colombo, in recognition of her outstanding research contributions.

MEDICAL UNDERGRADUATE RESEARCH SYMPOSIUM 2025

The Certificate for the Best Oral Presentation under the session ‘Technology in Health and Education’ was awarded to the free paper titled “Development and Evaluation of Turmeric-Based UV-Sensitive Cards as an Affordable, Low-Cost, and Biodegradable Tool to Monitor Solar Water Disinfection Efficacy and Sunlight Exposure in Low-Resource Communities.”

The study was presented by Ms. W. D. H. Perera, Ms. M. K. M. Aluwihare, and Prof. C. M. Nanayakkara. The symposium was organized by the University of Sri Jayewardenepura.



AWARDS AND ACHIEVEMENTS

CONVOCATION AWARDS – GENERAL CONVOCATION 2025

The General Convocation of the University of Colombo was held on the 28th of August 2025, at the Bandaranaike Memorial International Conference Hall (BMICH) in the presence of the Vice Chancellor, Professor Indika Mahesh Karunathilake. Graduates from the Department of Plant Sciences received multiple gold medals in recognition of their outstanding academic performances:

Ms. Bhagya Wijeratne



Ms. Bhagya Wijeratne was awarded five gold medals including the Open university-wide award - the Canekeratne Prize for General Merit, Justin Samarasekera Award for the Most Outstanding Science Student of the year, University of Colombo Award for Academic Excellence in BSc (Hons) Bioinformatics, Gold Medal for Bioinformatics, and the Dr. Anil Jayasekera Memorial Gold Medal for Molecular Biology.

Ms. Gayashi Perera



Ms. Gayashi Perera received four gold medals including the University of Colombo Award for Academic Excellence in BSc (Hons) Plant Biotechnology, Dr. Swarna Senathirajah Memorial Prize for Genetics and Plant Breeding, Sir Nigel Ball Award for Plant Sciences, and the Professor R. L. C. Wijesundera Gold Medal for Plant Pathology and Microbiology.

AWARDS AND ACHIEVEMENTS

Ms. Amadhi Dassanayake



Ms. Amadhi Dassanayake received the Professor B. L. T. de Silva Memorial Award in Plant Sciences and the Professor R. L. C. Wijesundera Gold Medal for Plant Pathology and Microbiology.

Mr. Kosala Abeykoon



Mr. Kosala Abeykoon received the University of Colombo Award for Academic Excellence in BSc (Hons) Plant Sciences and the Professor B. A. Abeywickrema Award for Plant Sciences.

Ms. Samadhi Matharage



Ms. Samadhi Matharage was awarded the Dr. Ananda Samarakoon Memorial Gold Medal for Biostatistics.

AWARDS AND ACHIEVEMENTS

DEAN'S LIST AWARDEES

The following students were recognized for maintaining a First Class GPA across all four academic years, earning a place on the Dean's List for outstanding academic performance:



Ms. Maheshi Upeka



Mr. Savindu Weerathunga



Ms. Gayashi Perera



Ms. Samadhi Matharage



Ms. Bhagya Wijeratne



Ms. Amadhi Dassanayake

AWARDS AND ACHIEVEMENTS

PHD AND POSTGRADUATE SCHOLARSHIPS WON BY STUDENTS

Several students of the Department of Plant Sciences were awarded prestigious international scholarships for postgraduate studies:



Ms. Samadhi Perera - MSc in Applied Ecology and Conservation Biology, Frostburg State University, USA



Ms. Shehara Jayaweera - MSc in Applied Biosciences, Kyungpook National University, South Korea



Ms. N. A. D. Kavindhya Deshani - MSc in Applied Life Science, Crop Precision Breeding, Gyeongsang National University, South Korea



Ms. Hansini Bandara – MSc in Environmental Engineering Institute of Urban Environment, University of Chinese Academy of Sciences (UCAS). China

Exploring Plant Autophagy: Insights from a UOC Alumna at Iowa State

She is a First Class Honors graduate in Plant Biotechnology from the University of Colombo, with experience in academic research, university teaching, and science communication. She has also contributed as a science writer with a strong focus on plant sciences. Currently, she serves as the Vice President of the Sri Lankan Students' Association (SLSA) at Iowa State University. We present **Ms. Vishadinie** Jayasinghe, who shares her personal and academic journey while inspiring and encouraging youth in the scientific community.

Could you briefly describe your current research focus and what inspired you to pursue this topic?

