SUMMER RESEARCH INTERNSHIP PROGRAMME 2022-23

FINAL PROGRESS REPORT

NAME : HIRAL DEVENDRAKUMAR SHAH

COLLEGE NAME : PRESIDENT SCIENCE COLLEGE (AFFILIATED TO GUJARAT UNIVERSITY)
HOST INSTITUTE : NIPER (NATIONAL INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH), HYDERABAD .

Background and Introduction of Host Institute:

On October 19, 2007, the National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad, was founded on the grounds of IDPL's R&D Center. It features top-notch lab facilities for keeping knowledge current and exposing students to a variety of cutting-edge approaches necessary for drug discovery research.

It is "Institute of National Importance" that has stated goals of becoming a Center of Excellence for cutting-edge pharmaceutical sciences research.

The main objective of the institute is to offer following programs:
M.S. (Pharm.),
M.B.A (Pharm.),
M.Tech (Pharm.),
Ph.D.

Additionally, it achieved Second Place in the 2022 National Institutional Ranking Framework.

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Participation in seminar or presentations:

Attended a seminar on TLR7/8 agonist based anticancer Nano vaccines at NIPER Hyderabad by speaker Dr. Jayanth Panyam, Dean and Professor, School of Pharmacy, Temple University, USA.

Feedback for NIPER Hyderabad:

NIPER Hyderabad is a very good institute and my experience in it was good as all the faculty members and Ph.D. Scholars supported me very well and inspired me to explore many more things. My coordinator sir, M.S sir, ma'am, and Ph.D. scholars **Dr. Jitender Madan** and guide **Deepankar Bahuguna** are very friendly, informative, and knowledgeable scientists. This internship program helped me a lot to apply knowledge in practical fields. I am very grateful to the **Pharmaceutical lab** which gave me such an inspirational as well as an informative training session.

Feedback for GSBTM:

I am very thankful to **GSBTM** for this wonderful and excellent **SRIP** session at **NIPER**. The training was very informative and practical also, I did not face any problems living in a different city due to the coordination of **GSBTM** and **NIPER**. The session was excellent and fantastic. Thanks to **GSBTM** once again for giving research exposure to students like me at the undergraduate level.

Signature of Trainee
NIPER Hyderabad

Signature of Co-coordinator

Topics We Learnt:

Preparation of Tablets –

- Ayurvedic tablets by direct compression method in three part :-
    1. Pre formulation of tablets
    2. Formation of tablets
    3. Evaluation of tablets

Drug Delivery Systems –

- Preparation of Niosomes.
- Preparation of Gelatin microspheres by ultra-sonication.

Few performed are:

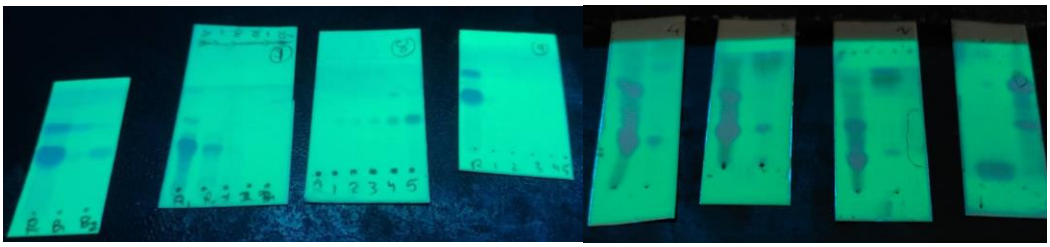
- Thin layer chromatography.
- Texture analyser.
- Soxhlet extraction of medicinal plant.
- Checking thermal variation of drug by using DSC.
- Animal handling while drug testing.

