अखिल भारतीय आयुर्वेद संस्थान

ALL INDIA INSTITUTE OF AYURVEDA (AIIA)

(आयुष मंत्रालय, भारत सरकार के अंतर्गत स्वायत्त संस्थान)

(An Autonomous Organization under the Ministry of AYUSH, Govt. of India)

F NO Q-17001/2022-AIIA -458 **Date 23/12/22**

This is to certify that the following visits has been done by the scholars of All India Institute of Ayurveda during preceding year

	Details			Page No
i		Type of Visit	Date	
1)	Visit to MDU by Dr Nishant	Educational Visit	18/2/22	**1**
2)	Educational Tour to Uttarakhand Dravyaguna Department	Educational Visit	8-14 oct 2021	**2-12**
3)	Visit to AIIMS lab	Educational Visit	17/09/2021	**13-14**
4)	Visit to Yamuna Biodiversity Park and	Educational Visit	9/9/21	**15-18**
5)	Educational trip to Haridwar AIIMS	Educational Visit	6-8 /9/21	**19-29**
6)	Visit to IIT Delhi by Dr Yoshita for research purpose	Research work	2/9/21	**30**
7)	Academic educational visit to SGT University	Educational Visit	14/8/21	**36-37**
8)	Visit to MDU for research work by Dr Nishant	Research work	3/08/21	**38**
9)	Field visit to Multani Pharmaceuticals'	Field Visit	29/7/21	**39-43**

Director
ALL INDIA INSTITUTE OF AYURVEDA
Sarita Vihar, New Delhi -110076

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Official Work Visit to- Maharishi Dayanand University, Rohtak, Haryana (18/02/2022)

A visit was made by Dr. Nishant Malhotra to MDU, Rohtak for DNA Isolation of Fecal and Oral Samplesl in the Dept. of Biochemistry under the guidance of Dr. Narsingh Chauhan.

Dr. Nishant was accompanied by Dr. Sangetha (PhD Scholar, IGIB), the visit was facilitated and guided by Dr. Bhavana Prasher (Principal Scientist, CSIR-IGIB) and Dr. Santosh Kumar Bhatted (Associate Professor, AIIA) for the DNA Isolation of Faecal Samples being stored at AIIA for the thesis work of Dr. Nishant Malhotra. The permission for the same was taken from Prof. Ananthraman P.V, HOD, Dept of Panchakarma.

At 7am cab arrived at AIIA Campus and all the necessary things (Faecal Samples, Stool and Oral DNA Isolation Kits etc.) were taken along and reached there at MDU Campus at 10:00 AM. The samples were sorted and the Isolation was started at 11:00 AM. All the steps of the Isolation was done and almost 50 Oral Samples and 19 Fecal Samples were processed. The quality of the Fecal DNA obtained was checked with the gel electrophoresis at the end. All the samples were stored at -20C for further sequencing after proper coding. All this Work was completed by 9:30 PM after which Scholars left from the MDU Campus and reached AIIA Campus at 12:30AM (19/02/22) after dropping the PhD Scholar to CSIR-IGIB, Mathura Road Campus.

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Educational tour to Uttarakhand

An educational tour was scheduled for MD Scholars 2nd year, final year and PhD scholars of Dept of Dravyaguna of AIIA to Uttarakhand from 8th-14th October, 2021. The trip was headed by Dr.Meena Deogade (Associate Professor) and Dr. Bhargav Bhide (Assistant professor), Dept. of Dravyaguna.

Following scholars were present during the tour.

1. Dr. Geetika Pahuja (PhD scholar)
2. Dr. Shifa Shetty (PhD scholar)
3. Dr. Anoop Chaturvedi (PG scholar, 2nd year)
4. Dr. Devika Singh (PG scholar, 2nd year)
5. Dr. Sumedh Joshi (PG scholar, 2nd year)
6. Dr. Vaibhav Kakde (PG scholar, 2nd year)

The places planned to be covered during the trip are mentioned below-

1. Dabur Cultivation centre (Pantnagar, Almora)
2. Regional Ayurveda Research Institute (Ranikhet)
3. Patanjali Research Lab (Haridwar)
4. Himalaya Wellness Centre, Himalaya Drug Company (Dehradun)

DAY 1 (8.10.2021)

The students and faculty were blessed and waved off by Respected Director, Professor Tanuja Nesari, before leaving for the tour at 3pm and with her blessings, best wishes and plan for the trip, the team left for the journey at 4pm in the evening. Dr Shivani Ghildiyal, Assistant Professor, Dept. of Dravyaguna was also present to wave off the team. The team reached Pantnagar in the night at around 11 pm had a stay there.

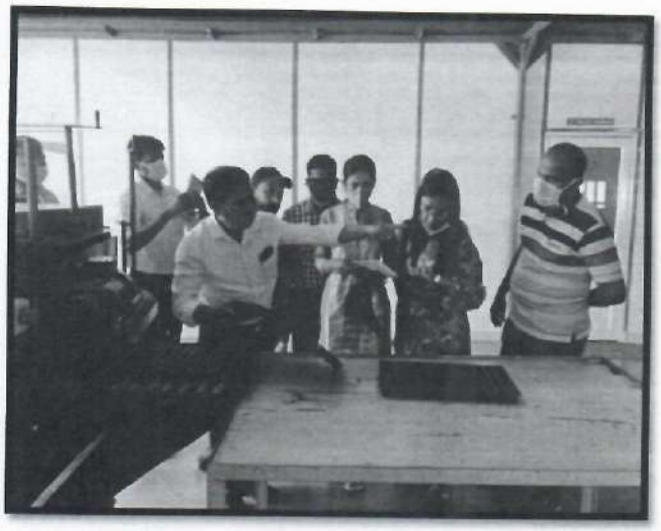
(3)

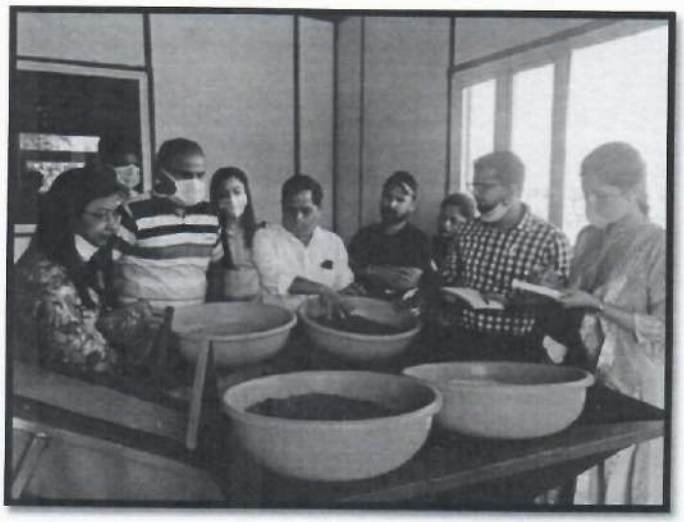
DAY 2 (9.10.2021)

On Day 2, a visit was planned to **JEEWANTI CENTRE FOR MEDICINAL PLANTS**, a unit of Dabur India Limited. The team reached the centre at 9.30 am. At the centre, and was greeted by Sh. Vijay Pandey & their staff and after light breakfast, the introductory session commenced at 10 am. Some key points about the centre are –

- Jeewanti centre was established on 21st October 2011 and has 16 acres area with 6 green house, 4 tunnel house, 4 shade houses for nursery production of quality planting materials (QPM)- Saplings, seeds and raw material production.
- 80 species are cultivated and 59 medicinal plant species are registered by State medicinal plants board (Uttarakhand Govt.)
- Some species cultivated are *Timur, Pippali, Salparni, Prisniparni, Mudgaparni, Pushkarmool, Vacha, Jeewanti, Syonaka, Ashoka, Sugandhbala, Atees, Giloy,* etc.

After the introductory lecture, the team visited the cultivation area, shade houses, tunnel houses, green houses, polyhouse. Shade houses usually have shade cloth over them. They are used to protect cultivated plants from excessive heat, light or dryness. Greenhouse , on the other hand, is opposite to a shade house. It is a structure with a glass or plastic roof and frequently glass/plastic walls. Its roofs and sides have to allow light to penetrate. Greenhouse heats up because incoming solar radiation from the sun warms plants, soil and other things inside the building faster than heat can escape the structure. The whole centre was well equipped with different instruments for sapling, seeds and raw material production. The students appreciated many species during the cultivation area visit and learnt sapling development techniques as well.





After the visit, the team had discussion about the various facilities seen at the centre. There were some queries in scholars about some techniques adopted by them, quality control, rules and regulations for medicinal herbs cultivated which were entertained by the agricultural experts present at centre. It was great learning experience for the whole team. Our faculty members thanked the staff for their cooperation and Swasthya Raksha kits were presented as a token of thanks. The host team had arranged lunch for everyone at the centre. After lunch, the team left for next stop.

The team reached **GB Pant University of Agriculture and Technology, Pantnagar**. University has various colleges like College of Agribusiness Management, College of Agriculture, College of Fisheries, Basic sciences and Humanities, Home Science, Veterinary and Animal Sciences, to name a few. There was a college of Apiculture (art of rearing honeybees) which was a new learning for the scholars. Apiary is an area where a large number of beehives can be placed. Bees are taken care of and managed to produce wax and honey. We had a tour of these colleges and also visited Krishi Mela which was being organized at the same time. The scholars paid tribute to late Bharatratna Shri Govind Ballabh Pant. The scholars and the faculty met Dr.

Kashyap also led the team to the college and introduced to various facilities and technology, which was quite commendable. A virtual reality lab was developed which was a very interesting concept and was a treat to watch for all the scholars and faculty. There was a museum under construction which was one of its kind and it showcased the progress of Pantnagar Heritage University since 1949. It was a very creative and very unique concept. Our faculty members thanked the staff for their cooperation and Swasthya Raksha kits were presented as a token of thanks. As it was quite late, therefore our stay was arranged at the University Campus for the night.

