



Scottish Church College

*Department of Botany presents...*

# *Gloriosa*



*2020-2021*

# **Gloriosa**

**Volume: III**

**Issue: 2020-2021**



**ESTD. 1830**



## Preface

**Dear Readers,**

Gloriosa has been a part of Botany department, Scottish Church College since almost 15 years. The third volume of Gloriosa (2022) is a compendium of development, scientific growth and extracurricular achievements of the department and its students. The volume summarizes the impact of pandemic phase that has converted inconvenience into new opportunities for the students in terms of learning as well as novel scientific and academic ventures. Departmental faculties and student members of the editorial board are grateful to the Principal for encouraging and supporting the publication of the current volume. The alumni members of the department are assets of Gloriosa and have shared remarkable memories of college life those continue to inspire newcomers. Finally we are grateful to the readers and admirers of Gloriosa for making this a special endeavour to make a mosaic of memories, achievements and advancement of our department amidst the current odds.

### **The Editorial Team**

Dr. Amitava Roy

Dr. Shampa Bhattacharyya

Dr. Rajyasri Ghosh

Dr. Srijita Ghosh

Dr. Nilanjan Chakraborty

Dr. Satabdi Ghosh

Dr. Biplab Kumar Bhowmick

Ms. Camellia Nandi

### **Student members:**

Shrinati Ghosh

Anindya Shankar Nandi

Gaurab Sinha

Ferdinand Joseph

Joyeeta Das

Aneesha Celina Matthew

Arghaya Kamal Dasgupta



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# Forward

**Scottish Church College**  
College with Potential for Excellence (UGC)



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I have great pleasure in extending my best wishes and appreciations for the publication of the magazine *Gloriosa* by the teachers and students of the Botany Department of this college. The current issue is a commendable effort by the department to bring together activities and achievements of students and teachers.

I am happy and excited to affirm various educational and innovative endeavours of the teachers and students which will surely enable significant opportunity to study plant world in coming years.

I wish *Gloriosa* to prosper and encourage budding botanists of this college.

**Dr. Swapan Kumar Mukhuty**  
Secretary  
Scottish Church College Council.

*Nec Tamen Consumeatur – The bush burns, but is not consumed*



## Message from the Principal



Madhumanjari Mandal

**Gloriosa** has been the tradition of Department of Botany since its first volume in 2010. Being from the same department, I can deeply relate to the excitement of having put down unforgettable moments and other important achievements of the department in form of this magazine. The department has witnessed hard times during global pandemic and online mode of teaching learning and still has taken best possible efforts to maintain its academic tradition and student- teacher relationships on a practical ground. With the opening of physical classrooms, we all are delighted to observe the bright faces of our beloved pupils joining the campus from various places of India.

The magazine summarizes activities, student profiles, green audits and also caters to the feeling of alumni, creative spirit of existing students and their scientific endeavors. I believe that **Gloriosa** would continue to inspire forthcoming generations in Botany department, Scottish Church College, to take up organized activities and academic challenges to attain higher limits of knowledge in near future.

I congratulate students, teachers and non-teaching staffs who have been part of this very significant publication of **Gloriosa 2022**.

Best wishes,

**Principal**

**(Dr. Madhumanjari Mandal)**

## Message from the desk of Vice Principal



Supratim Das

**Dr. Supratim Das,  
Vice Principal**

A departmental magazine is essentially interactive and calls upon the attention of readers. I feel happy that the students of Botany Department of our college are launching *Gloriosa* 2022 in the post- Covid-19 period. Let many more flowers bloom. I most cordially congratulate the students and wish all the best.

## Message from the IQAC Coordinator



**Dr. Samrat  
Bhattacharjee,  
IQAC Coordinator**

It is indeed a delight to know that Department of Botany is re-editing *Gloriosa* as the recurrent departmental magazine. I feel extremely proud of the department for taking up this noble initiative for the students. This will give the students a platform to express their views on the recent development in the field of plant sciences, share memories in department, jot down scientific activities and also cater to the newcomers of the department who were locked up at homes during the pandemic period.

The department has always given such opportunity by encouraging the students to give seminar talks and participate in conferences. I thank all the faculty members and the students of the department of Botany for taking up this initiative and wish them all the best in their endeavour.

## Message from the Head, Dept. of Botany

It is a great pleasure for me to launch another edition of Gloriosa in 2022. After a devastating spell of Corona virus and practice of online teaching for nearly two years, the department has started its learning and evaluation process in physical mode. Also, the students have again joined the department and started academic activities in offline mode. Gloriosa is a collective effort of the students and teachers of the department depicting the activities like creative writing, photography, participation in symposia and conferences. It presents departmental results, extension activities, alumni notes, joys of excursion, memories and so on.

I would like to congratulate all the students and non-teaching staffs and faculties who worked to give it a beautiful shape and publish the same.

Best Wishes,

Head, Dept. of Botany (Dr. Amitava Roy)





## ABOUT THE DEPARTMENT

According to UN Climate Change News, 2021, significant progress has been made at COP26 in both reducing the impact of climate change on the agriculture sector and lowering the sector's contribution to global warming. In order to meet the challenges, the modern research on plant biology and the traditional knowledge of '**botany**' becomes inevitable.

In the botany department of our college, faculties continuously imbibe a teaching- learning ambience for the students with an objective to flourish knowledge and its utilization. After inception of a Biology Department in 1881, Biology course was offered to Pass course students till 1960, with Botany and Zoology. The Honours course in Botany commenced in 1964, having its first batch of students passing out in 1967. In 2005, University of Calcutta granted affiliation to start M.Sc. course in Botany. At present the department runs PG courses under University of Calcutta CBCC system since 2018.

The department aims to consciously expand teaching program in the traditional as well as advanced areas of Botany and create active learning environment.

The department strives for a learning and research environment in Plant sciences and equips students with skills for contemporary society. We strive to inspire students for eco friendly approaches to make a better world for tomorrow.

At present, the department proudly hosts a 'Sophisticated Instrument Centre', funded by BOOST Grant, Government of West Bengal, where highly relevant instruments like fluorescence microscope, lyophilizer, gel documentation system, PCR, laminar air flow cabinets are organized for students and scholars of the department. The department has scientific aspirations and gladly welcomes PhD programme since 2019, under the guidance of Dr. Nilanjan Chakraborty. Besides, faculties are engaged with scientific writings and research works independently or in collaboration, which is evident from publications (more than 45 articles between 2016-2021) in international and national journals and participation in international and national conferences.

Our vision is to frame an integrative teaching, learning and research based unit that promotes Botany and is open for future collaborative projects with other departments and institutes.

## The Botany Family

### Faculties:

Dr. Shampa Bhattacharyya, specialized in Mycology and Plant Pathology  
Dr. Amitava Roy [Head], specialized in Plant Biotechnology and Cytology  
Dr. Rajyasri Ghosh, specialized in Mycology and Plant Pathology  
Dr. Srijita Ghosh, specialized in Physiology, Biochemistry and Molecular Biology  
Dr. Nilanjan Chakraborty, specialized in Mycology and Plant Pathology  
Dr. Satabdi Ghosh, specialized in Plant Physiology, Biochemistry and Molecular Biology  
Dr. Biplab Kumar Bhowmick, specialized in Plant Cytogenetics  
Ms. Camellia Nandi, specialized in Phycology and Algal Biotechnology



Faculties during Canopy meet



Faculties during inauguration of Academic Enrichment Centre, BOOST, GOI, 2019

### Our friends in the non-teaching area:

#### UG

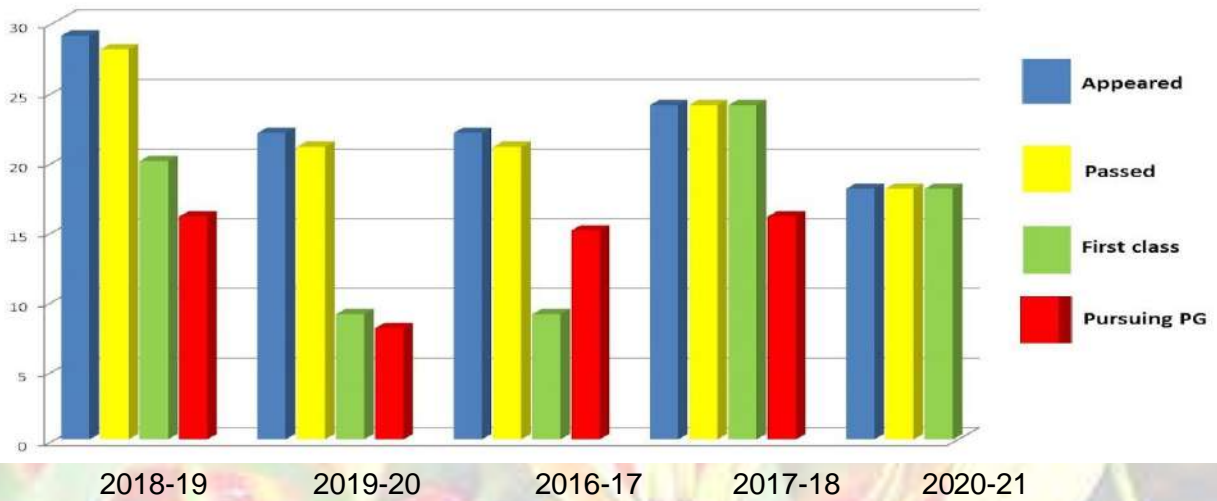
Sri. Ravinder Prasad  
Sri. Mihir Mondal  
Sri. Manoj Prasad

#### PG

Sri. Madhai Chandra Das  
Sri. Swapan Kr. Biswas  
Sri. Rajib Majumder



## Results and Achievements UG:





### 1. First class first in University of Calcutta:

**2016-2017**





**Nupur Bhattacharyya**  
(Final score: 83%)

**2017-2018**

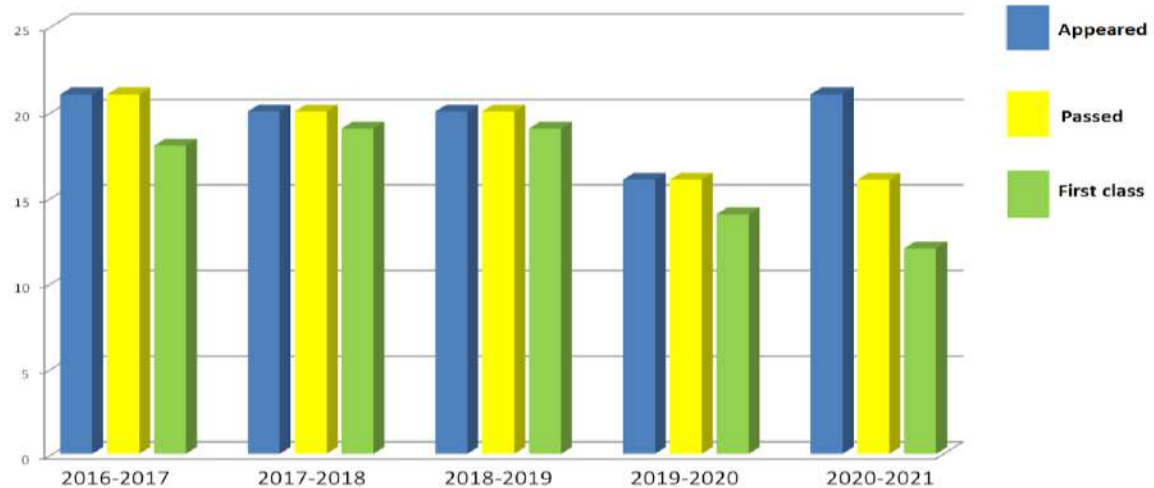
**Saswata Ray**  
(Final score: 82%)