My research centers on plant autophagy, a vital cellular recycling process, and its role in plant development and abiotic stress tolerance. I am investigating this pathway in two key model systems: *Arabidopsis thaliana* and maize. In *Arabidopsis*, I am looking at a fascinating cellular conversation which is the crosstalk between brassinosteroid signaling (which controls plant growth) and autophagy. Understanding this interaction is key to figuring out how plants balance their growth and their defense against stress conditions. In maize, my focus is on the role and regulation of autophagy during abiotic stress responses, particularly under heat and drought conditions.

I was inspired by the realization that understanding the role of autophagy in cellular homeostasis and survival could provide a key

solution to global food security amid escalating climate change. By uncovering how plants activate and regulate this "self-eating" process to survive harsh conditions, we can pave the way for developing climate-resilient crops capable of withstanding the unpredictable environments of the future.

What sparked your initial interest in science and research?

My initial interest in science has deep roots, starting at home and culminating in the lab. My fascination with science began as a child, thanks to my mother. She was a Teacher, and she had a unique way of explaining complex concepts like photosynthesis and plant development in simple and engaging terms. This early exposure, combined with growing up in a family of science nerds encouraged me to think scientifically and to look at nature with curiosity and wonder.

My interest quickly centered on plant biology when I started my bachelor's degree at the Faculty of Science, University of Colombo. I was curious on how plants sustain the entire planet and possess the incredible resilience to survive under diverse and challenging conditions.



RESEARCH SPOTLIGHT

The decisive moment to pursue a plant biology-related honors degree came during my second year of undergraduate studies in Sri Lanka. A course in Plant Molecular Biology and Recombinant DNA Technology offered by the Department of Plant Sciences, deeply fascinated me with its intricate concepts and solidified my interest in plant molecular biology.

This inspiration motivated me to pursue a PhD in Plant Biology. Today, I feel incredibly fortunate to be working in a plant molecular biology laboratory in the United States, where I study plant autophagy and stress tolerance and apply the very concepts and techniques I first encountered as an undergraduate.

What are the main goals or questions your research aims to answer?

The primary goal of my research is to apply fundamental molecular insights into plant autophagy to identify targets for crop engineering. This work aims to enhance abiotic stress tolerance and yield stability, thereby contributing to global food security.

How does your research contribute to solving real-world problems or advancing your field?

My research addresses the real-world challenge of enhancing crop resilience under climate change. By studying plant autophagy in detail, we are advancing the field of plant molecular biology by mapping the complex regulatory networks that govern cellular survival. In particular, characterizing the crosstalk between brassinosteroid signaling and autophagy provides fundamental insights into how plants balance growth and stress tolerance, generating knowledge that is broadly applicable. Most importantly, deciphering the function of autophagy in maize abiotic stress responses provides new molecular targets for breeders. The ultimate goal is to translate this foundational understanding into practical solutions such as developing maize varieties that can maintain high yields even under environmental pressures like heat stress and drought, thereby contributing to global food security.



Can you share one of the most exciting findings or breakthroughs from your work so far?

Although both of my projects on plant autophagy are still in progress, the most exciting breakthroughs so far have been the validation of our core hypotheses and the establishment of a strong foundation for future discoveries. For example, we have successfully generated the necessary genetic lines and collected compelling preliminary data that strongly supports our hypothesis. These early findings underscore the significance of our approach and provide confidence that we are on the path to identifying key molecular switches that could enhance stress resilience in major crops such as maize.

Who or what has been the biggest influence or inspiration in your scientific career?

When reflecting on the biggest influence on my scientific journey, I immediately think of the brilliant geneticist Barbara McClintock. Her groundbreaking work on maize genetics laid the foundation for modern molecular biology and continues to inspire my own research in plant biology. McClintock challenged the dogma of her time with the discovery of transposable elements, or ‘jumping genes,’ which demonstrated that the genome is not a static blueprint, but a dynamic, ever-changing entity. This revolutionary concept profoundly changed how we understand genetic instability and evolution in plants. Her dedication to meticulous observation and her courage to pursue a radically new idea even when facing

scepticism serves as a powerful reminder to all plant biologists to trust their data and embrace the complexity and fluidity of plant genomes as we work to improve crop resilience and yield.

Have you faced any major challenges or setbacks in your research journey, and how did you overcome them?