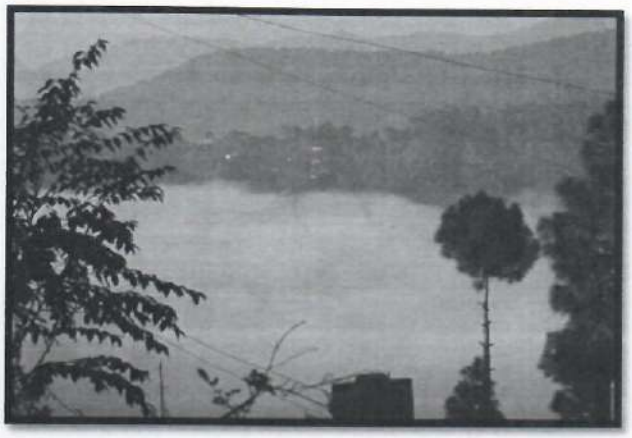
DAY 3 (10.10.2021)


Day started early at 6am as we had to leave for **Dabur cultivation centre**, Jaageshwar, Almora for sample collection and herbarium. Team left the university at 7am and reached Almora at around 2pm in noon. Various samples were collected by the scholars and faculty for herbarium, dry and wet preservation like *Shati, Chiraita, Daruharidra, Tejovati, Sala niryasa..* After meal, we all visited nearby *Shri Jyotirling Jaageshwar* temple. As we had our next day planned at Regional Ayurveda Research Institute (RARI), Ranikhet, we reached Ranikhet at night.


Tejovati

Sala niryasa collection

Daruharidra



Everyone woke up early in the morning to witness **Cloud River Phenomenon**. After the scenic view, the team had breakfast and proceeded for Musk Deer farm at Mahroori (Bageshwar,Uttarakhand) for breeding in captivity and *mrug-kasturi* collection. Dr Gajender Rao, Institute Incharge headed the visit. They collect musk from the deer without sacrificing the deer. The farm is located in 2acres of land situated at an altitude of 2200m. The team reached the farm after 30 minute trek. It was a delightful experience to see the *Kasturi mrug* which is a rare sight otherwise. The study on their feeding habits, behavioural pattern, diseases and their control are continued under regular supervision by the staff. Afterwards, the team left for Ranikhet research institute in the evening and reached the centre.

DAY 5 (12.10.2021)

Dr. Gajender Rao had planned the day to visit the **RARI medicinal plant garden** so the team left for the garden. The garden is situated at an altitude of 1654m, surrounded by thick pine

of the land allotted for cultivation project is 3acres including saffron garden. Net area under cultivation is 2.5 acre at present. Land is purely on rental basis from Kumaon Cooperative Federation, Almora. At present, around 157 medicinal plants are well maintained in this garden. The Saffron (*Crocus sativum* Linn.) is successfully cultivated in non-habitat area of Ranikhet. We were lucky to witness *kesar* flowering at the garden. Pretty purple flowers were appreciated. Himalayan varieties of medicinal plants seen at the garden were *Hathjodan, jeevak-rishabhak, kustha, kaasni, akarkara, Achillea millefolium*, Stevia, silver oak, *banafsha, gajapippali, mahameda,* rosemary and many more. It was a fulfilling day to see such variety of medicinal herbs at the garden. We left for Haridwar same day in 2nd half and reached same day.

Kesar flowering

Group photo with Dr. Gajendra

Jeevak-rishabhak

Kushtha

DAY 6 (13.10.2021)

Aloo bukhara

Next research institute to be visited on the list was Patanjali Research Institute, Haridwar. it is a world class research institute backed up with advanced scientific technology and highly qualified scientists team. Our team reached the institute at 9am sharp to visit the herbal garden. Some salient features of the herbal garden are-

- There are around 300 species of herbs,175 shrubs, 50 climbers, 25 aquatic and about 350 species of trees at present in the garden. A guided tour enlightened us about these medicinal plants with their scientific names, common names and their uses. The team was guided by Dr. Rajesh Mishra.
- 5 artificial caves are maintained in the garden which provides favorable environment for the growth of bryophytes, pteridophytes, orchids. Some caves display the basic knowledge of Ayurveda through beautiful sculptures, depicting the ways our ancestors used to prepare medicines like *churnas, vatis, asavas, bhasmas* etc. It also displays different *yogasanas, pranayama* and *mudras* through similar sculptures.
- There is beautiful *Navgraha Vatika, Rashi Vatika* and *Nakshatra Vatika.*
- Patanjali herbal garden provides green saplings of medicinal plants for sale for general public.
- There is a large Bird house with different bird varieties around a small pond and waterfall providing natural environment to the birds.

After the garden we visited the main research building. The **Herbarium** department was very well maintained. Around 10000 plant specimens of Pteridophytes, Gymnosperms and Angiosperms from eastern and western Himalaya and Upper Gangetic plain are present with digitalized 2000 herbarium sheets.

There is a huge collection of medicinal plants paintings and line diagrams are on display at one place. **Patanjali museum of plant illustrations** is a unique collection of colored canvas paintings of medicinal plants. Around 30,000 coloured canvas and 35,000 black and white line diagrams are displayed according to World Herbal Encyclopedia.

A commendable effort of re-establishing the extinct texts by publishing the **Ancient handwritten manuscripts digitalization and publication** under an immaculate project is going on. Hindi translation and editing of complex Sanskrit manuscripts is under progress. Some manuscripts published till now are- *Siddhsar-samhita, Bhojankotuhalam, Yogshatam, Yogratna Samuchchya, Vaidyashatshloki, Rajnighantu, Madanpalnighantu,* and many more... (Please check the names which are mentioned here once.)

The whole visit was a very enriching experiencing showcasing the sincere efforts of Yog-guru Baba Ramdev, Acharya Balkrishna and their creative thinking which motivates what it needs to build a World class Research Institute.

IMPCL- After leaving from Haridwar, we left for production unit IMPCL (Indian medicines pharmaceutical corporation limited). IMPCL is involved in manufacturing and marketing of Authentic and Standardized Ayurvedic and Unani medicines. At present, 656 classical Ayurvedic, 332 Unani and 71 proprietary medicines are being manufactured by the pharmacy. We had a tour of their manufacturing plant, QA/QC department, storage facilities, packaging unit and their herbal garden as well.

Later, in the second half we left for Rishikesh and reached at around 6pm. Everyone attended the *Ganga aarti*, had dinner and proceeded for Dehradun same day as Himalaya Drug company visit was scheduled for the last and final day.

DAY 7 (14.10.2021)

Next morning, we had to meet Respected Dr. Mayaram Uniyal sir at Himalaya Drug company at 10 am sharp. The team reached on time. We were greeted by the staff and after light refreshment and introductory videos about the drug company we proceeded to their herbal garden and manufacturing area. Though the garden area was limited, it was well maintained by the staff. Dr Uniyal shared his wisdom about the herbs with the team. After the garden, we proceeded to the museum which had a collection of dry drugs, herbarium and antique items used by the founder of Himalaya company, Mr.M.Manal.

In the second half, the team had an interactive and interesting session with Dr.S.Farooq, President of the Dehradun and Faridabad Unit of Himalaya drug company. He was a lively and warm personality and had a long talk with our team. Our team members also shared our queries with him. After the session, he presented each one of us with a complementary hamper as a token of thanks. We had our lunch afterwards and left for their farm house for sample collection with Respected Uniyal sir. Their farm house also has a wide variety of medicinal plants and we were delighted to visit the place. Dr.Uniyal sir helped and guided us to collect many samples for our departmental laboratory and Herbarium and shared his unmatcheable knowledge with the team. This was the end point of our planned tour and we left for Delhi around 4.30pm.

On our way back, we visited the **Robbers Cave**, Dehradun also known as Guchhu Pani. It is a famous picnic spot to enjoy cold streams of water within natural beauty of caves. It was believed that robbers used to hide there after robberies, hence the name. Whole team had a great time at the cave and enjoyed a lot.

We left for Delhi at around 7pm and reached late night. Faculty, scholars were safely dropped to their respective locations by the drivers. This was the end of a week long trip.

Overall it was a great learning, fun filled experience. It was an opportunity for us to appreciate the natural unique flora having a jolly time together. It also taught everyone how to be cooperative and munificent when you are away from home. It was a wonderful tour and a memorable experience.

Dr. Meena Deogade
Associate Professor

Dr. Bhargav Bhide
Assistant Professor

Prof. (Dr) Tanuja Manoj Nesari

2. Academic educational Visit Report at AIIMS, Physiology Lab

Academic visit was carried out at All India Institute of Medical Sciences, New Delhi on 17th September, 2021 for M.D. and Ph.D. Scholars of Dept. of Kriya Sharir. The purpose of the visit was to sensitize the scholars for making use of the objective parameters for the assessment of various physiological entities, making its judicious use for Research and get primary orientation to handling of the instruments related to these studies

Date of Visit: 17/09/2021

Visited Sections/Lab	Exercise Laboratory	Autonomic function Lab	Baldev Singh sleep Laboratory	Stress & Cognitive Electro imaging Laboratory
Visit conducted by	Dr Anjana Talwar	Dr Dinu S. Chandran	Dr Nasreen Akhtar	Dr Prashant Tayade

An Introductory meeting had been held in the teaching block, Physiology Department, AIIMS at 11.00pm with the Head of Department, Prof. K. K. Deepak and other faculties. He shared his huge experience and current facing issues in research and informed about the work going on in the Department of Physiology, AIIMS, New Delhi

The following activities were completed as a part of the visit.

Time	Activity	Participants
11.20am-12.30pm	Exercise physiology lab instruments and their interpretations were demonstrated by person in charge and Dr Abhishek. Various parameters like Vo2, Vco2, expiratory-inspiratory ratio etc had been seen graphically and how to interpret obstruction in Respiratory tract based on various frequencies, resistance etc. Explains changes in ECG, HRV and other parameters during exercise doing on Cycle ergometer or treadmill machine which will be helpful in many researches.	Dr Meera K. Bhojani, Head & Associate Professor, Deptt. of Kriya Sharira Dr Shekhar G. Uike, Assistant Professor, Deptt. Of Kriya Sharira and All PhD & MD scholars of Kriya Sharira Deptt.
12.30-1.30pm	Autonomic function Lab has many sub sections, we were visited main unit. Person in charge, Dr Dinu S. Chandran and Dr Abhishek demonstrated how sympathetic and parasympathetic activities can be interpreted by AFT machine. Beat-to-beat blood pressure in various postures and tonometer useful in pulse examination that might be very informative for scholars visited.	
1.30 2.30 pm	Lunch break	
2.30 - 3.30pm	Dr Nasreen Akhtar, person in charge of Baldev singh Sleep laboratory had shown sleep lab unit which was established by Prof Baldev Singh in 1965. She explained various phases and their correlation, wired	

	and wireless machine, different conditions of sleep. Technical specifications of EEG, EOG, and EMG as per AASM guidelines.	
3.30-4.30pm	In Stress and Cognitive electro imaging lab, person in charge, Dr Prashant Tayade, discussed how instrument/software useful to study various areas of brain functions in learning, memory etc and EEG interrelation with cognitive function.	