**2019-2020**



**Debatri Deewanjee**  
(Final Score: 89.38%)  
, certificate to be issued from Calcutta University

## PG:



## FROM THE DEPARTMENT OF BOTANY ALUMNI SPEAK

### Reminiscence

“Botany Department of Scottish Church College” – just by hearing these words bring back a wave of sweet memories of my MSc. days. Those 2 years journey will always be one of the most amazing experiences of my life, especially when it comes to the excursion. It was a 10 days trip to Lucknow, Ramnagar (Jim Corbett) and Nainital. The moment I was about to step out of my house I got to know that our train had been delayed by few hours. I still remember all of us gathering in front of the big clock at Howrah station in anticipation and excitement for the most memorable journey of our life. Ramnagar was the most amazing part of the journey. In the early morning we went for the Jim Corbett tiger safari in the allotted jeeps. We entered into the national park and set our eyes on the birds and other wild animals. The core area was surrounded with tall trees, grasslands and marshy lands. We were captivated by the beauty of the natural surroundings, when suddenly we spotted a fawn coming in front of our jeep while crossing the path, followed by the mother. On the halfway we halted at a watch tower but unfortunately, got to see everything apart from any tiger. The safari ended with the visit to the Corbett Museum. Yet after all these years, this journey holds a very special place in my heart. I will always cherish these thrilling moments in my life.



—SHALINI DAS, M.Sc. 2017-2019





## College Memories and Emotions

While recollecting my Master's degree days and jotting down my journey at the prestigious institute, I feel very nostalgic and wish to go back to those days, which I know is indeed impossible. I am grateful to my teachers who guided me thoroughly and acted as catalysts for the next step of my career. The interactive environment that our teachers created during theoretical and practical classes literally pushed me and before I could realize, I loved preparing my lessons regularly (which was quite rare for me initially). The ambience of the department taught me the culture of discipline, punctuality, the habit of regular study and healthy competitive nature.

Besides being the foundation of my academics, the Botany department has gifted me with my closest friends. Going down the memory lane, we spent amazing time discussing chapters, completing practicals, chatting about funny events and what not. My wonderful group of friends was motivating, kind, helpful, funny and moreover, we are very lucky to still be in touch. We made our share of fun memories during our excursion to Sandakphu, winter picnics, reunion, and farewell. The most memorable occasion of my life was the convocation ceremony. It was indeed a very special moment for my family to see me collect my degree. To receive The Alexander Duff medal was a huge achievement and an unforgettable moment for me. I owe my gold medal to my teachers, my department. My Master's degree days have been one of the major segments of my life that has shaped me and ignited my passion of pursuing research. My college days definitely bring back good times and inspire me to do better in life.

Oh, those college days! The good old days!



**Convocation Ceremony photograph:** receiving The Alexander Duff Gold Medal  
Sejuty Mondal (Batch: 2015-2017)

Current designation: DST-INSPIRE Fellow, Department of Botany, University of Calcutta



Canopy 2016



*Reunion  
Glimpses*





Departmental excursion to Sandakphu (2016)

## From Department to Nature

In our second year of B.Sc. Course, excursion had been a part of our learning experience for Taxonomy. On 3 October, 2018 we started our journey to North Bengal. The long excursion aimed at the detailed study of the vegetation of the places visited and lasted for 6 days. Our group comprised 20 students, 3 teachers (Dr. Rajyasri Ghosh, Dr. Satabdi Ghosh and Dr. Biplab Kumar Bhowmick) and 6 members of the travel agency.

At first, we went to visit Rishop, a small village and hill station in the Kalimpong district of West Bengal. Rishop is located at an altitude of 2591m above sea level and has a temperature of 4°C. It is a nice quaint place away from the city with picturesque views of snow capped mountains. There we explored not only angiosperms like *Fuchsia* (Dancing Doll) and *Calceolaria gracilis* (Lady's pouch), but also various gymnosperms like *Pinus roxburghii*, *Cryptomeria japonica*, different ferns like *Cyathea* (tree fern), pteridophytes like *Equisetum arvense*, *Selaginella kraussiana*; bryophytes like *Funaria hygrometrica* and *Anthoceros himalayensis*, and fungi (*Polyporus* sp.); some of which were even endangered.

After staying in Rishop for 2 days we went to our next destination that is Lolegaon via Lava. We visited Lava monastery where we did our quadrat study i.e., determining the floristic composition of a particular area, in a nearby field at Lava monastery. Lolegaon is situated at an altitude of 1675m above sea level and has a temperature of 10°C. We went for a short trek after reaching Lolegaon and explored the area's flora. The next day we set out for Delo, where we saw a variety of plants with aesthetic appeal.

The excursion had been extremely informative as well as a trip that will always be cherished. We collected a lot of specimens which will be preserved or made into herbariums for further study. It had been a wonderful experience, the teachers helped us and guided us in every possible way and made this excursion a fond memory.

**Dipanwita Hazra**

**BSc Part II (2018-19)**

**Currently PG Semester III**





Long Excursion to North Bengal



Semester III PG students at CNH, 2019



PG Semester II Excursion 2017 to Kaziranga National Park, Nameri, Bhalukpong and IIT Guwahati



PG SEM III Excursion to Old silk route, Sikkim, Sillery Gaon, Lingtam, 2019

## Journey Around My World

Career of every person settles down after a conflict between their 'Passion and Profession'. I am among those rarest ones who try to carry and maintain both my passion and profession at an equal pace. Studying and understanding Science, following my passion is a place of self satisfaction and happiness which completes me and provides me the oxygen for living. Besides, these activities have provided sufficient opportunities for my personality and skill development. Belonging from a small, backward town of the North Eastern Region, I never had many options and opportunities but always tried to hold on to my place of interest. Listing some of my passionate works as under –

- **Dance** – I have been learning dance since the age of 4 and am Visharad in Kathak, Rabindra Nritya and Folk. This earned me lots of awards and recognitions. On moving to Kolkata, a city of cultural excellence, I had the opportunity to learn Odissi from Dona Ganguly Ma'am directly and performed in various government programs at Nazrul Mancha, Behala etc. in front of the Chief Minister of West Bengal, other dignitaries and Bollywood celebrities. I have participated in the various programs conducted at the college premises and could also fetch the 2<sup>nd</sup> prize in an Inter-College Dance Competition organized by St. Paul's Cathedral College, Kolkata.



- **Art and Craft** – I have never learnt art and craft, but always found it fascinating since childhood and the lockdown during Covid-19 pandemic provided me ample time to contribute to this. Miniature crafts, lampshades from waste materials, mandala art, wall paintings, glass paintings etc. are in my stock now. Recently my handcrafted jewelry also reached many people.

- **Anchoring** – After the school days, with the guidance of my mentor and guide, I got the opportunity to host more than 20 grand programs till date which includes several government programs as well. My biggest achievement in this field was working as an anchor for a Swachh Bharat Program on Doordarshan.
- **Fashion and Ramp Show** –I participated in one show only and ended up as the title winner of Mr. & Miss Calendar 2019.
- **Social Service** – While doing all these, I felt the necessity of helping the people in and around us who are in genuine need. When I returned to my hometown due to the lockdown, I joined Leo Club, youth wing of Lions Clubs International (the largest service organization in the world) as the Charter President (Founder President) of Leo Club of Silchar Greater, youth wing of Lions Club of Silchar Greater, in the year 2020 and within a tenure of one year, we could carry out 126 service activities, serving around 30,000 beneficiaries. As the pandemic was creating havoc throughout the world, we carried out several awareness programs on Covid-19, visited interior rural areas, carried out vaccination drives. During this period, we had a severe crisis of blood for other patients and had arranged several donors on a daily basis. I have also donated blood for severe patients. Moreover, we stood with the day labourers, shopkeepers etc. who lost their minimal income due to the lockdown. We provided them with food, ration, necessary groceries etc. on a regular basis. I was recognized for my work and hence promoted to Zone Chairperson of Leo District 322G, leading 5 clubs in service and self-development activities.

Rather than trying very hard to become extraordinary in a particular field, I shall always choose to live a balanced life maintaining all my extracurriculars and I believe that this characteristic of mine will help and guide me to become extraordinary than the rest some day.