Like many researchers, I have faced my share of challenges and setbacks. The journey of PhD research is inherently demanding, often involving unpredictable results and experiments that don’t behave as expected, which can sometimes feel discouraging. Technical difficulties and inconsistent assay outcomes are all part of the process, yet they are essential stepping stones on the path to making meaningful progress in a PhD. I’ve learned that resilience, consistency, and being honest with my work are essential to moving forward, even when progress feels slow. My research journey is still very much in progress, and I haven’t overcome all the hurdles yet, but each challenge has helped me grow as a scientist and strengthened my commitment to the goals I’m working towards.





How do you stay updated with new developments or trends in your area of research?

I stay current with developments in my field through a combination of regular literature review and active engagement with the research community. I follow recent publications in leading plant biology and molecular biology journals, set alerts for new papers relevant to my research, and attend seminars, conferences, and webinars whenever possible.

I also stay connected with colleagues and collaborators, whose insights often help me catch emerging trends early. This combination of continuous learning and active scientific discussion allows me to stay current and continually refine the direction of my research. What advice would you give to young researchers who are just starting their careers?

My advice to young researchers is to stay curious, be patient with yourself, and embrace the learning curve. Research is full of

uncertainty, unexpected results, and moments that challenge your confidence. However, those experiences are part of what shapes you as a scientist. Focus on building strong fundamentals, ask questions without hesitation, and seek mentors who support your growth.

Consistency matters more than perfection, and resilience will carry you through the tougher phases. Most importantly, enjoy the process of discovery and remember that progress often comes from small steps taken steadily over time.

What do you enjoy most about being a scientist?

What I enjoy most is the constant sense of discovery. There is something incredibly fulfilling about uncovering small pieces of knowledge that help us better understand how living systems work. I love the curiosity-driven nature of the job, where each experiment opens the door to new questions and possibilities.

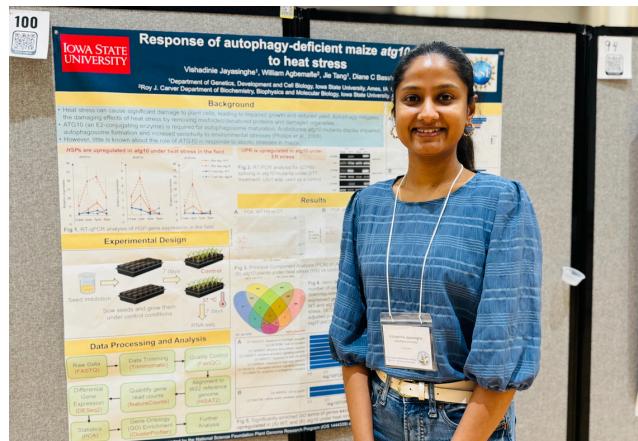
Beyond the science itself, I value the collaborative environment, the opportunities to learn from others, and the chance to contribute, even in small ways, to solving meaningful problems. It is a career that keeps me inspired and constantly growing.

Ultimately, knowing that my work contributes fundamental knowledge with the potential to address real-world challenges and advance our understanding of life makes every day in the lab both meaningful and truly exciting.

How do you balance your research life with personal interests and well-being?

Balancing research with personal well-being can be challenging, but I've learned that creating boundaries and making time for activities I enjoy is essential. As an international student living far from my family, having a strong support system has become really important. I feel truly blessed to have friends who genuinely care about me and support me when I'm going through difficult times. While a PhD often involves periods of intense focus, I make it a priority to maintain a routine that allows me to step away from the lab and recharge. This might include spending time with friends, pursuing hobbies, or simply taking a necessary break to preserve a healthy work-life balance.

I've found that maintaining this balance not only supports my mental and physical health but also helps me return to my research with more clarity and motivation. It's an ongoing process, but prioritizing well-being ultimately makes me a better and more focused scientist.