Overall visit was highly informative and engaging.

The Scholars noted the details and discussed their Research topics and other topics of their interest with the Faculty of AIIMS

Specific Outcome:

- In spite of purchasing, we could focus on designing, creating our own Indian originated instruments/equipment for our research purpose and standardized it.
- Many more areas in physiology needs to work collaboratively with modern science.
- Many Ayurvedic concepts needs objectivity and interpretations that fulfilled by Physiology lab instruments/equipment.

Vote of thanks was proposed to Prof. K.K. Deepak for giving us opportunity to learn many things and thanks to all person in charge of visited lab for very informative demonstration by Dr Meera K. Bhojani, Head, Department of Kriya Sharira, AIIA.

15

REPORT OF VISIT TO YAMUNA BIODIVERSITY PARK AND LODHI GARDEN

9TH September, 2021

Thursday, New Delhi.

10am – 5pm

As a part of curriculum, a visit to Yamuna Biodiversity Park, Wazirabad and Lodhi Garden was undertaken by the PG scholars of 2nd year and final year and RRDR research fellows with Dr. Meena Deogade, Dr Shivani Ghildiyal and Dr. Bhargav Bhide, Department of Dravyaguna, AIIA. Dr Anis Ahmed Ansari , Retired Scientist E & Head of office , Botanical survey of India, Allahabad accompanied the visit as an expert. Dr. Ekta Khurana and Dr.Preeti from Yamuna Biodiversity park guided us throughout the visit. Dr.Khurana took a detailed lecture at the end of the visit.

1) Yamuna Biodiversity Park

This park has become a home for a diversity of forest communities, biologically rich wetlands, grassland communities, a wide variety of fruit yielding species and an abundance of medicinal herbs. The park also comprises native flora and fauna which used to exist many decades before and then gradually depleted locally. It further acts as a natural conservation site for specific group of endangered plants. The park is presently spread over an area of approx. 457 acres near Wazirabad village on the western bank of Yamuna river. It has 2 major zones- The visitor zone and the Nature reserve zone.

Visit started with the first rangeland, which corresponds to an exclusive Sporobolus diander dominance while the second one showcases a mixture of native tropical grasses such as *Dicanthium annulatum, Chrysopogon rafipogon, Vetiveria zizanoides*. These 2 rangelands are bordered by a serpentine trail. First rangeland consisted of Herbal garden, protected grove while the other one led to butterfly conservatory and amphitheatre. As informed, Herbal garden offers a collection of about 450 medicinal plants.

Along with the commonly seen plants, various plants like *Saal, Kapitha(kaitha), Lasoda, Kaash, Chirpotika, Shaakhotak, Jal Pippali, Paribhadra, Cassia oxidentalis* were noticed during the stroll in the park. Some lesser seen plants like *Kirganelia reticulata, Bridelia retusa, Suda fruticosa, Scoparia dulcis(meethi patti), Ruhelia tuberosa, Phyllanthus reticulata, Anguli snuhi, Hardesia binate, Anjana* tree , *Artemesia vulgaris(damanaka), Tylophora asthmaticum, Tenilum panniculatum*(Chinese *Paalak)* were also appreciated by the expert and faculty.

Due to heavy rainfall since past 2-3 days the whole park was too swampy and not suitable and safe to visit by the visitors. Therefore we could not complete the whole visitor zone. Hence, another visit is required and is planned to be visited during Nov-Feb,2021-22. Photographs of plants, flowers were taken for information and record.

The entire visit was very successful and proved to be very informative.

As we could not visit the whole park, so the faculty and scholars decided to extend the visit to Lodhi Garden in the second half of the day.

2) Lodhi garden

Lodi Gardens or **Lodhi Gardens** is a city park situated in New Delhi. Spread over 90 acres (360,000 m^2), it contains, Mohammed Shah's Tomb, Tomb of Sikandar Lodi, Shisha Gumbad and Bara Gumbad, architectural works of the 15th century by Lodhis - who ruled parts of northern India and Punjab and Khyber Pakhtunkhwa province of modern-day Pakistan, from 1451 to 1526. The site is now protected by the Archaeological Survey of India (ASI). Lodi Gardens is popular for exercise and walking enthusiasts. The garden is situated between Khan Market and Safdarjung's Tomb on Lodhi Road and is a popular spot for morning walks for the Delhites.

Bamboo Garden : An area has been dedicated to various species of Bamboos.

Important Tree Species:- Lodhi Garden has an excellent collection of trees. The main tree species include *Arjun, Champa, Neem, Jamun, Semal, Amaltas, Moulshree, Peepal, Bargad, Kachnar, Kusum, Gulmohar, Sheesham, Putranjiva, Ashok, Shahtoot, Silver oak, Magnolia, Augusta grandiflora , Karanj, Sirish, Bistendu, Sita Ashok, Mahogani, Ritha, Sterculias, Tabebuia avellendi, Spathodea campanulata,* Diabetes plant, etc.

Palm corner has been developed in around 2 acres land which has *Cycas, Fishtail palm, Dak palm, Erica palm, China palm, Cane, Bottle palm,*etc.

Lodhi Garden provides a very good habitat for birds, which attract large number of migratory birds. There are many resident birds also.

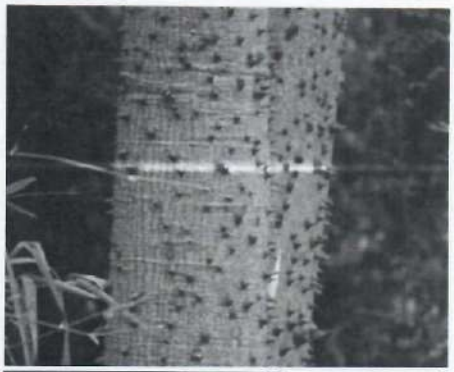
LIST OF SELECTED PLANTS OF YAMUNA BIODIVERSITY PARK & LODHI GARDEN

1. Arjuna
2. Champa
3. Neem
4. Jamun
5. Semal
6. Aaragvadh
7. Peepal
8. Bargad
9. Kanchnar
10. Kusum
11. Gulmohar
12. Sheesham
13. Putrajivaka
14. Ashok
15. Shahtoot
16. Karanj
17. Shirish
18. Ritha
19. Babool
20. Saal
21. Kapitha
22. Damanaka
23. Lasoda
24. Musta
25. Kaash

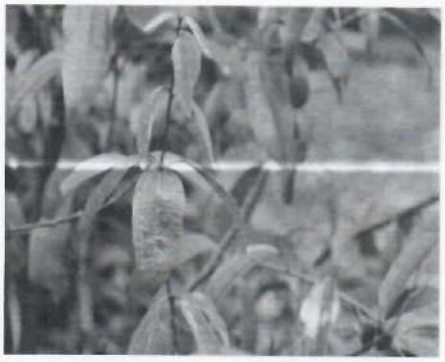
26. Shami
27. Meethi patti
28. Chirpotika
29. Shaakhotaka
30. Anguli snuhi
31. Jala pippali
32. Paribhadra
33. Guggul
34. Ashwagandha
35. Sarpagandha
36. Shatavari
37. Eranda
38. Bhangaa
39. Anantmoola
40. Rugtoora(Rudra Palash)
41. Gurmar
42. Rohera

Desmostachya bipinnata (kaash)

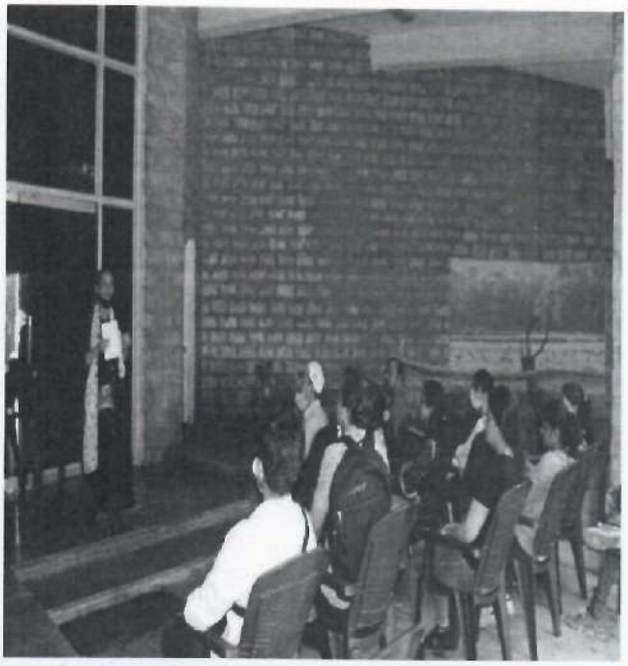
Limonia acidissima fruit (kapitha)



Bombax ceiba (Shalmali)

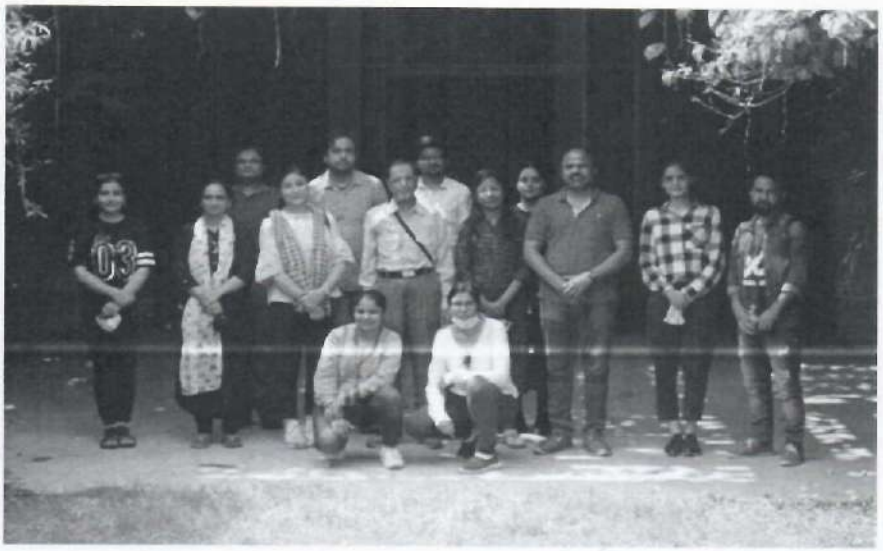


Cinnamomum tamala (Tejpatra)



Dr. Khurana taking lecture about development of Yamuna Biodiversity Park.