Crafts by **Debosmita Biswas** [MSc (2019-2021)]



## THE GREEN AUDIT

The department has been maintaining the medicinal plant garden since a long time. The current revision of the plant names, status of the plants are conducted by the EcoClub Members as follows:

### Members:

### Faculties:

Dr. Amitava Roy  
Dr. Nilanjan Chakraborty  
Dr. Satabdi Ghosh  
Dr. Srijita Ghosh  
Dr. Biplab Kumar Bhowmick

### Students:

Joyeeta Das  
Aneesha Celina Mathew  
Gaurab Sinha  
Anindya Shankar Nandi  
Ferdinand Joseph

### MEDICINAL PLANT GARDEN



*Terminalia chebula*



*Terminalia bellerica*



*Emblica officinalis*



*Stevia rebaudiana*



*Holarrhena antidysenterica*



*Rauwolfia serpentina*

## MEDICINAL PLANT GARDEN, Maintained by DEPARTMENT OF BOTANY, Scottish Church College

SL. no.	Species name & Family	Vernacular name	Image	Medicinal Importance	SL. no.	Species name & Family	Vernacular name	Image	Medicinal Importance
1	<i>Ocimum sanctum</i> L. Labiatae	Tulsi		Helps to reduce cold and congestion in the chest.	17	<i>Jatropha podagrica</i> Hook. Euphorbiaceae	Buddha Belly Plant		Used in treating gout. Roots have antibacterial properties.
2	<i>Ocimum gratissimum</i> L. Labiatae	Ram Tulsi		Used in African traditional medicine as a remedy for indigestion.	18	<i>Cinnamomum verum</i> J. Presl (syn. <i>Cinnamomum zeylanicum</i> Blume) Lauraceae	Cinnamon		Bark cleanses urinary bladder; urinary retention and dysuria. Relieves microbial infestation in bladder, lungs and heart.
3	<i>Ocimum americanum</i> L. Labiatae	Kana Tulsi		Used for various medicinal purposes as flavouring agent, diuretic and tonic for cough.	19	<i>Cinnamomum camphora</i> (L.) J. Presl Lauraceae	Camphor		Used for inflammation-related diseases, rheumatic arthritis, abdominal pain, cough and bronchitis.
4	<i>Ocimum kilimandscharicum</i> Gurke Labiatae	Kapur Tulsi		Used for colds, coughs, abdominal pains, measles, diarrhoea, insect repellent, particularly against mosquitoes and pest control.	20	<i>Cymbopogon citratus</i> (DC.) Stapf Poaceae	Lemon Grass		Used for anti-amoebic, antibacterial, antidiarrheal, antiparasitic, antifungal properties.
5	<i>Pimenta dioica</i> (L.) Merr. Myrtaceae	Allspice		Used for the treatment of menopause.	21	<i>Curcuma caesia</i> Roxb. Zingiberaceae	Black Turmeric		Fresh and dried rhizomes used in treating leucoderma, asthma, tumours, piles, bronchitis, bruises etc.
6	<i>Magnolia champaca</i> (L.) Baill. ex Piene (syn. <i>Michelia champaca</i> L.) Magnoliaceae	Champa		Used to treat diarrhoea, cough, bronchitis, hypertension, dyspepsia, fever, rheumatism, abscesses and inflammation.	22	<i>Podocarpus macrophyllus</i> (Thunb.) Sweet Podocarpaceae	Podocarpus		Used in the treatment of fevers, asthma, coughs, cholera, distemper, chest complaints and venereal diseases.
7	<i>Anisomeles indica</i> (L.) Kuntze (syn. <i>Anisomeles ovata</i> ) Labiatae	Catmint		Used as an analgesic, anti-inflammatory and in skin problems such as snakebites.	23	<i>Coffea arabica</i> L. Rubiaceae	Coffee		Used for treatment of oxidative stress-induced pathologies (e.g. premature skin aging, dermatoses).
8	<i>Cheilocostus speciosus</i> (J. Hoening) C. B. S. Pech (syn. <i>Costus speciosus</i> ) Costaceae	Crepe Ginger		Used to treat colds, pneumonia, and rheumatism.	24	<i>Kalanchoe pinnata</i> (Lam.) Pers. Crassulaceae	Pathorkuchi		Used in folk medicine for the treatment of kidney stones, gastric ulcer, pulmonary infection, rheumatoid arthritis etc.
9	<i>Polyalthia pendula</i> Capuron ex G.E. Schatz & Le Thomas Annonaceae	Debdaru		Used for neurological disorders and epilepsy and fights against gastrointestinal disease.	25	<i>Hippeastrum reginae</i> (L.) Herb. Amaryllidaceae	Hippeastrum Lily		Used against Huntington's disease.
10	<i>Bauhinia acuminata</i> L. Leguminosae	Shwet Kanchan		Used as medication for throat infections.	26	<i>Hemidesmus indicus</i> (L.) R. Br. ex Schult. Apocynaceae	Anantamool		Helps in clearing infections, used against gonorrhoea, leucorrhoea etc.
11	<i>Phyllanthus emblica</i> L. (syn. <i>Embilca officinalis</i> Gaertn.) Phyllanthaceae	Amla		Dietary source of vitamin C, amino acids, and minerals. Used both as a medicine and as a tonic to build up lost vigour.	27	<i>Terminalia chebula</i> Retz. Combretaceae	Haritaki		Used for treating indigestion, gastritis, lung disease, obesity, cough, cold, asthma, vision defects, urinary tract infections.
12	<i>Tylophora asthmatica</i> (L. f.) Wight & Arn. Apocynaceae	Ontomul		Traditional remedy for respiratory disorders.	28	<i>Terminalia bellirica</i> (Gaertn.) Roxb. Combretaceae	Bahera		It is a herb of triphala. It is laxative in nature and used in purgation therapy.
13	<i>Piper betel</i> L. (syn. <i>Piper betel</i> Blanco) Piperaceae	Paan		Used for the treatment of dysentery, fever, gastritis, rheumatism and leucorrhoea.	29	<i>Cassia fistula</i> L. Leguminosae	Golden Shower		Used as a laxative and is very useful for the treatment of constipation, liver disorders.
14	<i>Nephrolepis exaltata</i> (L.) Schott Nephrolepidaceae	Fern		Herbal mask, can also protect the respiratory tract.	30	<i>Atalantia racemosa</i> Wight ex Hook. Rutaceae			Leaves juice used in making medicines for bronchitis, nervous system diseases, chest pains, and catarrh respiratory complaints.
15	<i>Asparagus densiflorus</i> (Kunth) Jessop. Asparagaceae	Satamuli		Used for dyspepsia, constipation, stomach spasms, and stomach ulcers. Used for fluid retention, pain, anxiety, diarrhoea.	31	<i>Glycosmis pentaphylla</i> (Retz.) DC. Rutaceae	Ban Nimbu		Extracts of the root bark have shown to exhibit significant activity in the treatment of diarrhoea.
16	<i>Asparagus racemosus</i> Willd. Asparagaceae	Satamuli		Used in African traditional medicine as a remedy for indigestion.	32	<i>Araucaria columnaris</i> (G. Forst.) Hook. Araucariaceae	Christmas tree		Used as anti-inflammatory, antiulcer.

## MEDICINAL PLANT GARDEN, Maintained by DEPARTMENT OF BOTANY, Scottish Church College

33	<i>Rauwolfia serpentina</i> (L.) Benth. ex Kurz Apocynaceae	Sarpagandha		Used for the treatment of Schizophrenia, as a sedative and tranquilizer.	49	<i>Tiliacora acuminata</i> (Lamk.) Miers. Menispermaceae	Kele Lota		Used as an antidote for snake bite (leaf and root paste)
34	<i>Syzygium aqueum</i> (Burm.f.) Alston. Myrtaceae	Jamrul		Used in folk medicine.	50	<i>Alpinia galanga</i> (L.) Willd. Zingiberaceae	Galangal		Useful in flatulence, dyspepsia, vomiting.
35	<i>Elaeocarpus ganitrus</i> Roxb. ex G.Don Elaeocarpaceae	Rudraksh		Used to cure nervous system related disorders.	51	<i>Crinum asiaticum</i> L. Amaryllidaceae	Crinum Lily		Used against pain, while secondary uses of the plant are for treating wounds.
36	<i>Holarrhena pubescens</i> Wall. ex G.Don (syn. <i>Holarrhena antidysenterica</i> ) Apocynaceae			Useful in treating diarrhoea, dysentery and other such digestive system ailments.	52	<i>Morinda citrifolia</i> L. Rubiaceae	Noni		Helps to reduce cold and congestion in the chest.
37	<i>Murraya paniculata</i> (L.) Jack (syn. <i>Murraya exotica</i> L.) Rutaceae	Kamini		Used for treating men's health problems.	53	<i>Vitex negundo</i> L. Lamiaceae	Nishinda		Used as muscle relaxant and pain relieving herb.
38	<i>Murraya koenigii</i> (L.) Sprengel. Rutaceae	Curry Patta		Maintain blood sugar level, increase the amount of iron content in the body, and protect the liver from damage.	54	<i>Swietenia macrophylla</i> King Meliaceae	Mahogany		Used to treat diabetes, diarrhoea and fever.
39	<i>Saraca asoca</i> (Roxb.) Willd. Leguminosae	Ashoka		Used in the treatment of menstrual disorders associated with excessive bleeding, congestion, and pain.	55	<i>Neolamarckia cadamba</i> (Roxb.) Bosser (syn. <i>Anthrocephalus cadamba</i> ) Rubiaceae	Cadamba		used in the treatment of various ailments such as fever, uterine complaints, blood diseases, skin diseases.
40	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn. Combretaceae	Arjuna		Used to treat dysentery, tumours, inflammations, biliousness, diseases of the blood and eyes.	56	<i>Wrightia tinctoria</i> R.Br. Apocynaceae	Pala indigo		Helps to pacify vitiated tridoshas, fever, stomach ache, psoriasis and obesity.
41	<i>Abroma augusta</i> (L.) L.f. Malvaceae	Ulat-kambal		Used as antispasmodic, stimulates ovulation and can be used as uterine tonic.	57	<i>Clerodendrum indicum</i> (L.) Kuntze Lamiaceae	Ghetu		Fresh leaves used for diarrhoea, liver disorders and headache.
42	<i>Moringa pterygosperma</i> Gaertn. Moringaceae	Drumstick		Used mainly against controlling high blood pressure	58	<i>Piper longum</i> L. Piperaceae	Indian Long Pepper		Administered along with honey to treat obesity, cold, cough, asthma, fever.
43	<i>Tamarindus indica</i> L. Leguminosae	Tamarind		Used in wound healing, snake bite, abdominal pain, colds, inflammations, diarrhea, diarrhoea, helminth infections and fever.	59	<i>Justicia adhatoda</i> (L.) (syn. <i>Adhatoda vasica</i> Nees) Acanthaceae	Basak		Used as anti malarial, emetic, expectorant, febrifuge and purgative action. Roots effective in treating fevers and indigestion.
44	<i>Tinospora sinensis</i> (Lour.) Merr. (syn. <i>Tinospora cordifolia</i> (Willd.) Miers.) Menispermaceae	Gulancha		Used for diabetes, high cholesterol, allergic rhinitis (hay fever), upset stomach, gout.	60	<i>Jatropha curcas</i> L. Euphorbiaceae	Jamal Ghotu		Used to cure various infections.
45	<i>Tinospora malabarica</i> (Lam.) Hook. f. & Thomson Menispermaceae	Padma Gulancha		Used to protect and support the immune system, respiratory infections.	61	<i>Lagerstroemia speciosa</i> (L.) Pers. Lythraceae	Jarul		Leaves used for treatment of diabetes and kidney related diseases.
46	<i>Citrus maxima</i> Merr. Rutaceae	Batabi Lebu		Major sources of ascorbic acid and Vitamin C	62	<i>Senna sophera</i> (L.) Roxb. (syn. <i>Cassia sophera</i> L.) Leguminosae	Kalkasunda		Leaves used for treatment of constipation.
47	<i>Citrus aurantiifolia</i> (Christm.) Swingle Rutaceae	Pati lebu		Rich in vitamin C which helps the body to fight off infections and also to prevent scurvy.	63	<i>Epipremnum aureum</i> (Linden & André) G.S. Bunting Araceae	Large leafed money plant		Used for treating anxiety and sleeping disorders, brings a healthy lifestyle.
48	<i>Combretum indicum</i> (L.) De Filippis (syn. <i>Quisqualis indica</i> L.) Combretaceae	Madhobilotu		Used as anthelmintic to expel parasitic worms or for alleviating diarrhoea.	64	<i>Aegle marmelos</i> (L.) Correa. Rutaceae	Bael		fruits used in treating diarrhea, dysentery, stomach ache.