Demonstration of –

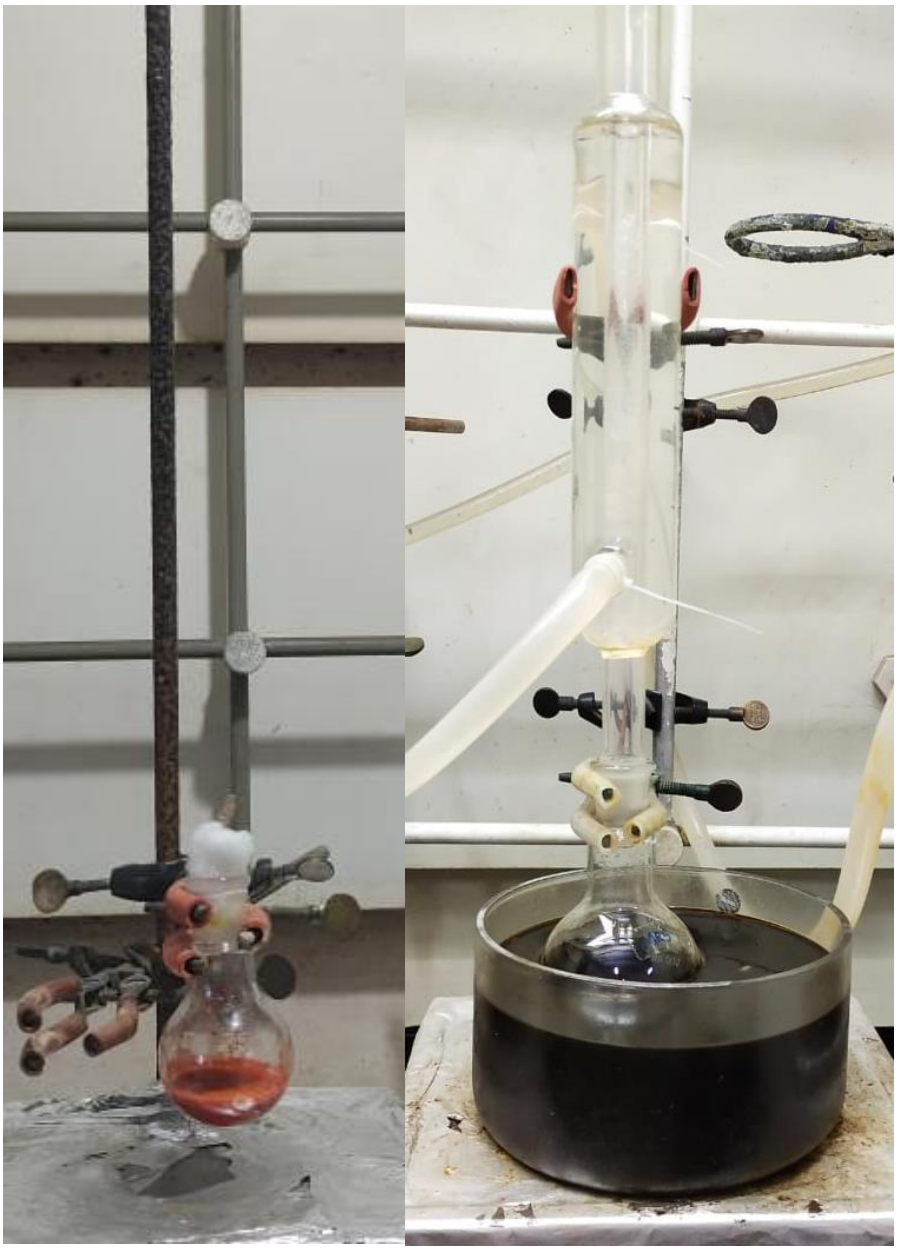
- Hot stage microscopy
- Freeze dryer .
- DSC (Differential scanning calorimeter)
- HPLC (High pressure liquid chromatography)
- LC- MS (liquid chromatography - Mass spectroscopy)
- FTIR (Fourier transform infrared)
- NMR (Nuclear magnetic resonance)
- UV (Ultra-violet visible spectroscopy)

- SEM (Scanning Electron Microscope)
- UPLC (Ultra performance liquid chromatography)
- Centrifuge
- Ultra Centrifuge
- 3 D Bio printer
- 3 D printer
- Sonicator
- Rotary evaporator
- Hot air oven
- Friabletor
- Tablet compression machine
- Disintegrator
- Dissolution machine
- Hardness measuring machine
- Vortex
- Laser cutting
- HPTLC (High performance thin layer Chromatography)
- Texture analyzer
- Cryotome
- Microtome
- Soxhlet technique
- Probe sonicator
- PCR
- Gel Doc
- Thermal mixer
- Cell diffusion apparatus
- Spray dryer
- Lyophilizer
- Peptide synthesizer
- Microfluidizer
- Animal sacrifice and isolation of skin and spleen for testing