Migratory bird at Lodhi Garden.



Group photograph

REPORT OF THREE DAY EDUCATIONAL TRIP TO PREMIER INSTITUTIONS OF HARIDWAR (6TH - 8TH SEPTEMPER 2021)

DAY 1- Forest Research Institute (FRI) (6TH SEPTEMPER 2021)

The team from AIIA on the very first day of the trip i.e. 6th September 2021 visited The **Forest Research Institute (FRI)**, a premier institute in the field of forest research in India of the Indian Council of Forestry Research and Education and provide for research and dissemination of knowledge in the forestry and environment, situated in Dehradun. The building was listed for a time, in the Guinness Book of Records, as the largest purely brick structure in the world surrounded with lush greenery.

The institute has a developed infrastructure with equipped laboratories, library, herbarium (33,000 specimens), arboreta, printing press and experimental field areas for conducting forestry research. Within its campus, it also hosts Indira Gandhi National Forest Academy IGNFA), which is a separate organization of the Indian Ministry of Environment and Forests (MOEF).

This deemed university runs four MSc courses viz. Cellulose & Paper Technology, Environment Management, Forestry Management, Wood Science Technology and two P.G. Diploma courses in Natural Resource Management and Aroma Technology. It also enrolls a large number of research scholars every year for Ph.D.. Another highlight of this institutre is its museums which educate as well as entrain the crowd. There are six sections in the museum: 1. Pathology Museum, 2. Social Forestry Museum, 3. Silviculture Museum, 4. Timber Museum, 5. Non-Wood Forest Products Museum, 6. Entomology Museum.

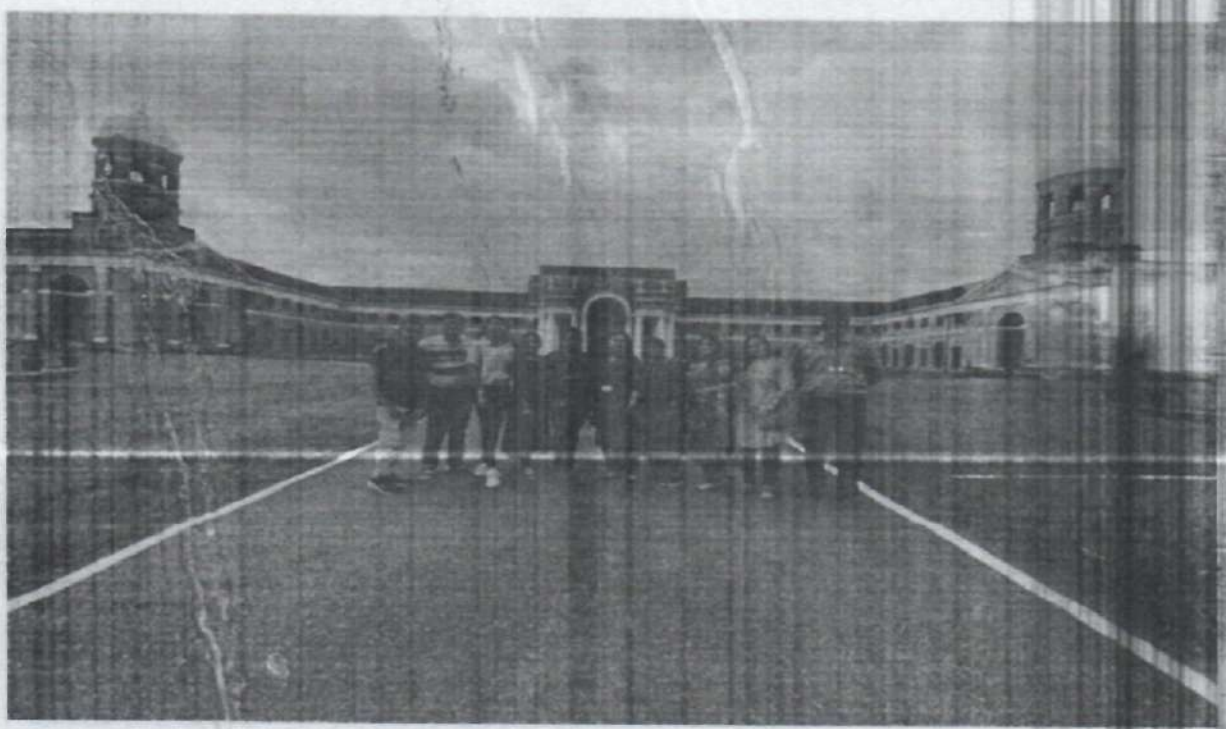
Forest pathology museum exhibited various types of fungus that are attracted to trees, sample trees in various shapes and sizes are kept here. 900 types of tree diseases and timber decay that further divided in root diseases stem disease and foliage disease. Beneficial role of fungi mycorrhiza to establish and promote tree growth and value of fungi as source of food were also displayed. Various types of wood that are found in the forests, different qualities of wooden and timber planks, and various models of different types of timber were also displayed in museum. Along with one hundred and 26 commercially important species displayed along the wall of museum. Siliviculture museum had put on display models and photographs on silvicultural systems practiced for efficient and scientific managements of forests. Non-Wood Forest Products Museum display, sample of miner forests product katha, lac essential oils, spices, tans gums, product from grasses, leaves and flosses. Entomology museum exhibits 3000 insect pests

showing various stages and nature of damage caused by them to seed, seedlings standing trees bamboos and also finished products along with methods to control them. Some of insecticides and their application equipments were also exhibited.

Institute has specialized and well equipped laboratories for research in various tropical forestry sciences including, soil science, biotechnology, forest genetics and tree breeding, forest ecology, GIS, wildlife biology, phyto-chemistry, physiology, forest pathology, entomology, silvicultre and forest botany. A central instrumentation unit (CIU) coordinates the use and maintenance of the sophisticated instruments commonly used by these laboratories.

A visit to some of the laboratories was made with Prof. Vineet, Scientist F, from the department of Biochemistry who showed us the various research facilities like HPLC, Gas Chromatography, Gas chromatography- mass spectrometry, Continuous flow analyser, Carbon hydrogen nitrogen analyser , Particle Size Analyser, Soil CO2 Exchange System and Flame photometer, the Atomic Absorption Spectrometer, The Fourier transform near infrared spectrometer, Leica image analysis system, Universal Testing Machine, Fluorescent and Phase contrast compound and inverted microscopes, Freeze dryers, bioreactors, growth chambers.

Laboratories were based on Tissue-culture, Clonal Multiplication, Physiology Lab, Wildlife Biology, Soil Science, Molecular Biology Laboratory, Wood science & Technology Lab, Biochemistry lab, Forest Pathology Laboratory, Entomology Lab, Silviculture. The scholars of the research of the institute also interacted and Prof. Vineet also expressed his willingness to have a MoU with AIIA for collaborated research. Overall, it was a very nice and informative experience.



The team AIIA with the main building of Forest Research Institute, Dehradun

DAY 2- VISIT TO AIIMS RISHIKESH (7TH SEPTEMPER 2021)

A visit to advanced centre of medical simulation and skills laboratory in AIIMS Rishikesh was made on 7th September, 2021 from 10:30 am to 1:30 pm with the due cooperation and support of Prof. Shalinee Rao and Mr. Hemant Kumar, Senior Nursing officer and Mr. Varghese, Ph.D . Scholar of the institute who facilitated the visitation and technical demonstration.

Photograph of the team with Prof. Dr Shalinee Rao, Professor, Department of Pathology Quality control in histopathology and Cytology and Incharge Simulation laboratory, AIIMS Rishikesh.

Simulation and Skill Lab is important as it can be programmed to simulate selected Clinical findings, conditions or complications and can be used for training on management of these situations, providing the opportunity to practice desired technique several times until right acquisition of skill. Use of simulation also enables to practice and master perfection without any risk to patient or ourselves. Providing a chance for immediate reflection of performance is an effective outcome of Simulation & Skill Lab training. Ability to practice frequently and manage complex medical scenario/ emergency situations will help to prevent medical errors.

Demonstration to 19 mannequins, mimicking approximately 90% like humans was made [illegible] were different mannequins demonstrating different medical conditions like how to manage cases of trauma, accident, fracture, cardiac disorders, emergency conditions related to new born and children, obstetrics cases, respiratory conditions etc.