# Non-Angiosperm friends in Department



*Oscillatoria*



*Rhizoclonium*

**Algae**

**Fungi**



*Dacryopinax*



*Pycnoporus*



*Daldinia*



*Cycas* sp.

**Gymnosperms**



*Zamia* sp.



*Araucaria* sp.

## STUDENT ACTIVITIES FRESHER'S 2021

Semester III and Semester V of the UG Botany Department organized an annual Fresher's ceremony and Student Meet for the students of Semester I on 3rd July, 2021. Due to the pandemic, the event was organized via Google Meet. The theme was 'Cinema'. The ceremony started with performances by students of all semesters followed by some words from our professors recalling their experiences in college. A skit was also presented by the seniors, which was thoroughly enjoyed by the freshers. After several rounds of engaging games and dares, the awards ceremony began. Certificates for the games and activities held were distributed. It was a joyous affair which was a welcome break from the monotony of the online mode of college. We hope that such events can be organized in offline mode on the college campus soon.



Mr. Fresher 2021	Arghaya Kamal Dasgupta
Ms. Fresher 2021	Soumita Nandi
Ms. Well Dressed 2021	Chirashree Dasgupta & Shradha Subba
Ms. Confident 2021	Joyeeta Das & Aneesha Celine Mathew

## TEACHERS' DAY 2021

On the 5<sup>th</sup> of September we observe the birthday of Dr. Sarvepalli Radhakrishnan, esteemed scholar and second President of India, as Teachers' Day. In 2021, the UG and PG students of the Botany Department of SCC celebrated this occasion online. After an opening prayer and dance, the videos of students performing songs and dancing were displayed. Following this, the students performed a short skit. Games were also organized where there was fierce competition amongst our professors. In the end, it seemed like the professors too had a surprise up their sleeve - Dr. Rajyasri Ghosh and Dr. Nilanjan Chakroborty performed a highly entertaining skit named 'Dombol'. Overall, it was a memorable experience for both the teachers and the students!



Anushka Mahato

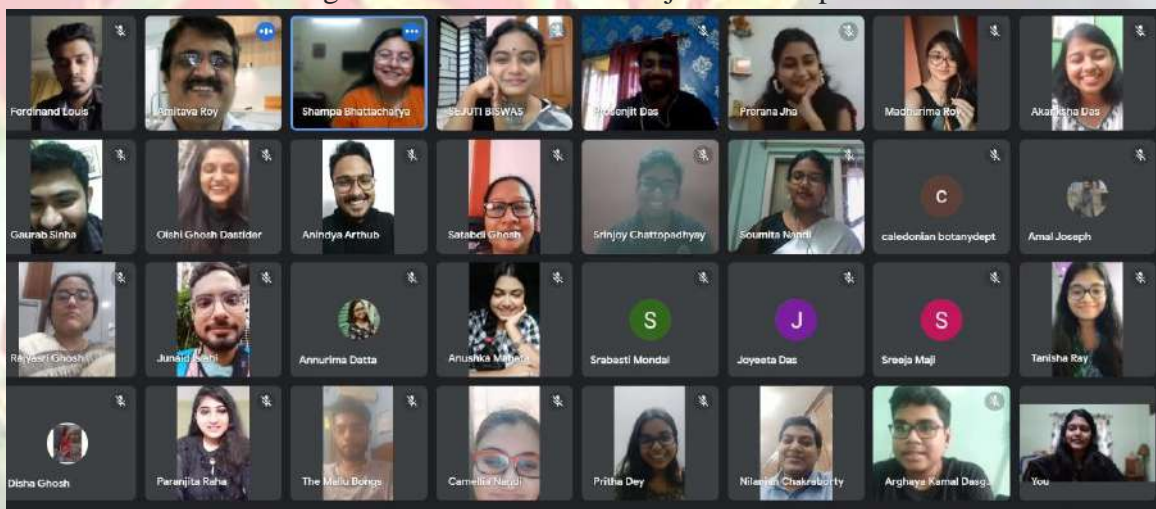
Gaurab Sinha

Oishi Ghosh Dastidar

Ferdinand Joseph

## FAREWELL 2021

Semester II and IV of the UG Botany Department of Scottish Church College organised the annual farewell ceremony, AU REVOIR, for the outgoing batch of 2021 on the 17<sup>th</sup> of September. Just like the Fresher's ceremony, this event was conducted online. The theme for the event was 'Angels and Demons' and the dress code was black and white. The ceremony began with gala performances by the juniors followed by some inspiring words from our professors wishing good luck upon the outgoing students. Then, the seniors were engaged with a myriad of fun and challenging games which they all completed skillfully. A video summarizing their time at college was then played, followed by a surprise message from one of their classmates. This made everyone very emotional as they reminisced the golden times they had spent with each other in college during classes and on excursions. Sadly, all good things come to an end and so did the farewell, but the outgoing seniors left with their hearts full of priceless memories and the good wishes from all their juniors and professors.



Teachers with Outgoing Batch (UG Sem VI and PG Sem IV, 2022)

## LOCKDOWN DIARIES

### ONLINE CLASSES IN THE HILLS



North Eastern Part of India is admired for aesthetic values and bliss of nature. In spite of its unparalleled attraction, people of the hills do undergo the unseen side of disadvantages that also affected students in the covid period more than in the rest of the state.

Coronavirus has shaken and stirred our world. The quick spread of the coronavirus pandemic has highly impacted the education system and teaching-learning process. To mitigate the risk of transmission, most schools and colleges have adopted the e-learning mode of education by offering online learning to students. While this has ensured that the students are able to continue their studies while stuck at home, the effectiveness of the learning method and its outcome is still questionable. Because the pandemic occurred without any warning, most educational institutes were not fully prepared to handle the situation without any hitches. Some of the major challenges that students in hilly areas have faced are:

First of all, most people in such areas are poor and depend on low-paying jobs like working in tea-gardens. Parents often cannot afford to buy smartphones for their children, which often cost much more than what their monthly salaries allow. In an environment where people are struggling to acquire basic amenities, access to mobile phones and computers is a far-fetched idea.

The biggest challenge is, however, faced by the students and the teachers as the concept of Wi-Fi is almost non-existent and internet connectivity is even worse. For those who do have internet connectivity, getting a proper signal to even download a PDF file sent by the teachers is a challenge sometimes.

Another major hurdle is the frequent cut-down of the electricity. In many areas, the power-cuts can last for upto 4-12 hours which causes an array of problems to both teachers and students as electricity is crucial for both powering devices and connecting to the internet.

**Tshesang Lepcha**  
**UG Botany Semester III**



## SCENES FROM THE BATTLEFRONT - COVID RELIEF FROM BEHIND A SCREEN

To say it was hectic would be an understatement.

At a time when going outside is a luxury, people from all walks of life suffer the brunt of it. It is especially difficult for the underprivileged and ailing, and those who devote time and resources to alleviate their distress. Due to the lockdown and cessation of transport services, social workers faced the loss of one of their biggest strengths - accessibility.

When the first wave hit, I watched the rising numbers of covid patients every day. It seemed like a situation straight out of a dystopian novel, with an invincible enemy wreaking havoc on our world. As I chose to stay away from the news, COVID seemed to exist only in my imagination. However, the second wave came along soon; my friends and family began to contract the virus, and I heard of the sad demise of one of my beloved school teachers.

WhatsApp statuses carried links to NGO groups that were committed to fighting the virus. I had watched a few of them go by in a blur, but one day, I didn't want to be an onlooker anymore. I clicked on one of the links, which led me to a group under the NGO Anubhooti.

Each day the group received up to fifty requests for various resources on an average. Navigating through verified resources was difficult when they were being sent into the same group within mere seconds of each other. Contacts in the database were updated every day, but oxygen cylinders and beds seemed to run out immediately.. There was a want for proper logistics and a database that could keep up with the growing demand. I decided to take the matters into my own hands.

I spent a day reworking the resource database of the NGO, tweaking things so that they would be organized by location - which helped in simplifying navigation. I did get into some hot water with the NGO staff over this, but when they saw how the revised sheet made things easier, they encouraged me to manage it. From then on, I was dragging myself to bed at four in the morning and waking up a mere three hours later, attending college classes while volunteering simultaneously. I was passionate about it in a way that masked any fatigue that crept in from dealing with the stress. Each of us in the group, mostly school and college students, fought for the people who approached us with all we had.

There were many disappointments. Every time a patient couldn't make it, all of us grieved. Many suffered emotional and physical burnout from making calls and going from hospital to hospital several times a day. But what made it worth it were the wins - every patient who recovered, got an oxygen cylinder or was able to be admitted made us believe in the goodness of our work.

As I end this article I'd like to repeat that to say it was hectic would be an understatement; but I don't wish to change the experience for the world. If anything, I wish I get more opportunities to do my part to help society as a whole, be it in person or from the other side of a computer screen.

**Shrinati Ghosh,**  
**UG Botany Semester V**



## The Amazing World of Botany

### NGS - A GAME CHANGER IN THE FIELD OF GENOMICS

One of the most fascinating disciplines gifted by the field of genetics is Genomics that came into being in the 1970s almost a century after the discovery of DNA. The struggle started with the attempt to sequence short fragments of the DNA known as oligonucleotides and paved its path to the success of sequencing heavy genomes in a matter of days!

The first successful complete genome sequencing was done in 1977 on a virus called phiX174 virus by Frederick Sanger. His ground-breaking technique came to be known as the Sanger Sequencing Method. It included a special PCR technique called chain termination PCR, size separation by gel electrophoresis and gel analysis where they determined the sequences by manually reading the gel bands. Sanger's technique took almost a decade to sequence the entire human genome! The infrastructure alone took around 2.5 million USD for the same! But taking on the footsteps of Sanger and with the blessings of advancement in computational technology, the speed and ease with which the computers are used to compute the sequencing using advanced softwares made sequencing entire heavy genomes possible in a matter of days. The discipline has come to be known as the Next Generation Sequencing (NGS). "This is what happens when you put technology into the hands of smart creative research people" as quoted by Shankar Balasubramanian, scientific founder of Solexa and Cambridge Epigenetix. Now the cost for sequencing an entire genome is around the range of 600-1000 USD.