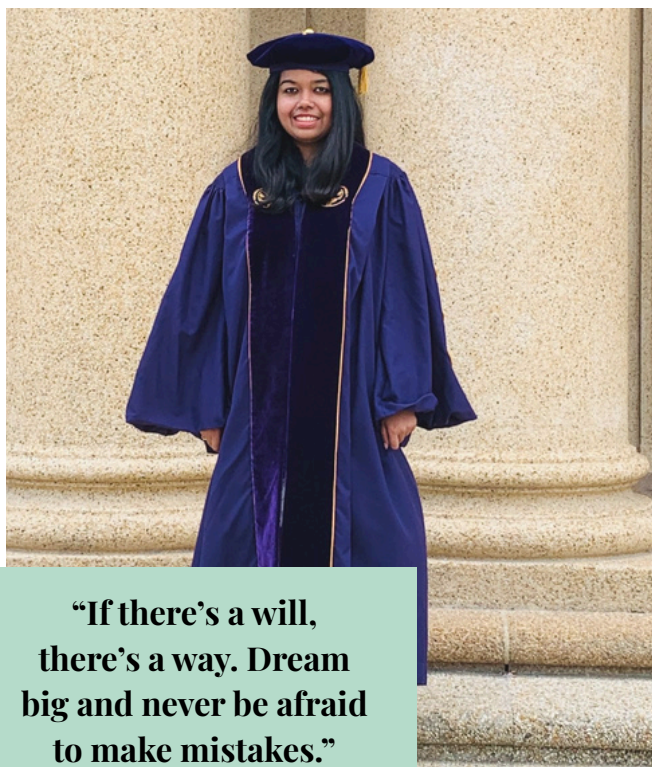


What are your future plans or next steps in your research journey?

My immediate future plans are centered on completing the core objectives of my current doctoral research and synthesizing my findings into meaningful scientific publications. Looking ahead, my next step is to pursue postdoctoral research where I can broaden my skill set and tackle complex questions in plant biology that have significant real-world impact. Ultimately, my long-term goal is to build an independent research career, whether in academia or industry, where I can lead a laboratory focused on fundamental discoveries and mentor the next generation of scientists. I also aim to contribute innovative solutions to the pressing challenges facing sustainable agriculture today.



From Colombo to Michigan: Dr. Hiruni Weerasooriya Champions Global Food Security through Molecular Plant Science



**“If there’s a will,
there’s a way. Dream
big and never be afraid
to make mistakes.”**

From the classrooms of the University of Colombo to the world-class laboratories of Michigan State University, Dr. Hiruni Weerasooriya has built an inspiring career at the intersection of plant molecular biology and food security.

Now a Postdoctoral Researcher funded by the Bill and Melinda Gates Foundation, she works on improving photosynthetic efficiency and crop performance to meet the demands of a growing global population.

In this exclusive conversation, Dr. Weerasooriya shares her academic journey, challenges, and advice for young botanists striving to make their mark in science.

How did your journey in plant science begin?

My interest in plants started in childhood and I

loved being around them. Entering the Biosciences degree at the University of Colombo and later being selected for the Plant Science special degree gave me the right platform to pursue that curiosity. The defining moment came during my final-year research project, where I experienced “real research” for the first time. I owe much of my direction to Prof. Anil Jayasekara and Dr. Iroja Caldera, who believed in my potential and encouraged me to pursue academia.

What inspired you to pursue your PhD abroad?

I wanted to understand plants at the molecular level. That led me to Louisiana State University, where I focused on plant molecular sciences.

My doctoral research involved exploring carbonic anhydrase enzymes linked to photosynthesis and testing whether overexpressing them could enhance crop yield. It was a challenging but rewarding experience that deepened my passion for molecular plant biology.

Could you describe your current research at Michigan State University?

My work focuses on photosynthesis and plant genetic manipulation. We identify and modify genes that can improve traits such as photosynthetic efficiency and stress tolerance.

Our goal is simply to make plants more productive and resilient, thereby addressing global food security. Traditional breeding alone cannot meet future demands, so genetic innovation is crucial.

How important is funding in advancing this kind of research?

Funding makes a tremendous difference. My project is supported by the Bill and Melinda Gates Foundation, which allows access to advanced infrastructure greenhouses with controlled CO₂ systems, high-tech molecular labs, and extensive field facilities.

This level of support accelerates progress and enables large-scale research with real-world impact. It's truly a blessing for scientists who want to make a difference.

What does a typical day in your research life look like?

My day usually begins around 9 a.m. and can stretch late into the evening. It's a mix of experiment planning, lab work, data analysis, and mentoring undergraduate students.

I try to maintain flexibility. Sometimes I take short breaks to read papers or reflect. Science can be intense, so maintaining curiosity and balance is key.

What were some of the hurdles you experienced in your undergraduate journey, and how did you go about them? Do you have any advice for current undergraduates?