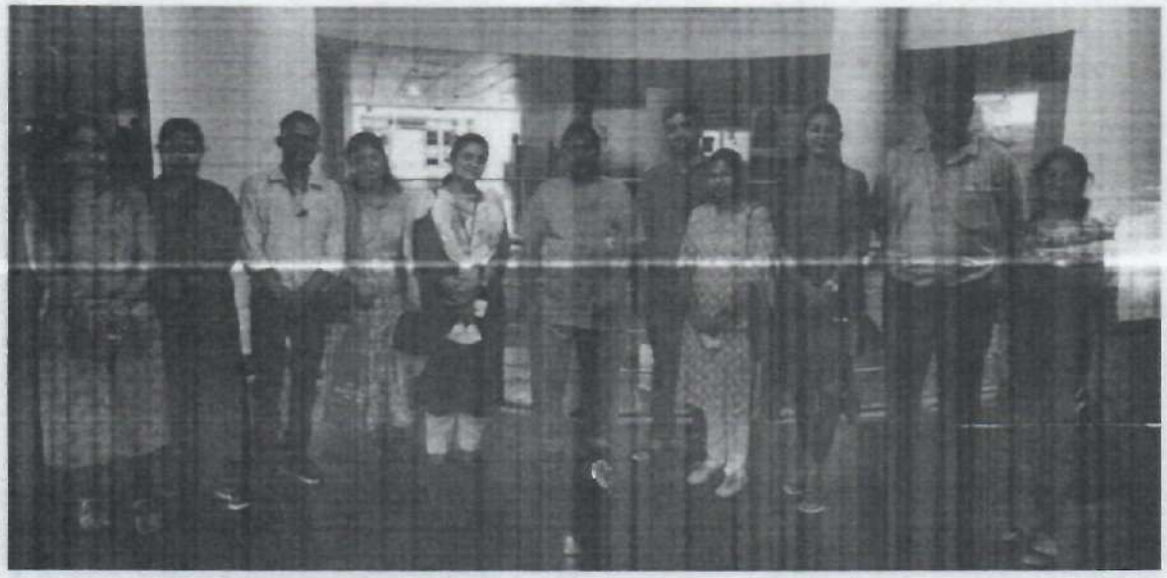
There were mannequins in which we can practice some medical skills such as the procedure of suturing, delivery of infants, respiratory resuscitation, administration of fluids, venepuncture, regulation of B.P. and many more.

We also saw the practice ultrasonography, echocardiography and various minor surgical procedures like cauterization of any tissue, Spinal epidural, lumbar puncture and thoracic epidural training etc. by the advanced machines they had.

We also saw the Anatomage, the virtual dissecting table where we can study details of human anatomy and physiology of various organs systems and find the position of organs and vessels in human body and can be correlated with the CT Scan or MRI, which also helped in the diagnosing the case for the better management. This visit to the simulation laboratory was very useful as it exposed new domains of technology to us.

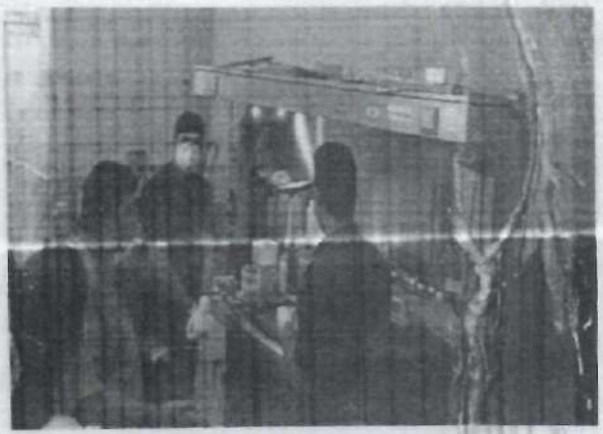
Visit to the Laboratory Segment of AIIMS, Rishikesh

The team from AIIA visited CDSL, AIIMS, Rishikesh, Uttarakhand. The HOD of the department Dr. Nilotpal Chowdhury, accompanied the scholars for a round through the laboratories of the institute.



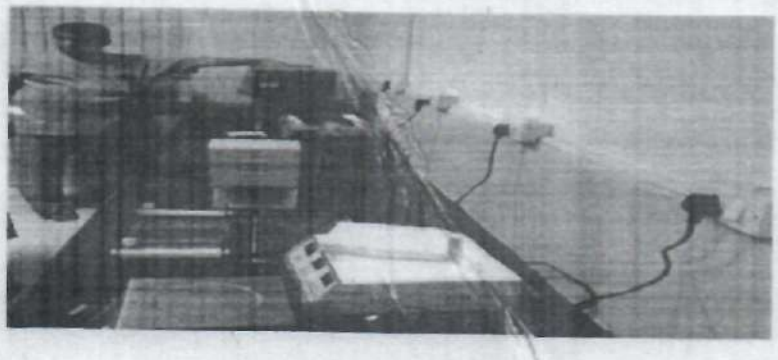
The scholars began the tour with viewing the coagulation analyzer. This analyzer could detect the speed of the **coagulation** pathway, as well as the levels of thrombin and thromboplastin, in as short as a few minutes as told by Dr. Chowdhury. These analyzeers are based on Photo-optical detection technology and is the most advanced **coagulation analyzer** or coagulometer technology available today. Moving forward the scholars Hematology Analyzers. These analyzers were capable of counting as well as determining the size of various circulating blood cells in blood, including RBCs, WBCs, and platelets at a faster rate than the routine haematology autoanalyzers

Further we visited the very well-known **Test Tube Agglutination Viewer**. This viewer is uniquely ideal to be used in blood typing flocculation, cross coordinating serodiagnostic tests, and distinct agglutinations. Viewer gives a simple and specified perusing of the under surface of test tube material.

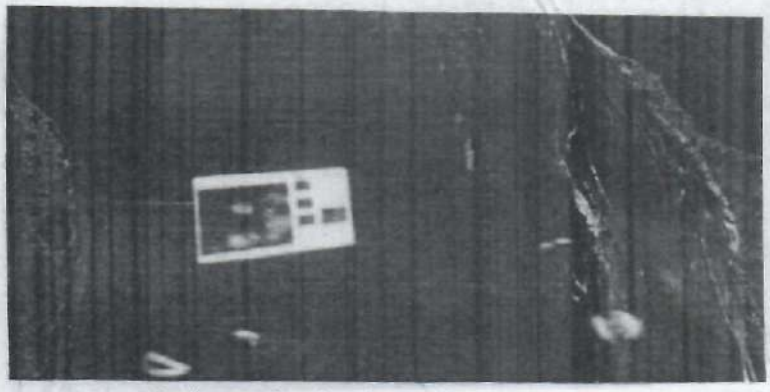


The scholars visited the histopathology section of the laboratory and specifically focussed on the grossing station, tissue processing section, tissue fixing, microtome, slide making process making processes as they toured through the laboratories. In this endeavour, the scholars learned the importance of **Bio safety cabinets (BSL-2)** in the laboratories. These maintain the same standard microbial practices as BSL-1 labs, but also includes enhanced measures due to the potential risk of the aforementioned microbes. Personnel working in BSL-2 labs are expected to take even greater care to prevent injuries such as cuts and other breaches of the skin, as well as ingestion and mucous membrane

exposures. Moving further in the tour the scholars saw the microscopic slides obtained by **Tissue Processor** after microtomy in the histology laboratory.



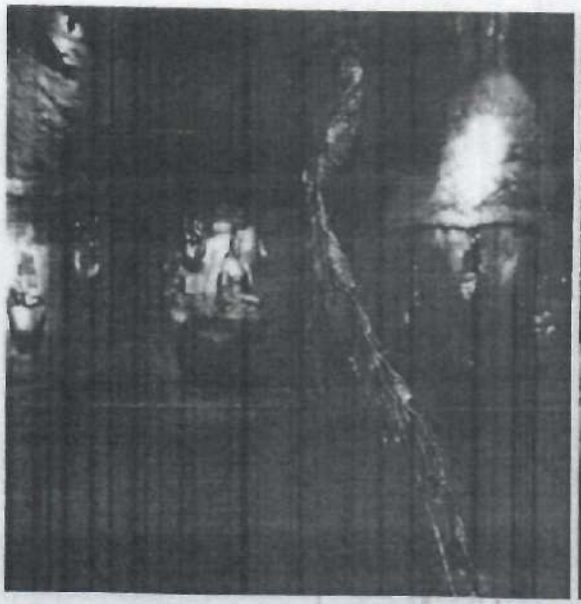
Then, **scholars also got to see the PCR Equipments. PCR Machine** is based on using ability of DNA polymerase synthesize new strand of DNA complementary to the offered template strand.



At last, the scholars got the chance to view the **Fluorescence in situ hybridization (FISH)** machinery. It is a laboratory technique for detecting and locating a specific DNA sequence on a chromosome. technique relies on exposing chromosomes to a small DNA sequence called a probe that has a fluorescent molecule attached to it. The probe sequence binds to its corresponding sequence on the chromosome. Overall, the trip to the Central Drug research laboratory was also very knowledge enhancing and useful.

DAY 3- Patanjali Haridwar (8TH SEPTEMPER 2021)

The visit to Patanjali Research Institute was made on 8th September 2021. Permission was provided to visit the Patanjali herbal garden and Patanjali Ayurveda College and Hospital. The entire Garden visit was guided by Dr. Uday, Scientist working in Patanjali Research Institute.

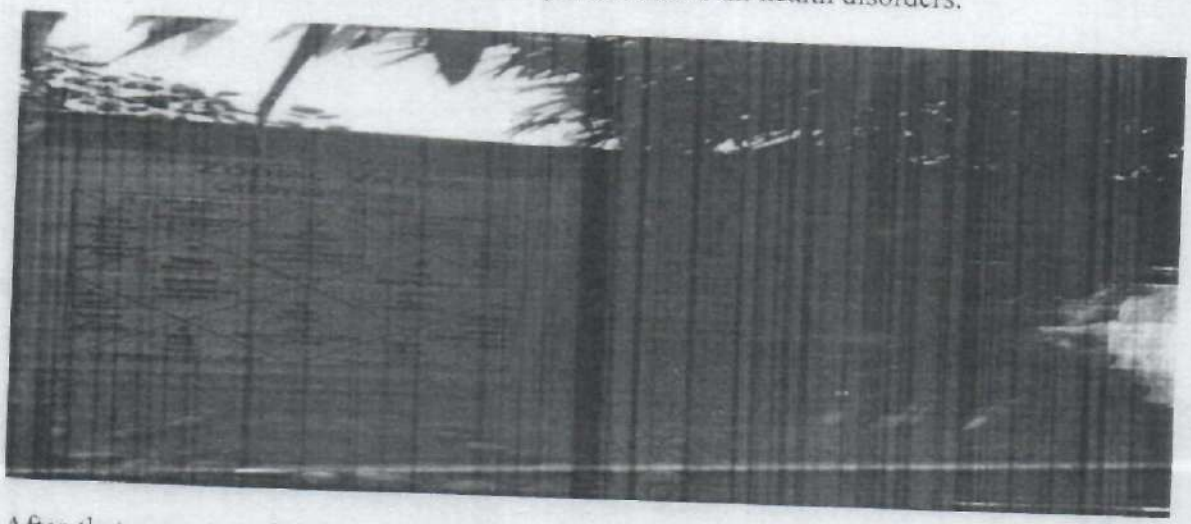


It had beautiful sculptures in artificial 5 caves which depicted knowledge about various Ayurvedic principals and Yoga through the lively forms engraved within the caves. In addition, bird house, tree house, fountains, pond were also developed to make the garden more aesthetic and the learning a pleasure with visual creative inputs. The caves demonstrated the [illegible] yogic mudras, tridosha siddhanta for treatment, different panchakarma and ancient therapeutic practices, tools used in kitchen, descent of Ayurveda and many other things very nicely.