This brings me to focus on the recent advancement of the Genomics company in our country called Clevergene based in Bangalore serving in the field of NGS. The company has the capacity to sequence 60 human genomes in a week's time which is fascinating to think of! The project requires high-end computers and softwares which spans around sample testing and analyzing & sequencing which calls for a multi-disciplinary team with professionals at their respective discipline. On a personal note, in my belief, this also allows job opportunities for many people from the other disciplines coming from wet-lab biology, molecular biology, bioinformatics, statistics, computer science, etc. to be able to come together under the same roof and work for a bigger motive.

The NGS takes on to a promising journey of enhancing biomedical sciences, biotechnology, and assisting several drug laboratories and even agronomic field and studies for the same ensuring a promising future of healthier and more secured generation ready to tackle and fight new bacterial influences to viral disease, to studying better the genomes of the other organisms for future research work!

**Anindya Shankar Nandi**  
**UG Botany Semester V**

## Discovery of a New Bioluminescent Fungi from Northeast India

Bioluminescent organisms are a wonderful creation of nature. There are several groups of organisms that show their bioluminescent properties such as animals, plants, fungi and bacteria. Bioluminescent organisms are commonly found in ocean environments, but they are also found in terrestrial environments. Bioluminescent fungi obtain their luminescence from the enzyme luciferin. The light emits from their fruiting bodies or mycelium when luciferin is catalyzed by the enzyme luciferase in the presence of oxygen. During the chemical reaction several unstable intermediate products are released as excess energy which makes them visible as light. Fresh fruiting bodies of the bioluminescent fungus growing on dead bamboo (*Phyllostachys mannii*) sticks were collected from the East Khasi Hills District, Meghalaya (Northeast India). The samples were photographed in situ and transported to the field station where its microscopic details were recorded. Macro-morphological characteristics were described following the terminology of Largent et al.(1997), while colours were recorded following Ridgeway (1912).



**Different stages of fruiting bodies of *Roridomyces phyllostachydis* (MFLU19-2825, holotype).**

**Scale bars: 10mm. Photos: Stephen Axford**

Dried internal tissues of the basidiocarps were used for DNA extraction. Total DNA was extracted using the Biospin Fungus Genomic DNA Extraction Kit (BioFlux). The ITS and LSU loci were amplified by Polymerase Chain Reaction (PCR). The sequences of the novel fungus were subjected to standard BLAST searches in the GenBank database to determine the primary identity of the fungus. All the other sequences for conducting the phylogenetic analyses were retrieved from GenBank.

**Archisman Kundu,  
PG Semester III.**



## The Mystery of Manu

The year was 1973. Robin Foster was trudging along the forest trail of Manu National Park. He was a scientist studying the wild flora in this conserved area in Peru. The usual creepers and vegetation greeted him, and he greeted them back, marveling at them while he continued his work, an eager dynamism in his gait.

Suddenly, Foster's eyes caught a flash of bright orange. Among the familiar plants, he found himself staring at something he had never seen before. The fruits looked like miniature Chinese lanterns, the tree bearing them about 20 feet in height. He made quick work of collecting fruit and leaf samples and rushed to show them to the other scientists, his mind buzzing as it tried hard to identify this strange plant. Usually, he could make an approximation of the family of a plant by a brief examination. However, the characteristics of this mystery plant didn't sit neatly in any one family he could think of - rather, it displayed characters of several different families all at the same time! His colleagues were likewise baffled; none could tell where to place this new discovery. However, the dilemma of being unable to identify or name a new species had to be laid to rest, as the specimen was stowed away in the herbarium of the Field Museum.

Seventeen years later, Foster would show this bizarre specimen to Nancy Hensold, a botanist at the Field Museum. She tried in her own way to identify it - boiling the ovaries of the flowers, photographing pollen grains - to no avail. "When you have a plant no one can put in a family, it can fall through the scientific cracks. I felt for it," said Hensold. She and her colleagues were ensnared by the mystery, and finally got a grant to study the plant from the Field Museum's Women's Board. They employed the help of Patricia Álvarez-Loayza in procuring fresh specimens from the Park, whose DNA was freshly analyzed by Richard H. Ree.

The results of the sequencing were so shocking, Hensold was sure there must have been some unforeseen contamination. Specimens were dispatched to a curator emeritus at the New York Botanical Garden and expert in Family Picramniaceae, Wray Thomas. Thomas was equally bewildered at the contents of the package, which hardly resembled any of its fellow Family members. However, a closer look at the minute flowers gave him the confirmation he needed.

Finally, the scientists were able to formally name this new species nearly 50 years after its first encounter with botanists. Its nomenclature was apt and informative - its specific name honored Patricia Álvarez-Loayza, the lady who collected the specimens used for the genetic analysis of the plant. However, it was the generic name which suitably capped off this tale of the enigma of an era.

*Aenigmanu alvareziae* - The Mystery of Manu.



**Shrinati Ghosh**  
**UG Botany Semester V**

## Plants use RNA to talk to their Neighbors

The bell rang, signaling the end of anatomy class. Classes were dismissed for lunch break. Two students, Annurima and Pritha, were walking to their usual hangout, conversing along the way.

**Annurima:** It's finally lunch break! Come, let's head to the canteen. I am starving!

**Pritha:** [scrolling through her phone, reading something intently] Just a moment...

**Annurima:** What's that? Reading something?

**Pritha:** Yeah! It's this interesting article about plants communicating with other plants!

**Annurima :** Really? You mean to say, plants can really *talk*?

**Pritha:** I know it's surprising, but yes! They can communicate with their neighbors.

**Annurima:** Tell me more about it.

**Pritha:** Recent research has found that plants sharing the same growth medium can exchange microRNAs that silence genes in the recipient and the nucleic acids act as signaling molecules.

**Annurima:** That's amazing!

**Pritha:** You know, the pollinators getting attracted towards the plants is also a means of communication. The plants release some volatile compounds that attract the pollinators.

**Annurima:** Wow! It's a wonder that I never knew this!

**Pritha:** Scientists conducted experiments on *Arabidopsis thaliana* and have found that these miRNA, when taken up by nearby individuals, alter their gene expression and prevent certain genes from being translated into proteins.

**Annurima:** Interesting... How exactly do these neighboring plants take up the miRNA?

**Pritha:** Previously it was believed that exosomes play a role as delivery vehicles. But now it has been found that along with nutrients, plants might actively assimilate small RNAs from their environment.

**Annurima:** That's really fascinating! But I wonder - why would a plant need to affect another plant's gene expression?

**Pritha:** See, this may allow plants experiencing environmental or biotic stress to warn nearby plants who are not yet affected by the stress. Kind of like an ocean buoy!

**Annurima:** [laughs] I didn't know that plants had an alarm system!

**Pritha:** And this is just the tip of the iceberg. There's a lot more to be discovered about the role of RNA in plant communication. Enough talk! We're at the canteen already and I can't stand another minute without a morsel!

**Annurima:** Alright, but you've got to tell me more about this after we're done eating!

**Pritha Dey and Annurima Datta**  
UG Sem V

## Star Plant - Luffa, The Natural Sponge!



**Joyeeta Das**  
UG Botany Semester III

In everyday usage, the 'luffa', also spelled 'loofah,' usually refers to the fruits of the species *Luffa aegyptiaca* and *Luffa acutangula*. The fully developed, highly fibrous fruit is the source of the loofah - a natural scrubbing sponge which is used in bathrooms and kitchens.

**Morphology:** *Luffa*, a member of Cucurbitaceae, is an annual climbing or herbaceous species. The fruit is a cylindrical, fusiform, smooth, dehiscent capsule, 20-50 cm long x 6-10 cm broad with characteristic fibrous mesocarp. Leaves are alternate, large (6-25 cm x 6-27 cm) ovate and dark green. Seeds are numerous; dull black, elliptic-ovoid, 10-12 mm long x 6-8 mm broad.

**Distribution:** It is widespread in tropical and subtropical areas. *Luffa* occurs in forests, woodlands, thickets and grasslands, from sea level to an altitude of 1500-1800 m. Cultivated plants do better at annual temperatures of about 23-27°C, where annual rainfall is between 1000-2000 mm. *Luffa* can grow on a wide range of soils but does better on medium-textured organic soil such as well-drained sandy loam, with pH 5.5-6.8, and salinity less than 4 dS/m.

**Special Usage:** Though this plant is used as a sponge, it is rarely used as food material. Ripe Loofah is rich in nutrients such as vitamin C, riboflavin, niacin, and essential amino acids! In Assam, Kerala, Karnataka, West Bengal, Gujarat and other states, it is used in curries, desserts and side dishes.

Now, let's have a look at a recipe of a dish where the main ingredient is Luffa fruit. This dish is known as, "Sautéed Luffa and Eggs".

### Directions

1. Heat 1 tsp. of the oil in a large non-stick skillet. Add white parts of scallions, and stir constantly for 30 seconds. Add eggs. Sprinkle with 1/4 tsp. of the salt; cook, stirring constantly with a spatula, until set yet soft. Set aside.
2. Return skillet to medium-high. Add remaining 2 teaspoons of oil. Add garlic and ginger, and cook, stirring constantly, until fragrant, about 30 seconds. Add luffa, sugar, jalapeño, and remaining salt; cook, stirring often, until tender, about 5 minutes. Add soy sauce and pepper; cook, stirring often, 1 minute. Serve over rice; sprinkle with scallion greens.

The above recipe has been taken from <https://www.myrecipes.com>.