To any undergraduate student reading this, I want to say, "If there is a will, there is a way". Whatever obstacles are thrown your way, you should have a sense of self-motivation that pushes you to find solutions. Another moment that resonated deeply with me was Dr. Jayasekara's frequent reminder to "dream big." I think I have made it a point to always envision shooting for the stars, knowing I will at least hit a tree branch. And finally, and perhaps most importantly, don't be scared to make mistakes. You will often find that you

learn the most in those situations. Sometimes I found myself in new situations and environments, and new things can be frightening and intimidating. In those moments, I want to tell students to have courage and confidence in their education and their potential. Feeling scared is definitely common; just approach it carefully, and everything you need to face it is already within you.


Many students struggle with stress. How do you unwind?

Stress is real in research. For me, hobbies are essential I love cooking, catching up on sleep, and doing social work. I also share Ph.D. opportunities with students and stay active in the Sri Lankan student association here in the US. Even small things like reading a book, talking to friends, or going out can help recharge your mind.

What message would you give to young botanists in Sri Lanka?

Dream big and believe in yourself. Mistakes are part of learning, so don't be afraid of them. The Department of Plant Sciences gives you a strong foundation that will help you succeed anywhere in the world.

Keep reading beyond your syllabus, stay curious, surround yourself with positive people, and never give up. I owe my success to the motivation and support I received from my lecturers at the University of Colombo. They built the foundation that carries me today.

 **"The Department of Plant Sciences provides a real and strong base, with that you can succeed anywhere in the world."**

BOTSOC CORNER

MATHAKA HANDAWA – A TALK BEYOND THE TEXTBOOKS

The fourth episode of the signature talk series, Mathaka Handawa, commenced on the 02nd of June with Professor Sudheera Ranwala. She shared her life experiences with the undergraduates and advised them to face life challenges with resilience. The session was filled with fun, laughter, and concluded in a uniquely heartwarming manner - with coffee and music.



FIRST-AID AWARENESS CAMP

BOTSOC conducted a first-aid awareness camp on 7th July in collaboration with the Sri Lankan Red Cross Society. This event provided BOTSOC members with essential training in emergency response, promoting safety and preparedness within the university community. There were several interesting exercises during the program. and the atmosphere was lively, filled with both knowledge and laughter.



PLANT IDENTIFICATION SESSION

The Botanical Society of the University of Colombo engaged in a field-based plant identification session at the Independent Square following a request from Rainforest Trust of Sri Lanka. It was a four-day workshop which commenced on 4th July, conducted in collaboration with level IV undergraduates of the BSc (Hons.) degree program in Plant Sciences. The primary goal of the session was to assist in documenting plant diversity within the area. The team successfully identified and compiled a comprehensive list of plant species, which was officially submitted to Rainforest Trust to support their ongoing conservation initiatives.



BOTSOC COLLABORATES IN NATURE TRAIL PROGRAM AT BEDDEGANA WETLAND PARK

BOTSOC was thrilled to collaborate in the Nature Trail Program at Beddegana Wetland Park on 22.11.2025, organized by the Centre for Planetary Health - (CePH), Faculty of Medicine, University Of Colombo, together with dedicated volunteers from the University of Colombo and the University of Jayawardenapura. Students from Thammannapura Central College, Anuradhapura, joined the event along with peers from Colombo. This inspiring day allowed the to students connect deeply with nature, appreciate the value of wetland ecosystems, and to showcase their creativity through interactive sessions that transformed plastic waste into meaningful creations.



BOTSOC CORNER

ANNUAL GENERAL MEETING (2025)

The annual general meeting of BOTSOC was held on 1st August, where the executive committee of 24/25 stepped down from their duties and the new board of officials was appointed. The outgoing committee was appreciated for their genuine efforts to keep BOTSOC traditions while introducing new and exciting programs. The new executive committee will be taking the legacy of this decades-old society to another step forward by following the example of their previous generations.



BOTANICAL SOCIETY OF UNIVERSITY OF COLOMBO



BOTANICAL SOCIETY OF UNIVERSITY OF COLOMBO



THE KILLER WILL COUNT TO TWO

The plant kingdom is full of quiet marvels, and few are as striking as the Venus flytrap (*Dionaea muscipula*). Native to the coastal bogs and savannas of North and South Carolina, this carnivorous plant has evolved a hunting strategy so precise that it rivals animal behavior. What appear to be simple leaves are, in fact, highly specialized bilobed traps. Each trap is lined with mechano-sensitive trigger hairs and a dense array of glands. Together, they form a sophisticated capture system designed not for chance, but for certainty.