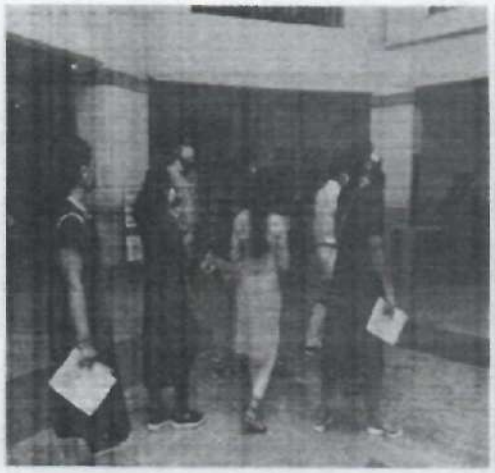
The herbal garden harboured a huge collection of more than 900 medicinal herbs, shrubs, trees, climbers, aquatic plants flora from all over the India, named as Anandavana. The garden was divided into different sections such as Kandavatika, Mulavatika, Shakavatika, etc., along with

areas showing different plant growing zones and habitats as like that for ferns, near water bodies etc. There was also beautiful Rashi vatika and Nakshatra vatika.

The rashi vatika contained 12 plants worked out to be beneficial for the usage of the twelve zodiac signs and Nakshatra vatika contained 28 plants according to the different nakshtras. The importance of this vatika is each person according to their zodiac sign can sow different types of plants and get a healthy life because these plants resolve all health disorders.



After that we proceeded towards visiting the Patanjali Ayurveda College and Hospital situated within the premises of Patanjali Yogapith were we visited Pantanjali Ayurved Hospital and Yaghyashala.



The yagyashala had a big havan kund in which havan was carried out everyday in the morning followed by Yoga and pranayama exercises, to guide which a yogacharya was present there. Then the hospital segment was visited wherein the laboratory facility was seen. However, they did not allow for the photograph to be taken. The lab was functional with the segments of biochemistry, hematology, ELISA, Clinical Pathology, Serology, Immunology, Clinical Pathology and a small setup for histopathology. Back up instruments were present in each of the segments and the turn-around time for the tests ranged from 2-4 hours.

Overall, the visit of the three days to the various premier institutions was very informative and useful. It opened new domains of knowledge to the scholars. The team then moved towards the return journey to Delhi.

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REPORT OF IIT DELHI VISIT REGARDING RESEARCH WORK

A visit to the Department of Textile and Technology at Indian Institute of Technology, Delhi was conducted on 2nd September 2021 by Dr Yoshitha CN (PhD Scholar).

This visit was aimed at performing discussion and drafting guidelines for research on "Development of an Innovative Upanaha Patch and its comparative clinical efficacy in knee osteoarthritis" with the Co-guide of Research work Prof. Bhuvanesh Gupta.

Prof. Bhuvanesh Gupta took the input regarding basic details about the Ayurveda treatment Upanaha Sweda, its method of preparation and application. He has shown his keen interest to get deep understanding into the procedure before starting the technological part and research by discussing in detail about its indications and contraindications, mode of action, even vyapad (complications) that are commonly encountered in practice. He was also made aware of the lacunae in present traditional practice and the scope of improvement and improvisation using present day technologies. A video of the traditional practice of upanaha was shown to him for better understanding of the procedure.

He briefly introduced the working culture of the department and ongoing research. Visit to the lab was also conducted wherein the research related to this project will be conducted in the future.

This was although the first and introductory visit to the centre, but was an important step the future research activities and establish a relationship between two different streams of science. Further planned visit will be conducted in future.

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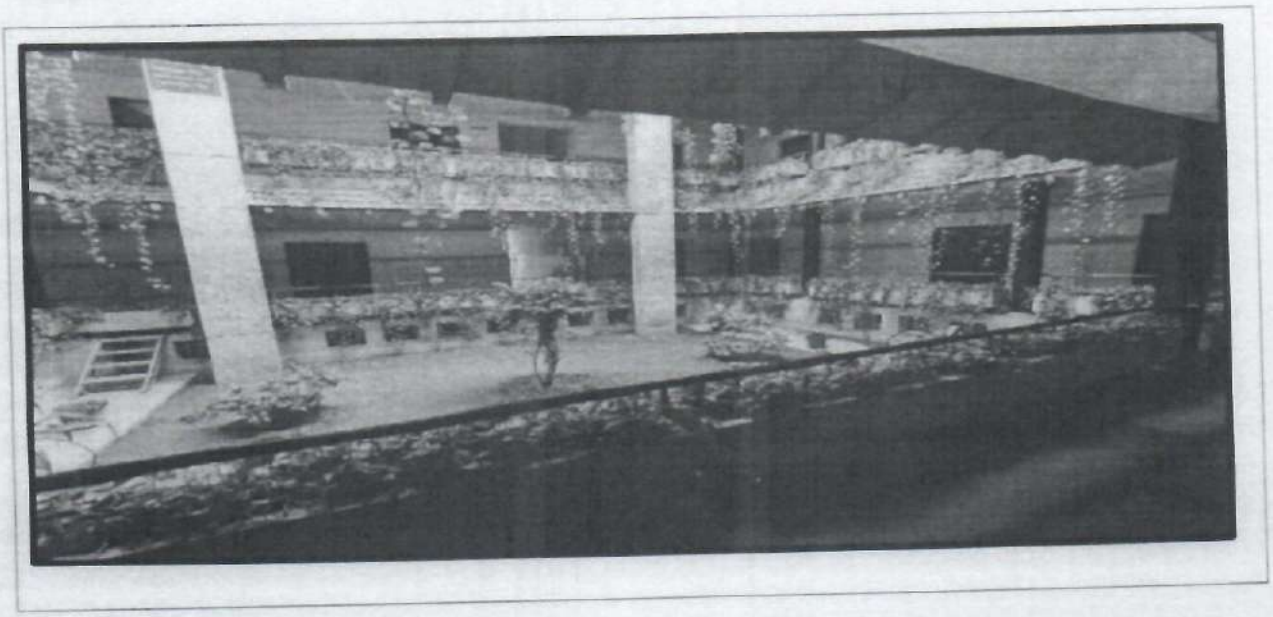

- **IPD Area**:

The IPD had a capacity of 49 beds. The private room had a well-built and equipped setup with an attached spacious therapy room with a separate washroom. The architecture depicted the glimpse of ancient Kerela Traditional homes. A rope was attached to the roof which could be used to tie Shirodhara pot, thus eliminating the use of Shirodhara stand. The flooring was done using anti-skid tiles, which is very essential in a *Panchakarma* setup to prevent the patients from accidentally slipping after oil massage etc. procedures. The room also had a separate entry gate for the therapists into the therapy area. The washroom had double sided doors and grab bars in each washroom which is a very thoughtful step for physically disabled/old patients. The room also had a wardrobe for keeping the essentials of the patients specially designed to facilitate even the handicapped patients. There was a prescription pad attached on the wall beside the bed of the patient.

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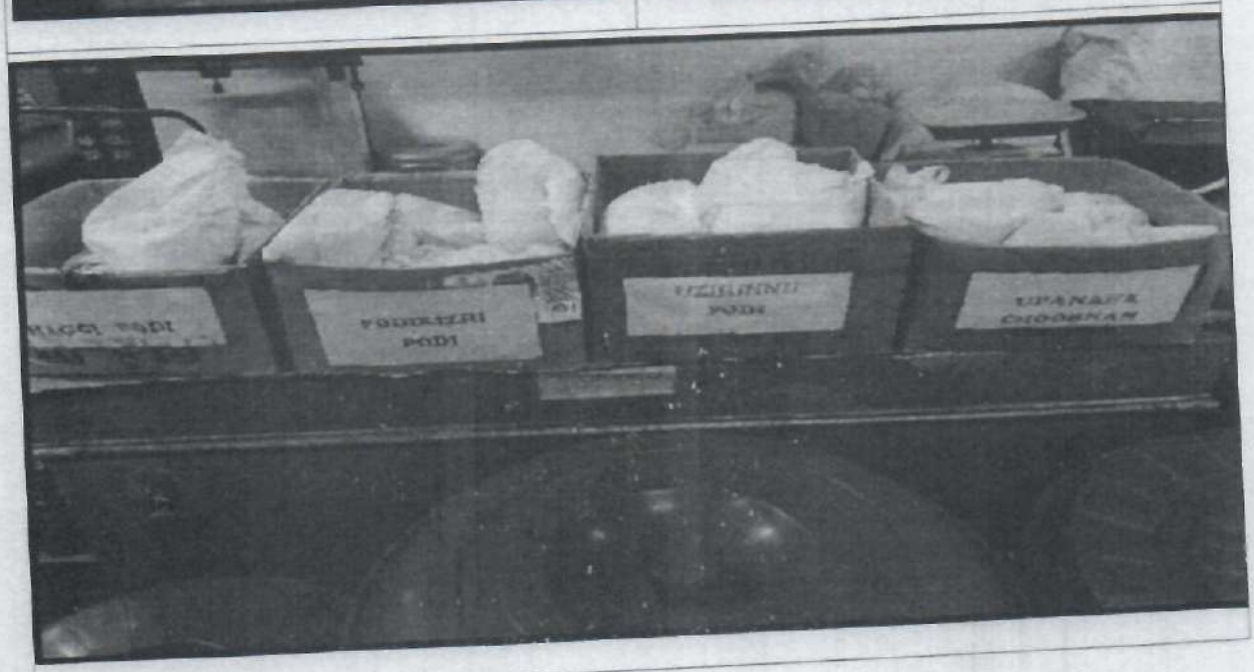

- **Store Room**- Here are all the samples of the various materials to be used during the *Panchakarma* procedures like different *churnas*, vessels, *pottalis* were kept. All the items were properly labelled and arranged as per NABH guidelines.