## SCIENTIFIC ACTIVITIES

### Publications

#### Research papers by PG Students in collaboration with faculties



Article

#### Green Synthesized Copper Oxide Nanoparticles Ameliorate Defence and Antioxidant Enzymes in *Lens culinaris*

Joy Sarkar<sup>1,†</sup>, Nilanjan Chakraborty<sup>1,†</sup>, Arindam Chatterjee<sup>2</sup>, Avisek Bhattacharjee<sup>2</sup>,  
Disha Dasgupta<sup>2</sup> and Krishnendu Acharya<sup>2,‡</sup>

*Environmental and Experimental Botany* (2019) 174, 1–10  
DOI: 10.1016/j.envexpbot.2019.07.001

Original Paper

#### Biosorption of hexavalent chromium by *Aspergillus fumigatus* S101 isolated from a coal mining environment

Satarupa Dey<sup>1\*</sup>, Swagata Bhattacharya<sup>2</sup>, Rajyasree Ghosh<sup>1</sup>, Shampa Bhattacharyya<sup>2</sup>

*Process Biochemistry* (July–September 2016) 53, 567–576  
DOI: 10.1016/j.procbio.2016.07.017

RESEARCH ARTICLE



#### Abiotic elicitors mediated elicitation of innate immunity in tomato: an ex vivo comparison

Nilanjan Chakraborty<sup>1,†</sup>, Satabdi Ghosh<sup>2</sup>, Suresh Chandra<sup>2</sup>,  
Xarles Sengupta<sup>2</sup> and Krishnendu Acharya<sup>2</sup>



Article

#### Interaction between Bean and *Colletotrichum gloeosporioides*: Understanding Through a Biochemical Approach

Nilanjan Chakraborty<sup>1,\*</sup>, Rabita Mukherjee<sup>2</sup>, Ansh Sarkar<sup>1</sup> and Krishnendu Acharya<sup>2</sup>

A-5256  
(1–8)



*Indian J. Agric. Res.*  
Vol. 53, No. 1, pp. 105–109, 2019

INDIAN JOURNAL OF AGRICULTURAL RESEARCH  
ISSN 0013-753X

#### Study of Germin Like Oxalate Oxidase Enzyme in Monocot Plants

Satabdi Ghosh<sup>1</sup>, Debanjana Das, Priya Nandi, Anshu Ray

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*Precision Agriculture and Sustainable Crop Production* (2020): 353–398  
Editors: H. K. Choudhary, K. Acharya and T. K. Singh  
Tosha & Sonam's Printers and Publishers, New Delhi-110002 (India)  
ISSN: 9789117301966-79

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#### PLANT, DISEASE AND CLIMATE CHANGE

Anamika Paul<sup>1</sup>, Prakash Pradhan<sup>2</sup> and  
Nilanjan Chakraborty<sup>1\*</sup>

## Conferences and Symposia:

1. International conference on climate change, precision agriculture and innovative disease control strategies for sustainable agriculture, University of Calcutta, 2020

Oral: Bi-functional effects of biotic elicitors on augmentation of innate immunity and secondary metabolites production in *Catharanthus roseus* (L.) G. Don

Presenter: Anamika Paul, (PG 2017-2019) and currently Research Scholar supervised by Dr. Nilanjan Chakraborty in WBDST Major Research Project, SCC



2. National Conference on Science and Technology: Rural Development organized by ISCA and Surendranath College, Kolkata, West Bengal, India, 2020

Poster: Chromosomal assessment of sexual stability in dioecious plant *Coccinia grandis*'

Participants: PG Semester IV students supervised by Dr. Biplab Kumar Bhowmick



3. Workshop: Students participated in 'Workshop on Flowering and Non-flowering Plant Identification and Herbarium Methodology' organized by BSI, Howrah and Gurudas College, Kolkata. Students were mentored by Dr. Srijita Ghosh.



## Awareness Programme on “Global Water Crisis and Conservation”

On the 10<sup>th</sup> of January, 2018, Scottish Church College, in collaboration with West Bengal Pollution Control Board, organized a UBCHEA sponsored awareness programme on “GLOBAL WATER CRISIS AND CONSERVATION”. Four of B.Sc. Part I students from the Botany Department- Poulami Mukherjee (myself), Rusha Mitra, Puspita Ganguly and Debatri Dewanjee, were selected to participate in the poster presentation competition, which was part of the awareness programme. Under the guidance of Dr. Nilanjan Chakraborty and Dr. Shampa Bhattacharya, we prepared a poster, titled “Respect Existence or Expect Resistance”, highlighting the massive impact of the global water crisis on not only the human population, but also on Earth and the urgent need for water conservation.

It was an enlightening experience. We came across some really shocking facts, like how the world would run out of consumable water by 2040 if water wastage is not reduced. We also learned about the different climatic changes which were a direct result of water shortage. Certain facts were shocking even to the judges, who were very happy with our performance and appreciated us.

There were a total of 30 participants including students from various colleges. Right after the presentations, there was a seminar based on the same topic which was also very informative. The prizes were announced at the end of the seminar. Our happiness knew no bounds when we were announced as the winner of the second position. We informed our teachers who were just as delighted to hear about our success. The next day, we proudly stood by while the head of our department placed the trophy alongside the other trophies and congratulated us on our win. It was a very memorable experience and one of the best memories we have made in this department.

### **State Level Seminar on “Conservation of Biodiversity: Impact, Challenges and Management”**

Three of the B.Sc. Part I students from the Botany Department of Scottish Church College- Poulami Mukherjee (myself), Puspita Ganguly and Abhirup Paitandi were selected, for presenting a poster in the State Level Seminar on “Conservation of Biodiversity: Impact, Challenges and Management” organized by the Departments of Botany and Chemistry, Shri Shikshayatan College, held on 6<sup>th</sup> April, 2018.

Under the guidance of Ms. Camellia Nandi and Dr Shampa Bhattacharya, we made a poster titled, “Preserving nature for our future”. With increasing urbanization comes an increase in the loss of biodiversity. Our primary aim was to impress on the audience the importance of Biodiversity and the problems that would arise as a result of the loss of biodiversity, especially the negative impact it would have on the future generations. Deforestation, to make more land available for use, results in the indirect killing of numerous organisms whose survival depended on the trees. It is imperative that we implement different measures to conserve biodiversity as soon as possible. We tried our best to explain the various repercussions of biodiversity loss and how gravely it would affect us, if the necessary steps were not taken to prevent it.



Participants from other colleges and various dignitaries, from different colleges and organizations, including researchers from the United Nations Organization, shared their views on this matter and also elaborated the various ways in which we could conserve biodiversity by making small changes in our everyday lives. Though we were not one of the top 3 winners, we gained a lot of knowledge which will stay with us for a lifetime.

All 3 of us, received a certificate, from the guest of honour, Dr. Avishek Bhattacharjee, for our exemplary performance in the competition. We were all very grateful to our teachers for allowing us to be a part of an amazing experience.

**Poulami Mukherjee,  
B.Sc. Part 1 (2017-18)**



Awareness Programme On “Global Water Crisis and Conservation”, 2019 (from left: Rusha Mitra, Debatri Deewanjee, Poulami Mukherjee, Puspita, Dr. Shampa Bhattacharyya)



Students presenting the poster at Shri Shikshayatan College.



The guest of honour, Dr. Avishek Bhattacharjee presenting the certificate.



The awarded Certificate

State Level Seminar on “Conservation of Biodiversity: Impact, Challenges and Management” 2019

## From Lockdown to Unlocking Potentials

The lockdown brought our life to stagnancy for a while. In those days, everyone started searching for the actual purpose of their living. The time that taught us to take a break and rethink what we will do next. To me, that gave me a respite to discover my potentials, rehash my skills and relocate my prospects in a streamlined way. Though I was also seemingly lost at the first, but slowly involving my urge of knowing something new, going out of the box had paved a way for me. Besides, online lectures, the time we used to have in our hands was pretty consumable. So, I utilized that time in finding different study and skill development programmes that might enhance my academic threshold.

To cut to the chase, I started mailing different faculty members of eminent Indian Academies (IITs, NITs, IISERs etc.) In the beginning, the responses were not hope-mongering. But I kept doing my job and yes after spending a tantamount of time, I got an internship on Principles of Drug-discovery, molecular modeling and disease management under the supervision of Dr Mirza S. Baig from IIT-Indore. I understand we cannot incarcerate our thoughts in a certain area of academics; rather we will broaden our horizon knowing as much as possible of our uncharted territories of knowledge and focus on our accumulated knowledge to perform our most coveted task/research/study. Later, I joined an internship in the Chemistry department of IIT-Indore under the supervision of Dr Apurba K. Das on Molecular Self-assembly and Synthesis of DNA G-quadruplex, which is still on. I got to attend the Summer school on Quantum Technology and Quantum Information organized by IISER-Kolkata in association with CSIR, DST-Government of India which opened up a plethora of interesting happenings to me, in spite of being a botany student I always had a penchant not to stay confined only in my subject area but to inculcate the all-inclusive thought-provoking ideas. Thus, holistic development in a particular form is possible I believe. Besides this, I recently have become an overseas student associate member in Royal Society of Biology, which is a London based charity foundation, well-known and renowned for its patronage and benevolent efforts in promoting excellence in Biological Sciences, registered with the Royal Charter. As a member, one can connect with several scientists, science students and researchers and exchange their thoughts. Along with this members can raise their levels of academic experiences through different courses. Attending good conferences, interacting as a student biologist with other biologists in a symposium are some of its perks. On the end note of this quite lengthy compendium of my experiences, I want to thank all of my teachers and friends for fanning the flame of knowing the unknown.



## Science Training in the 'New Normal'

I am Antara Rakshit, a postgraduate alumnus of the Scottish Church College's Botany department (2018-2020) and I am sharing how I discovered scopes to get trained amidst the odds. During my last semester, the world shut down abruptly due to the COVID-19 induced pandemic and it became a distant dream to complete our practical training and projects properly. The worldwide lockdown not only left us with an ample amount of time to pursue our interests but also opened the door for many unforeseen opportunities. During this period, 'CSIR NEIST - Jorhat' organized an Online Summer Research Training Program for interested students.

I merrily grabbed the opportunity and got selected for CSIR SRTP in NBRI Lucknow. During this training, I have worked on a project which was focused on - "Improvement of agricultural traits in cotton by genome editing". During this training, my mentor was Dr. Indraneel Sanyal.

Since it was an online program, my project work was mainly based on reviewing papers on this area of study. Green chemistry, production of syn-gas from Coal and biomass, and other allied topics were discussed by eminent scientists. Continuous encouragement and guidance from my mentor and practical demonstration videos were indispensable to understand the working process and gaining knowledge about the in-hand experience is not very common in general PG courses. Descriptive videos about many biotechnological instruments and their working principles were a great help for a student like me who is willing to pursue the research area of life science. During this training program, the contribution of my mentor was overwhelming. It was my pleasure to complete this program from such a prestigious institute. It will always illuminate my future path in this field.



Antara Rakshit (PG 2018-2020)

## Online Paper Presentation at Vidyasagar Metropolitan College

As freshers in Semester I of the Botany Department of Scottish Church College, we dreamt of actively participating in various college and intercollege events just like our seniors did. Little did we know that our dream would be crushed due to the pandemic. Before long, we found ourselves suddenly in Semester V, the penultimate year of our Bachelor's degree.