Glimpse of some performed experiments:

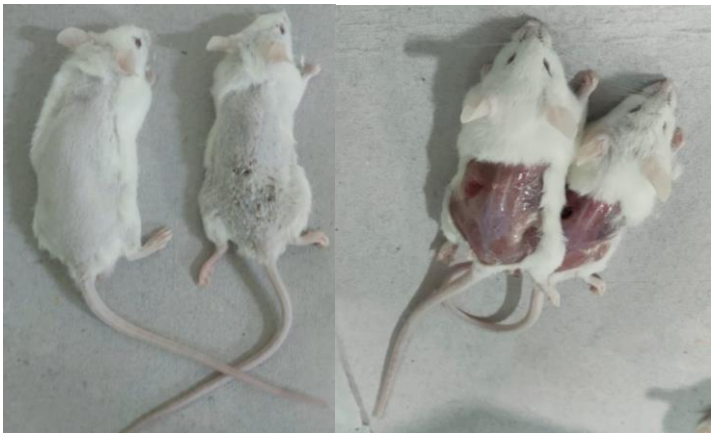


TLC Plates



Reaction mixture

Glimpse of some instruments and demonstrated practices



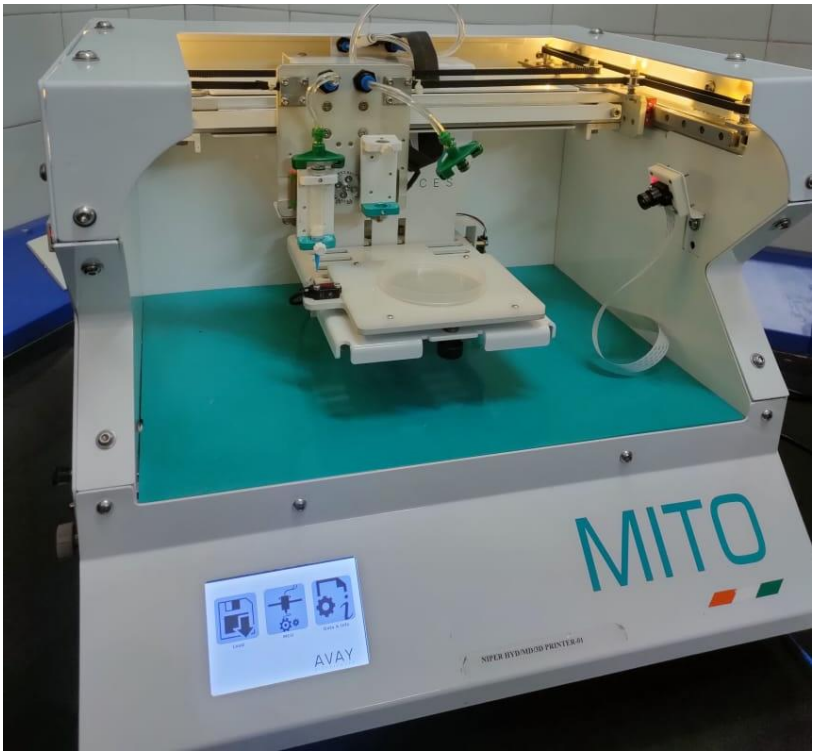
Animal sacrifice for testing of effects of drug

Rota evaporator

NMR (Nuclear magnetic resonance)

HPLC (High pressure liquid chromatography)

SEM (Scanning Electron Microscope)



3-D Bio printer

<u>THANKS WITH REGARDS TO PRINCIPAL MA'AM</u>.

I am very thankful to my principal Dr. Shivangi Mathur for allowing me to attend this Summer Research Internship Programme. She is such a very humble and inspiring person as she motivates the students to attend all these programs as well as webinars and seminars for getting exposure to fields related to our subjects. I am very grateful to have HER as my mentor who is always there for me. She always supports and encourages me to explore new things and motivates me to do new and creative in life. Once again thank you so much Ma'am for giving me such a Great Opportunity to grab informative as well as practical exposure at NIPER, Hyderabad.