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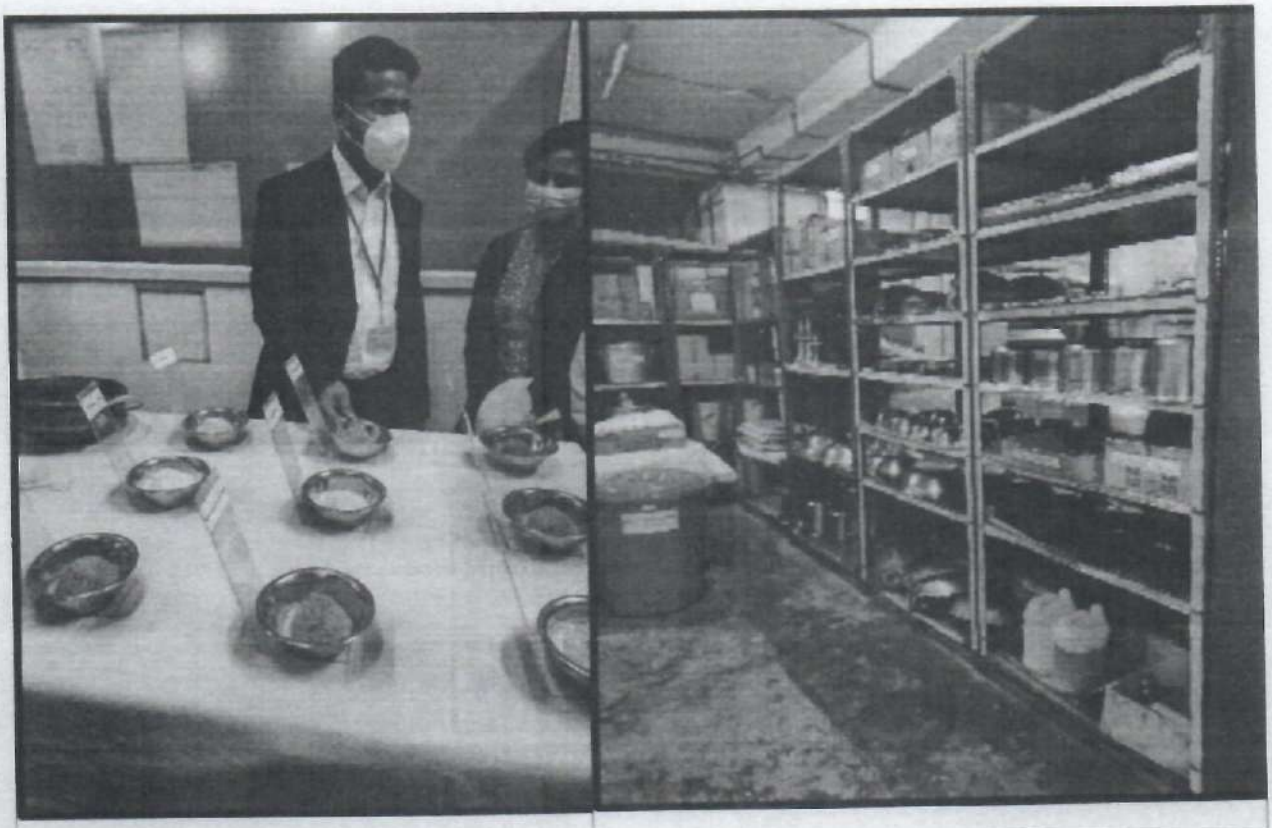

- **Preparation area**:

The entry had a reception from where the prepared tray for each patient is to be collected. There was a Dhanyamla Plant being used to prepare Dhanyamla through fermentation process working continuously 24*7. Also, many Kashayas were being prepared and stored separately in big containers properly labelled which were then transferred to glasses as per the prescription to each patient labelled with their personal details including UHID Number so as to make sure that the medicine reaches the right patient. There was a washing area in the preparation room which was specially designed keeping in view the Ayurveda Taila/Ghrita preparations.

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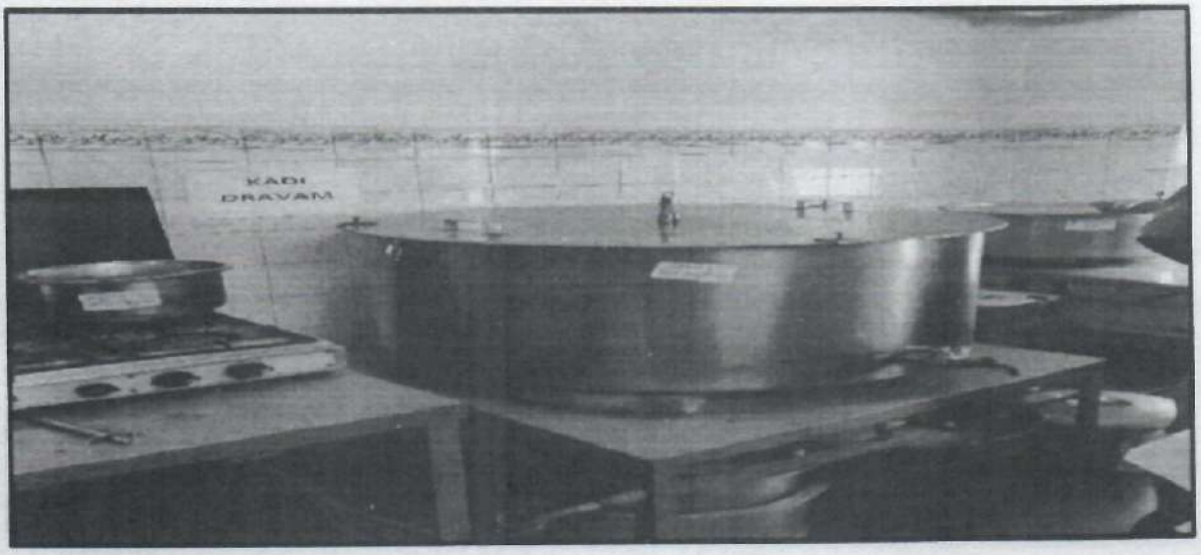

- **Washing Area**:

The most innovative thing to observe there was the depth of the sink which could easily accommodate a big sized bucket, thus facilitating the cleaning of big containers without any spillage of water.

Trip ended with a presentation about the brief history, aims and Objectives of Arya Vaidya Sala, Kottakal, which was followed by High tea and refreshment.

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Hospital visit concluded at about 4 pm followed by visit to Sunder Nursery where various herbs being commonly used in Ayurveda *Panchakarma* Therapies were shown and a detailed discussion upon their identification and properties was done.

OVERALL CONCLUSION:

It can be concluded that the trip was successful in terms of imparting new ideas, learning new concepts of hospital architecture and patient care as well as their management. The visit further lead to the enhancement of the existing knowledge of the Scholars.

SUGGESTIONS

The following are the most important things that we observed there and would like to request our Respected Director Madam and HOD Sir to incorporate-

- Specially Designed Rooms with attached therapy room having direct access to washrooms with separate entrance to attached therapy room without compromising with the privacy of patients.
- Dual sided open washroom doors (to facilitate non-ambulatory/handicapped patients on wheel-chairs)
- Anti-Skid Tiles for the flooring.
- Dhanyamla Preparation Plant

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ACADEMIC EDUCATIONAL VISIT REPORT

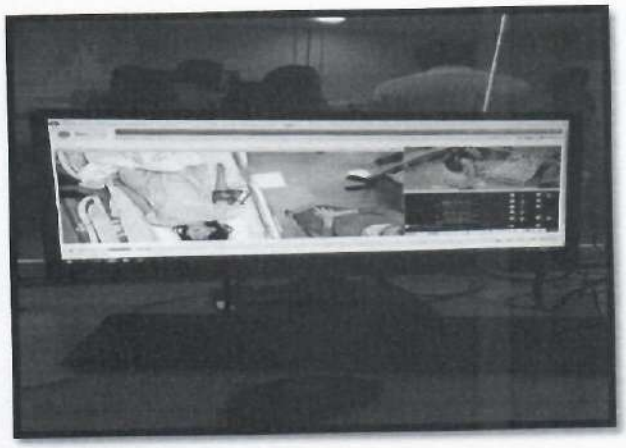
1. Academic educational visit at The National Simulation Reference Centre, S.G.T. Univesity Gurgaon

Academic visit was carried out at The National Simulation Reference Centre, S.G.T. Univesity Gurgaon on 14th August, 2021 for M.D. and Ph.D. Scholars of Dept. of Kriya Sharir. The purpose of the visit was to make students more skill efficient and to develop the skills through simulation. This also aware the students about systemic approach to learning through 5 phases – Knowledge acquisition, Skills proficiency, Decision making, simulation in teams and clinical experiences. This was also to provide them feel of medical applications in clinical practice through simulation and provide fear free learning so that students will apply various medical procedure from history taking to treatment and management in more efficient and approachable way. Responding to the need for Simulation-Based Education at the development stage, with careful attention paid to transfer of skills learnt to the real clinical environment, this visit was planned.

National Simulation Reference Centre(NSRC) is set up through the consortium of Indian Nursing Council (INC), Jhpiego, Laerdal Medical India and SGT University, Gurgaon. The consortium is quality and innovation- focused and research-driven in pursuit of an individual with experience in health science education; motivated to innovate, create, and prosper both nursing and inter-professional initiatives that support the NRSC. National simulation reference centre actively working on research projects for improving the productivity of nurses and doctors during Covid-19 pandemic as well as ACLS training and nationwide training of faculties for simulation based education. National Reference simulation center provides hands-n clinical experience. The simulation research laboratory is an academic bridge from schoolroom learning to clinical patient care. A well-equipped Laboratories with high tech mannequins like Fundamentals of Nursing Lab, Obstetrics and Gynecology Lab, Pediatric Lab, Community Health Nursing Lab, Nutrition Lab and Computer Lab with high Mannequins.