Undeterred, we involved ourselves in various online events. The best experience among them all was when I (Pritha) and my classmate Annurima participated as a team in our first online paper presentation competition which was held by Vidyasagar Metropolitan College on 5<sup>th</sup> October, 2021 on the occasion of National Wildlife week. Supportively guided by Professor Dr. Nilanjan Chakraborty, we made our presentation on the topic- "Exploring the kingdom of algae and fungi : the most interesting members in the galaxy of the biological world".

The presentation was based on the local excursion that we had done in our first semester, where we collected algal and macrofungal specimens from in and around the Scottish Church College campus, identified them and preserved them for the purpose of detailed study.

On the final day of our presentation we were understandably nervous. Annurima was the presenter and I was the speaker. We competed against 30 teams from different colleges, out of which only 15 (including our team) had qualified for the final round.

The judges were Dr. Chandan Barman, Department of Botany, Gour Banga University and Dr. Abhijna Ghosh, Assistant Zoologist, Zoological Survey of India, Kolkata.

Our joy knew no bounds when it was announced that our group had secured second place in the competition. We were awarded e-certificates and a cash prize. It was an amazing experience of the practical world of research and seminars. We want to thank all the teachers of our department for their constant support and encouragement to pursue knowledge and participate in such interesting and meaningful competitions.

**Pritha Dey and Annurima Datta**  
UG Sem V



# ANNUAL ONLINE STUDENTS' SEMINAR 2021

The Annual Students' Seminar was organized on the 20<sup>th</sup> and 27<sup>th</sup> of November, 2021, for the UG Semester V and Semester III students of the Botany Department respectively. Each Semester was divided into groups, who prepared and presented their seminars, followed by a Q&A session after each presentation. Given below is a summary of the presentation topics.

## 20th November, 2021

**SIGN OF THE TIMES: EXPLORING THE APPLICATIONS OF PLANT INDICATORS THROUGH CASE STUDIES**

AMAL JOSEPH  
ANINDYA SHANKAR NANDI  
ANUSHKA MAHATA  
PAUSIAM THOMTE  
SHRINATI GHOSH

B. Sc. Botany (Honours) Semester V  
Scottish Church College  
Affiliated with the University of Calcutta

**Aims and Objectives**  
Studying the effects of radioactivity in far-flung areas

- Determining bioindicators that have been used to detect and assess contamination by radioactive substances.
- To study the concentration of radioisotopes accumulated in thalli of various lichens.
- To determine the factors, if any, which influence the concentration of radioisotopes in the thalli.
- Determining the validity of assessing the deposition of atmospheric Cs-137 from the Chernobyl accident using lichens.
- Further development of lichens are bioindicators for cost effective and efficient sampling.

In this presentation titled “Sign of the Times: Exploring the Applications of Plant Indicators through Case Studies”, Amal Joseph, Anindya Shankar Nandi, Anushka Mahata, Pausiam Thomte and Shrinati Ghosh explained the qualities of plant indicators with respect to two case studies - Remote Study of Chernobyl disaster and Study of Air Pollution Index through Bioaccumulation of Nitrogen in Lichens.

**Topic – Agrobacterium mediated gene transfer**

**Group members**

- ◆ Teresa Gracy Felix
- ◆ Rachel Yonzome
- ◆ Tanushree Nandy
- ◆ Sreeja Maji

**Crown gall disease by Agrobacterium**

1. Agrobacterium is the agent of crown gall disease (the formation of tumours on woody stems) in many dicotyledonous plants.

2. It was isolated by H.J. Davis.

3. It causes tumour like gene transfer to cause crown gall disease.

4. It inserts the T-DNA from a plasmid into the plant cell, which is integrated into the chromosomal location into which it enters.

5. To determine, the bacteria are cultured (contaminating growth) (1) placed on a tryptic soy broth.

6. Radio genetic transformation heavily relies on the bacterial pathogen Agrobacterium tumefaciens, a powerful tool to deliver genes of interest into a host plant cells through a bacterial type IV secretion system (T-DNA).

In “Agrobacterium Mediated Gene Transfer”, Tanushree Nandy, Rachel Yonzome, Teresa Gracy Felix and Sreeja Majhi discussed Agrobacterium and how it is used as a vector. An introduction to crown gall disease was given and how the plasmid plays an important role was discussed. Plasmid structure and roles of various genes were explained.

**CANCER: Understanding The Menace To Beat it?**

Presented By: Gaurab Sinha

**CAUTION! Here comes the CARCINOGENS**

What are carcinogens?

Any substance or agent that promotes carcinogenesis, the formation of cancer.

How Carcinogens Cause Cancer?

The two primary mechanisms by which carcinogens function are:

1. Genotoxic mechanism
2. Nongenotoxic mechanism

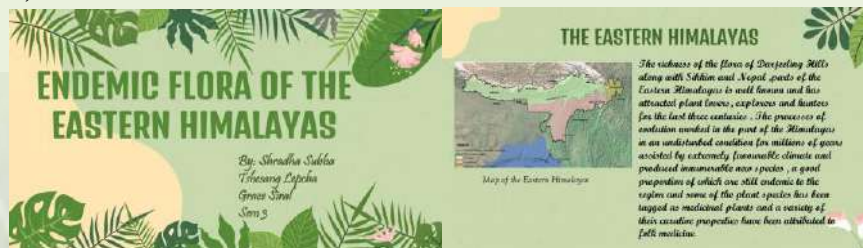
Can carcinogens ALONE induce cancer?

The ability of a carcinogen to cause cancer depends on many factors including the amount and duration of the exposure and the genetic factors.

—also depends on YOU! Individual health and other personal factors.

Pritha Dey, Annurima Datta, Oishi Ghosh Dastidar, Ferdinand Joseph Louis, Sarthak Dey and Gaurab Sinha presented on the topic “CANCER: Understanding the menace to beat it”. In the seminar they highlighted some important aspects of cancer. Nature and origin of cancer cells, carcinogens, metastasis, diagnosis, prevention and treatment of cancer was discussed.

27<sup>th</sup> November, 2021



Shradha Subba, Tshesang Lepcha and Grace Siral had presented on the topic 'ENDEMIC FLORA OF THE EASTERN HIMALAYAS', where they spoke about the unique flora found only in this particular region of India.



In this presentation, Sukanya, Ishita, Parboni and Chandreyee traced toxicity through four poisonous plants, namely *Phaseolus vulgaris*, *Abrus precatorius*, *Cerbera odollam* and *Datura stramonium*, with case studies on toxic effects of each plant to underscore their discussion.



Soumita Nandi, Disha Ghosh, Arghaya Kamal Dasgupta, Chirashree Dasgupta and Sneha Thakur presented on the topic "Uses of Herbal Products in cosmetics". They mainly discussed cosmeceuticals, advantages of herbal skin care and hair care products, which plant products are particularly used as cosmetic products and what quality makes them beneficial.



In this presentation, Akanksha Sharma, Krishna Ghosh, Madhumita Guchait and Joyeeta Das did research on "Honey and Application of Melissopalynology". Various aspects of honey farming and composition of honey were discussed.

## Extension Activities in Department

### 1. Science camps:

Department had initiated Science Camp in 2018 where high school students of Don Bosco and Calcutta Girls High School participated in the workshop. It was conducted in collaboration with the Department of Zoology. The workshop was funded by the College.

Later, 100 high school students from various prestigious schools in Kolkata participated in the workshop in collaboration with Dept of Zoology and Microbiology, Sponsored by West Bengal DST & Biotechnology in 2019.





**2. Mushroom Cultivation Workshop:**

Workshop and hands on training on Mushroom Cultivation for students and teachers, by Dr. Shampa Bhattacharyya and Dr. Nilanjan Chakraborty, 2018



## Out Of Academia: Poet's Corner

### *Sitting in Front of a Screen*

*Hey there,  
I'm a student,  
in a college.  
Well, let me rephrase  
I'm a student,  
in front of a screen  
with a lot of data usage.  
Maybe on a desk,  
but mostly on the bed  
taking notes, writing tests  
on plants and how they pollinate.  
Well the funniest thing is  
all the plants i see,  
are those that are on my balcony.  
Sorry not sorry,  
I don't really water them.  
The leaves lost their chlorophyll  
but I'm just sitting still  
In front of a screen  
while the year has 'again' come to spring.  
To be honest,  
now i no more despise  
this "new normal" world.  
Kinda wish  
it'll always be like this,  
then again  
there's this other "me",  
who wants to go to field trips, labs, practicals,  
mostly events, that are more exciting  
than sitting in front of a screen.*



**Soumita Nandi, UG Botany Semester III**

## *Flowers for Dawn*

*Flowers blossomed anew in every garden.*

*But it rained all day in Night's home*

*So, he was unable to plant some.*

*He opened his door and it rained,*

*When he shut his eyes, it rained-*

*It rained behind them.*

*The noise never paused even when he tried shutting his ears,*

*And grew louder when he went to speak.*

*Alone lived he, in a loud, loud vessel*

*One day, a stranger knocked on his door*

*Startling the tortured, weary Night.*

*It took him all his armour to lower the latch,*

*But found the stranger wasn't strange at all;*

*It was kin.*

*Dawn had come to pay him a visit and two pennies.*

*Night's questioning gaze paled as the pennies clinked in his palm.*

*"For the flowers," said Dawn.*

*"Take them, for you deserve your garden."*

*Night was a knave at his own heart*

*And so, Dawn took up the spade to break the ground.*

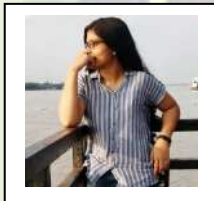
*By and by, Night joined.*

*And the day he dropped in the first seed; Dawn was gone.*

*But his efforts remained, seeping golden in the soil.*

*The rain had stopped, within and without and Night knew*

*That Dawn had taught him to see the sun again.*



**Shrinati Ghosh, Semester V**

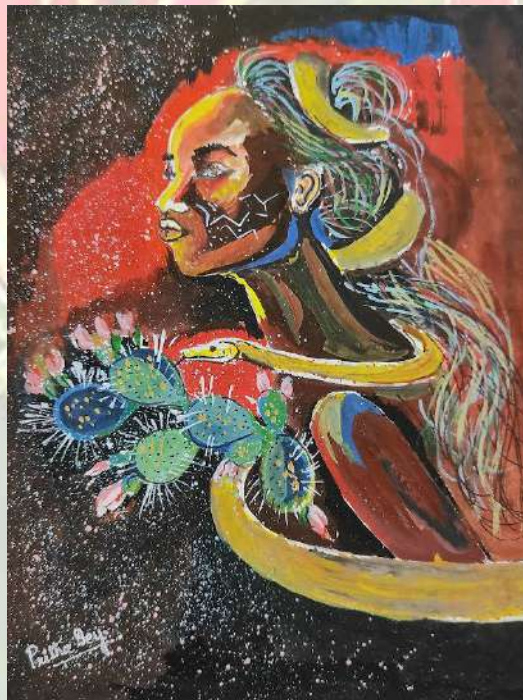
## Art gallery



**Sarthak Dey**  
**UG Botany Semester V**



**Anindya Shankar Nandi**  
**UG Botany Semester V**



**Pritha Dey, UG Botany Semester V**



**Debosmita Biswas (PG 2019-2021)**

## BRINGING IN LAURELS...

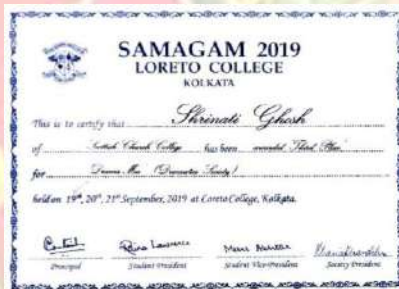
### Anushka Mahata

- Secured the 3rd position in the Eastern Dance category on Activity Day 2020 held on 3<sup>rd</sup> March, 2020 on college premises. She received a medal from former alumnus and popular Tollywood actor Shri Subhrajit Dutta.
- Awarded 2<sup>nd</sup> position for the Eastern Dance category on Activity Day 2021, which was held on the 6<sup>th</sup> of June, 2021.