The Venus flytrap earns its place in the food chain through a carefully calibrated sequence of events. Insects are first lured by a fruity blend of volatile compounds. Drawn by the scent, an unsuspecting visitor lands on the open trap. When a trigger hair is bent, the mechanical stimulus is converted into an electrical signal, an action potential. However, one signal alone is not enough. The plant operates on what scientists call the “two-touch rule.” Only when two action potentials occur within 15–20 seconds of each other do the trap lobes snap shut. This extra step is not hesitation; it is efficiency. Closing the trap requires energy, and the plant avoids wasting it on false alarms.

Each touch to a trigger hair sends a wave of calcium ions across the trap. A single wave quickly dissipates, and calcium levels return to normal. If a second wave follows within seconds, the cumulative signal reaches a threshold, and the trap closes. This mechanism effectively filters out harmless stimuli such as raindrops, which are unlikely to strike the same spot twice in quick succession.

Once the trap is closed, the process is still not complete. If the insect continues to struggle, repeated mechanical stimulation causes the lobes to seal tightly, forming a temporary stomach. Research shows that the plant begins secreting digestive acids and enzymes only after at least five additional touches. If movement stops indicating debris rather than prey no enzymes are released, conserving valuable resources. When digestion does proceed, the trapped insect is broken down and absorbed, providing essential nutrients in the nutrient-poor soils where the plant lives.

The Venus flytrap is a compelling reminder that plants, though silent and rooted, are far from passive. Through electrical signals, chemical gradients, and finely tuned decision-making, this remarkable species challenges our tendency to underestimate plant intelligence and invites us to look more closely at the hidden strategies of the natural world.



Dionaea muscipula (Curtis illustration) - A hand-coloured engraving of *Dionaea muscipula* by Sydenham Edwards, taken from Curtis's Botanical Magazine (1804).

By: Sedara Kalu Arachchi
2nd year

The Sunflower Code: Unlocking the Fibonacci Secrets Hidden in Nature's Golden Spiral

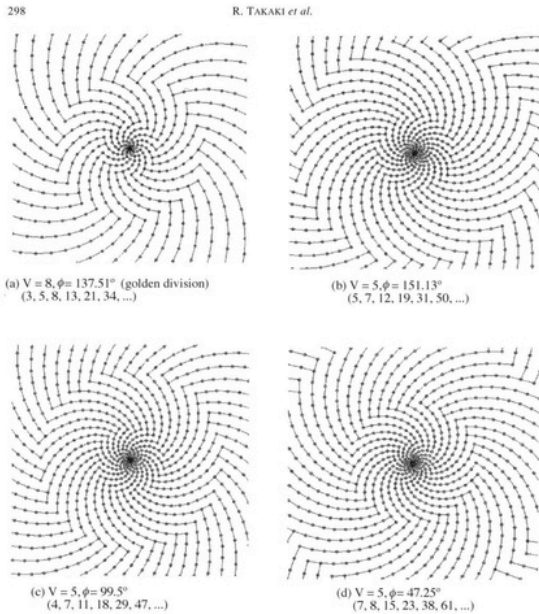


Fig. 2. Results of point arrangements and spiral formations. Numbers of spirals are given in parentheses arranged from inner to outer layers.

The sunflower (*Helianthus annuus*) is widely admired for its symmetry and visual appeal, but beneath its golden bloom lies a remarkable mathematical design. The arrangement of seeds in the sunflower head provides one of the most elegant examples of Fibonacci phyllotaxis, where plant structures follow the Fibonacci sequence and the golden ratio to achieve optimal growth and resource allocation.

The Geometry of the Sunflower Head

A sunflower's "flower" is actually an inflorescence called a capitulum, composed of hundreds or even thousands of tightly packed florets. These florets are arranged in interlocking spirals radiating outward from the center. Careful observation reveals that the number of spirals rotating in opposite directions often correspond to consecutive Fibonacci numbers—pairs such as 34 and 55, 55 and 89, or 89 and 144.

This structured arrangement arises from each floret forming at a precise angle relative to the previous one: the golden angle, approximately 137.5° . Derived from the golden ratio ($\phi \approx 1.618$), the golden angle is an irrational number that prevents alignment or overlap of florets. As a result, each new floret occupies the least crowded space available, maximizing coverage and symmetry.