Dr. Meera K. Bhojani, Associate Professor & HOD, Dept. of Kriya Sharir, All India Institute of Ayurveda along with 06 M.D.Scholars and 03 Ph.D. Scholars visited the NSRC located in S.G.T. University– Gurgaon. The faculty member had an interaction with Director, NSRC and briefed her about the program of the department. The

trainers of the NSRC guided the AIIA team to the respective laboratory, where an orientation about the objectives of simulation centre and its each step was well explained by the NSRC team. After introduction, all scholars were headed by one staff member of research lab who helped them to understand the practical usefulness and research work going on the respective lab. Scholars took almost Four hour to see complete set of mannequins of various medical fields likes Obstetrics and Gynecology, Pediatric, Operation theatre, CPR, emergency etc. and various provided simulation centre. Debriefing lab for analysis the mistakes and to make more efficient in field was also visited by the AIIA team and this was followed by questions or queries of students which was well explained by the team of NSRC.



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Official Work Visit to- Maharishi Dayanand University, Rohtak, Haryana (03/08/2021)

A visit was made by Dr. Nishant Malhotra to MDU, Rohtak for DNA Isolation of Fecal in the Dept. of Biochemistry under the guidance of Dr. Narsingh Chauhan.

Dr. Nishant was accompanied by Dr. Sangetha (PhD Scholar, IGIB), the visit was facilitated and guided by Dr. Bhavana Prasher(Principal Scientist, CSIR-IGIB) and Dr. Santosh Kumar Bhatted(Associate Professor, AIIA)for the DNA Isolation of Faecal Samples being stored at AIIA for the thesis work of Dr. Nishant Malhotra. The permission for the same was taken from Prof. Ananthraman P.V, HOD, Dept of Panchakarma.

At 7am cab arrived at AIIA Campus and all the necessary things (Stored Fecal Samples, Stool DNA Isolation Kits etc.) were taken along and reached there at MDU Campus at 9:50 AM. The samples were sorted and the Isolation was started at 10 am. All the steps of the Isolation was done and almost 50 Samples were processed. The quality of the Fecal DNA obtained was checked with the gel electrophoresis at the end. All the samples were stored at -20C for further sequencing after proper coding. All this Work was completed by 7 PM after which Scholars left from the MDU Campus and reached AIIA Campus at 10 PM after dropping the PhD Scholar to CSIR-IGIB, Mathura Road Campus.

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Details of field visits/clinical /industry internship/research projects/industry visits/community posting (Academic year 2021-2022)

Department: Rasashastra Evum Bhaishajya Kalpana

S. No.	Details of visit/posting/internship/research project	Duration	Date	No. of students	Batch
1.	Educational tour at Multani Pharmaceuticals Roorkee, Sanskar, Swadeshi Pharmacy and IMPCL Haridwar Unit, Patanjali Research Unit, IMPCL, Mohan	2 days	29-30 July 2021	10	01 Phd Scholar (Batch 2021-24) 03 PG Scholars (Batch 2018-21) 06 PG Scholars (Batch 2019-22)

Tour report

As per the approval of competent authority, Department of RSBK had organized an educational tour from 29-30 July, 2021 for visiting GMP certified pharmacies and research center as per the syllabus of CCIM.

Following members were present in the tour.

1. Prof. PK Prajapati (HOD, RSBK)
2. Dr. Pramod Yadav (Asst. Professor)
3. Anjali Upadhyay (Pharmacy Manager)
4. Dr. Shreshtha Kaushik (Ph.D.)

PG 3rd Year

5. Dr. Smrutimayee Sahoo
6. Dr. Preeti
7. Dr. Neelam

PG 2nd Year

8. Dr. Ganesh Tambe
9. Dr. Sakshi Badyal
10. Dr. Aleena Gauri
11. Dr. Sheetal Sharma
12. Dr. Shivani Sharma and
13. Dr Archana

Detailed tour report is as under.

Day 1 (29-7-2021) –

Multani Pharmaceuticals, Roorkee - 09:00 AM – 11:30 PM

The visit started at 4:30 am from the AIIA campus. The team reached "Multani Pharmaceuticals, Roorkee, Uttarakhand at 9:00 am. The team had an introductory interaction with the Mr. Vivek Dixit, Production in-charge. He and Mr. Bhanu Pratap (Quality Head) guided the team to various sections of Analytical Division lab such as Sample booking and preparation room, Stability room, Pharmacognosy lab, Instruments lab etc. along with their detailed description. We also gained insights regarding several instruments viz. Polarimeter, Tintometer, Digital tensile strength tester, break load apparatus etc. The QC section was also well equipped with sophisticated instruments like HPLC, HPTLC, AAS, GC etc. having NABL certification. This was followed by visit to the manufacturing unit which comprised of different subunits like *Avaleha*, Decoction, Distillation, oil etc. The team also learned about cleaning, packaging as well as documentation protocols of a WHO- GMP Certified Pharmacy. Most of the work was mechanized and automated. Steam jacketed vessels were in place for carrying out various procedures like fermentation, Kwatha etc. Raw drug store had all the materials well assorted and stored with differed colour coded tags for proper identification. Another candy unit was visited under same premises which was under construction as per cGMP norms. Packing section was also automated. All the scholars were thrilled to see the Bhasma section of Multani Pharma. They gained deep insight and knowledge about large scale preparation of ongoing *Heeraka Bhasma, Swarna Bhasma, Kajjali*, etc.

Sanskar, Swadeshi Pharmacy and IMPCL, Haridwar Unit - 12:30 PM – 3:00 PM

This was followed by visit to Sanskar, Swadeshi Pharmacy and IMPCL, Haridwar Unit. Dr. Vivek, Production head along with other officials facilitated the visit. The scholars were able to see the preparation of Amla candy. Various sections of traditional manufacturing unit were visited. Properly stacked and tagged raw drugs from herbal, mineral and metal origin were segregated. Preparation of powder through cyclone pulverizer, Kwatha through steam jacketed vessels and Asava Arishta under fermentation process could be seen. The team also visited the juice making plant which comprised of sorting machine, pulp making machine and large containers for extraction of juice followed by packing section.

Patanjali Research Unit - 3:30 PM – 6:00 PM

Thereafter, the whole team visited Patanjali Research Unit. It included sequential visit to the Museum (Taxonomy Lab, Herbarium section and Library), Herbal Garden, Quality Control unit ensued by a small session with Acharya Balkrishna, Chairman of Patanjali Ayurveda. The museum had approximately 30,000 alphabetically arranged, fascinating 3D canvas plants illustrations in sliders. We were also acquainted with their ongoing project i.e. World Herbal Encyclopedia and research on traditional medicine across globe. Moreover, its library was enriched with numerous handwritten manuscripts.

Its herbal garden got a huge collection of flora from all over India. It also had beautiful sculptures in artificial caves which depicted knowledge about various Ayurvedic principals. In addition, bird house, fountains, Pond made it more aesthetic. Quality control unit consist of cell culture, molecular biology, immunohistochemistry lab, etc. equipped with ample of sophisticated instruments.

Thereafter, the team checked-in the nearby Ashram- Sri Premnagar Ashram for night stay.

Overall, the visit was very informative and enjoyable.

Day 2 (30-6-2021)

IMPCL, Mohan - 12:50 PM – 4:30 PM

The team departed from Haridwar and left for IMPCL, Mohan, Almora (Via Ramnagar), U.K. at around 6:00 AM and reached at 12:50 PM. AIIA faculty and scholars were greeted by the Team of IMPCL, Mohan. After a short introduction, Sh. Harit Pancholi, Production Manager (Ay.) guided the team through various blocks and departments. IMPCL unit at Mohan is WHO GMP certified unit. Separate man and material flow were observed in the pharmacy. The whole premises had HEPA filters for purification of the surrounding air. The production area was divided into 3 sections- Semi-solid, Solid and Powder preparations. Every section had air-lock double gate system to maintain air-pressure and prevent microbial contamination.

Manufacturing area comprised of Pulverizer, Grinders with different blades, Mass-mixers, Octagonal-blenders, Sifters, Fluid bed driers, Tray-drier, Tablet compression machines, wooden containers in the *Sandhana* section, etc. The area required for boiling or heating process had approximately 10-12 diesel supported burners and big iron utensils with huge exhaust fans.

Post lunch, the team visited the Quality Control Lab. It had all the basic instruments required for Quality testing of drugs like Digital pH meter, Analytical Balance, HPTLC, HPLC, Tablet Disintegration Machine, AAS etc. They also had a museum where all the standard raw drugs were collected and stored. Proper batch to batch records were analyzed and maintained.

There was a separate open area for Bhasma preparation. Traditional method was being employed for preparation of various Bhasmas in IMPCL. Ample amount of Vanyopala were stored under shade and Mandura and Lauha Bhasma were seen in-process on the day of visit. End runner, edge runner, ball mill for preparation of Kajjali, EMF, traditional Puta etc. were seen in this section.

The team departed for New Delhi at 4:30 pm.

Thus, the team visited 4 pharmacies (3 GMP certified) and 1 research center. Overall, the tour was very educative, informative and great learning experience.

Selected photographs of the visit:

Team RSBK, AIIA with officers of Multani Pharmaceuticals

Puta through EMF in process

Bhavana in process

Swadeshi Pharmacy

IMPCL (Haridwar Unit)

Visit to Patanjali Research Institute

AIIA team with officials of IMPCL Pharmaceuticals, Mohan

Pills section

vessels for Puta

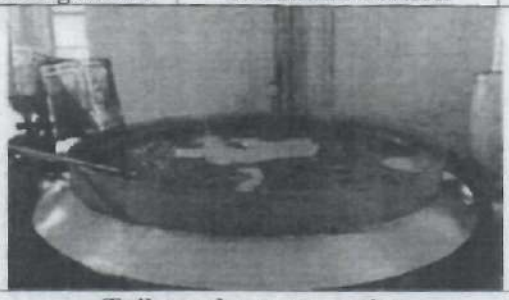
Traditional Puta

Stick making

Heating device

Sandhana Section

Guggulu Vati Section



Taila under preparation

Kindly attach reports of the visits also.