### Shrinati Ghosh

- Acted in a stage play ‘Things We Do For Love’ in Samagam 2019 held at Loreto College on the 19<sup>th</sup> of September, 2019, which won third position in the Drama Mia event.



### Anindya Shankar Nandi

- Secured third position in the Face Painting event in Srijon Fest, which was held in Shri Shikshayatan College on 16<sup>th</sup> February, 2020. He also won the first position in the “One Minute to Fame” Competition in the same fest, where he painted a picture of Netaji Subhash Chandra Bose upside down on a canvas within a minute.
- Acted in a stage play which got first position in Xavotsav 2020. He also achieved second position in the Speed Art event of Xavotsav.



## Sarthak Dey and Pritha Dey



- Secured 2<sup>nd</sup> rank in the Intercollege Quiz Competition MAGAJASTRA (100 years of RAY: A quizzing odyssey) -"INFINITE RAY", a tribute to Satyajit Ray organized by the Department of English and Communicative English of Gokhale Memorial Girls' College on the 2nd of July, 2021 with the Quiz Master being Shri Rajib Sanyal.



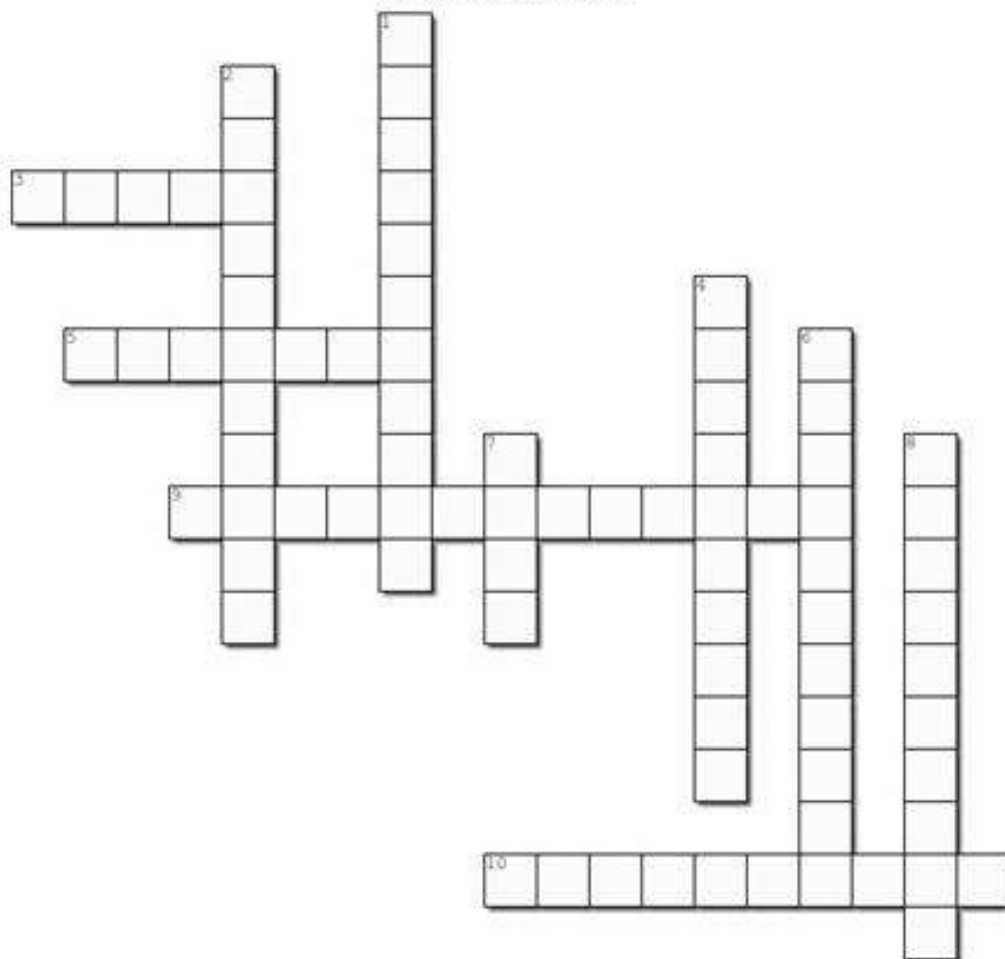
## Oishi Ghosh Dastider

- Secured the first position in the DANCING DAZZLERS (Solo Category) in the online BRIO fest 2021, organized by the ICFAI Business School Kolkata on the 17<sup>th</sup> of January, 2021.



## LA FLEUR

This is a crossword about all things Botany! Read the clues for each number and guess the term being hinted at!



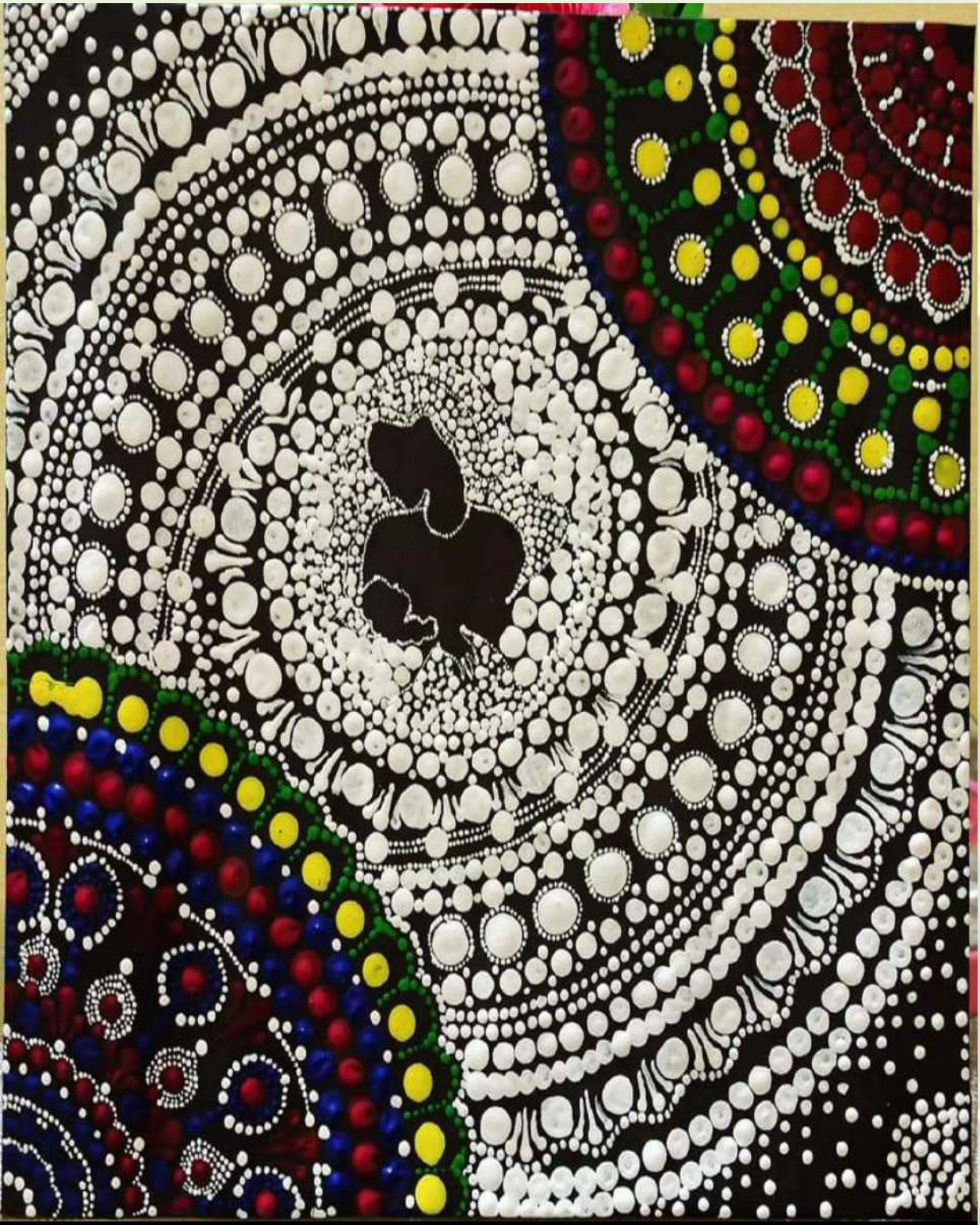
### Across

3. A chemical compound used as an anticancer drug extracted from *Taxus baccata*
5. \_\_\_\_\_ grandis, a tropical hardwood tree species
9. A group of desert plants which develop long roots to derive water from the low water table in arid areas
10. Common invasive weed species whose dried trichomes and parts are highly allergenic; genus

### Down

1. Most advanced family of monocotyledonous angiosperms
2. Generic name of a gymnosperm; unique features are the two leaves which never shed from the seedling and continue to grow
4. Specific name of 'Kaash Phool'; *Saccharum* \_\_\_\_\_
6. Time interval between the growth of two consecutive leaf initiation points, when environmental conditions are kept constant
7. Considered one of the founders of bacteriology along with Robert Koch and Louis Pasteur; Ferdinand \_\_\_\_\_
8. A polysaccharide derived from bacterium *Xanthomonas campestris*





By Debosmita Biswas (PG 2019-2021)



*The true laboratory is the mind, where behind illusions we  
uncover the laws of truth*

**...Acharya Jagadish Chandra Bose**