Phyllotaxis: The Developmental Blueprint

The emergence of Fibonacci patterns in sunflowers is governed by phyllotaxis, the rules controlling how new plant organs form at the shoot apical meristem. A key player in this process is the plant hormone auxin. Auxin accumulates in localized peaks, marking the sites where new florets or leaves will initiate. As the capitulum expands, the pattern of auxin maxima continues to place new florets at the golden angle.

This developmental mechanism is self-organizing. A constant divergence angle, combined with inhibitory fields produced by existing florets and a uniformly expanding meristem, naturally generates Fibonacci spirals without requiring the Fibonacci sequence itself to be genetically encoded.



Why Fibonacci Patterns Matter?

The sunflower's spiral arrangement is not merely decorative; it offers significant functional advantages:

- **Efficient space filling:** The golden-angle arrangement minimizes gaps, enabling the densest possible packing of florets.
- **Energy conservation:** Efficient packing reduces wasted energy during development.
- **Even stress distribution:** Spirals balance mechanical forces, preventing structural weakness.
- **Optimized nutrient flow:** The arrangement supports efficient transport within the capitulum.
- **Enhanced reproductive success:** More florets in a compact space mean more seeds and greater reproductive output.

Thus, the sunflower exemplifies how evolution molds biological structures for both function and beauty.

References

1. Takaki, R., & Ogiso, Y. (2004). Simulations of Sunflower Spirals and Fibonacci Numbers. *FORMA*, 19(4), 295–305. <https://forma.katachi.jp/pdf/1804/18040295.pdf>
2. Swinton, J., & Ochu, E. (2016). Novel Fibonacci and non-Fibonacci structure in the sunflower: Results of a citizen science experiment. *Royal Society Open Science*, 3(5), Article 160091. <https://doi.org/10.1098/rsos.160091>
3. Mathai, A. M. (1974). Constructing the sunflower head. *Journal of Mathematical Biology*, 1(1), 117–123. [https://doi.org/10.1016/0025-5564\(74\)90072-8](https://doi.org/10.1016/0025-5564(74)90072-8)

By : Yasodya Yethmini
2nd Year



STUDENT CORNER



“A living architecture of branches and leaves—nature’s own fractal design.”

R.M.S.P.Rathnayaka
2nd Year

“Beginning of a New Life”

D.T.K. Dinapoorna
1st year



“Golden Pollen”

Yusra Thahir
2nd Year
(Cover Photo)

Editorial

Cover Page

Sanshala Jayamini, Nishen Malinda

News and Highlights

Deema Edirisinghe, Bhagya Wijeratne

Research Spotlight

Ashimi Rathmalgoda, Gayashi Perera

Inspirational Dialogue

Dinili Gunasena, Kosala Abeykoon

Student Corner

Deshani Purnima, Keshari Koralage

BotSoc Corner

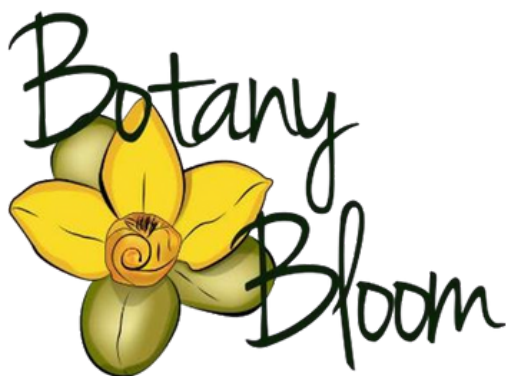
Nisal Ranaweera, Oshadi Wijekoon

Editing

Savindu Weerathunga, Amadhi
Dassanayake, Senara Nisansa

Designing

Nethmi Mishara, Hiruni Hansima, Maheshi
Upeka, Samadhi Matharage



- Nethmi Mishara

Publication Note: Some of the photographs used in this publication are sourced from the official albums of FOS MEDIA, the official media unit of the Faculty of Science, University of Colombo.

This newsletter is for general information purposes only. The Department of Plant Sciences assumes no responsibility for the accuracy, completeness, or adequacy of the contents of the newsletter and disclaims liability for errors and omissions in the content. Any views and/or opinions expressed belong to the author and do not necessarily represent those of the Department.

Department of Plant Sciences, Faculty of Science, University of Colombo, Colombo 03, Sri Lanka

Contact: +94 112 585 038 Email: office@pts.cmb.ac.lk Web: <https://science.cmb.ac.lk/plant-sciences>